EASTLINE PROJECT - 2100 TELEGRAPH

Draft Environmental Impact Report

State Clearinghouse No. 2016122009

Prepared for:

City of Oakland

December 2017

URBAN PLANNING PARTNERS INC.

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Prepared for the City of Oakland

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December 2017

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COMBINED NOTICE OF RELEASE AND AVAILABILITY OF THE DRAFT ENVIRONMENTAL IMPACT REPORT AND NOTICE OF PUBLIC HEARINGS ON THE EASTLINE PROJECT-2100 TELEGRAPH

PROJECT TITLE: **EASTLINE PROJECT-2100 TELEGRAPH**
CASE NO. **ER16-011**
PROJECT SPONSOR: **W/L Telegraph Owner, LLC**

DESCRIPTION OF PROJECT:

The development site (also referred to as project site) encompasses one full city block within downtown Oakland. It is bounded by Telegraph Avenue to the west, 22nd Street to the north, Broadway to the east, and 21st Street to the south. The project site is within one block of the 19th Street Bay Area Rapid Transit District (BART) station, and is located approximately 0.5 miles east of Interstate 980 (I-980). The project site consists of five Alameda County Assessor's Parcels (APN 008-0648-001-00, APN 008-0648-011-03, APN 008-0648-016-03, APN 008-0648-018-00 and APN 008-0648-017-00), as well as a small portion of the 22nd Street right of way on the corner of Telegraph Avenue and 22nd Street.

To allow flexibility for the Eastline project to be responsive to changes in market demands and opportunities, a range of development scenarios are considered in this EIR consistent with the filed Planned Unit Development/Preliminary Development Plan (PUD/PDP). The PUD/PDP includes a proposal to demolish all existing buildings on the project site with a potential range of replacement development options that could include up to 2.8 million square feet of office or 1,556 residential dwelling units or a mix of the two. All development options within the PUD/PDP would include ground floor retail and a large parking garage. Four illustrative development scenarios are programmed in the DEIR: a maximum residential scenario, a maximum office scenario, an office and residential scenario, and an all office scenario.

Approval of a Final Development Plan (FDP) is required subsequent to approval of the PUD/PDP. The FDP shall conform in all major respects with the approved PUD/PDP and provide sufficient detail to indicate fully the ultimate operation and appearance of the development. The FDP that will be built is not yet known, but to ready the site for redevelopment as soon as possible, the development team has submitted two FDPs that are currently under review by the City. The first was submitted in conjunction with the PUD/PDP and is specifically considered throughout this EIR.

- Residential/Office Mix FDP: Up to 880,550 square feet of large floor-plate office, a 365,000-square-foot residential tower (395 units), 85,000 square feet of ground floor retail, 18,500 square feet of community space, and six levels of parking.

Another FDP, the All Office FDP, was developed subsequent to the Residential/Office Mix FDP in response to current downtown market conditions. The All Office FDP is within the "book-ends" established in the PUD/PDP.

- All Office FDP: Up to 1,450,000 square feet of large floor-plate office, 80,000 square feet of ground floor retail, 23,000 square feet of community space, and six levels of parking.

The All Office FDP falls within the scope of the PUD/PDP EIR analysis. In any cases where potentially unique findings may be associated with the All Office FDP development scenario, such cases are described.

The project sponsor anticipates that full buildout of the Eastline project will be less intense than is the maximum allowed under the site's FAR and under the proposed PUD/PDP. However, this EIR analyzes a maximum buildout under the proposed PUD/PDP to provide a comprehensive analysis that will cover subsequent FDP proposals that conform in all major respects with the proposed PUD/PDP. The proposed FDPs both fall within the "book-ends" of the two maximum development scenarios and are consistent with the blended development program included in the PUD/PDP.

ENVIRONMENTAL REVIEW: A Draft Environmental Impact Report (DEIR) was prepared for the project under the requirements of the California Environmental Quality Act (CEQA), pursuant to Public Resources Code Section 21000 *et. seq.* The DEIR analyzes potentially significant environmental impacts in the following environmental categories: Land Use, Cultural Resources, Traffic and Transportation, Air Quality, Greenhouse Gas Emissions, Soils and Geology, Hazardous Materials, Hydrology and Water Quality, Noise and Vibration, Aesthetics, Public Services, Utilities, and Recreation. The Draft EIR identifies significant and unavoidable environmental impacts related to Cultural Resources, Air Quality, and Aesthetics. Copies of the DEIR are available for review or distribution to interested parties at no charge at the Department of Planning and Building, Bureau of Planning, 250 Frank H. Ogawa Plaza, Suite 2114, Oakland, CA 94612, Monday through Friday, 8:30 a.m. to 5:00 p.m. The Draft EIR may also be reviewed at the following website:

http://www2.oaklandnet.com /Government/o/PBN/OurServices/Application/DOWD009157.htm

PUBLIC HEARINGS: The Landmarks Preservation Advisory Board will conduct a public scoping hearing on the Draft EIR for the project on **Monday, January 8, 2018**, at 6:00 p.m. in Sgt. Mark Dunakin Hearing Room 1, City Hall, 1 Frank H. Ogawa Plaza, Oakland, CA 94612.

The City Planning Commission will conduct a public scoping hearing on the Draft EIR for the project on **Wednesday, January 24, 2018**, at 6:00 p.m. in Sgt. Mark Dunakin Hearing Room 1, City Hall, 1 Frank H. Ogawa Plaza, Oakland, CA 94612.

The City of Oakland is hereby releasing this Draft EIR, finding it to be accurate and complete and ready for public review. Members of the public are invited to comment on the EIR and the project. There is no fee for commenting, and all comments received will be considered by the City prior to finalizing the EIR and making a decision on the project. Comments on the Draft EIR should focus on the sufficiency of the EIR in discussing possible impacts on the physical environment, ways in which potential adverse effects might be minimized, and alternatives to the project in light of the EIR's purpose to provide useful and accurate information about such factors. Comments may be made at the public hearing described above or in writing. Please address all written comments to Peterson Vollmann, Planner IV, City of Oakland, Department of Planning and Building, Bureau of Planning, 250 Frank H. Ogawa Plaza, Suite 2114, Oakland, CA 94612; (510) 238-6167(phone); (510) 238-4730(fax) or by e-mail at pvollmann@oaklandnet.com. Comments should be received no later than 4:00 p.m. on February 5, 2018. Please reference case number ER16-011 in all correspondence. If you challenge the environmental document or project in court, you may be limited to raising only those issues raised at the Planning Commission public hearing described above, or in written correspondence received by the Department of Planning and Building on or prior to 4:00 p.m. on February 5, 2018. After all comments are received, a Final EIR will be prepared and the Planning Commission will consider certification of the Final EIR and render a decision/make a recommendation on the project at a later meeting date to be scheduled. For further information, please contact Peterson Vollmann, Planner IV at (510) 238-6167 or at pvollmann@oaklandnet.com.

December 22, 2017
File Number: ER16-011

DARIN RANELLETTI
City of Oakland
Environmental Review Officer

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I. INTRODUCTION

A. PURPOSE OF EIR

In compliance with the California Environmental Quality Act (CEQA), this Draft Environmental Impact Report (EIR) describes the environmental consequences of the proposed Eastline Project – 2100 Telegraph (Eastline project or project). This EIR is designed to inform City staff, the Planning Commission, the City Council, other responsible and interested agencies, and the public about (1) the proposed project and its potential environmental consequences; (2) the Standard Conditions of Approval (SCAs) and mitigation measures necessary to lessen or avoid significant adverse impacts; and (3) a reasonable range of feasible alternatives to the project. The information contained in the EIR will be reviewed and considered by public agencies prior to making a decision to approve, reject, or modify the proposed project.

The City of Oakland (City) is the lead agency for environmental review of the proposed project, and as such has made the Draft EIR available for public review for the period identified in the Notice of Availability (NOA) published with this document. During this public review period, written comments may be submitted to the City Planning Division at the address indicated on the NOA. Responses to all comments received on the environmental analysis in the Draft EIR during the specified review period will be included in the Response to Comments/Final EIR document.

B. PROPOSED PROJECT

The Eastline project seeks to redevelop one full city block within the Uptown District of greater downtown Oakland with a new mixed-use development. Figure I-1 shows the project site in its regional and local context.

The Eastline project site is bounded by Telegraph Avenue to the west, 22^{nd} Street to the north, Broadway to the east, and 21^{st} Street to the south. It is within one block of the 19^{th} Street Bay Area Rapid Transit (BART) station, and is located approximately ½-mile east of Interstate 980 (I-980).

The approximately 140,041-square-foot (3.21-acre) project site comprises five parcels: 1.65-acre parcel (APN 008-0648-016-03), 0.49-acre parcel (APN 008-0648-011-03), 0.43-acre parcel (APN 008-0648-018-00), 0.29-acre parcel (APN 008-0648-017-00), 0.28-acre parcel (APN 008-0648-001-00), and a 0.07-acre portion of the 22^{nd} street right-of-way.

Source: Urban Planning Partners, Google Earth, 2017

Figure I-1
Project Location and Vicinity Map

The two parcels fronting Telegraph Avenue include a two-level City-owned public parking facility (Telegraph Plaza Parking Garage), a vacant fast food restaurant (formerly a Kwik Way), and a portion of the 22nd Street right-of-way. The remaining three parcels, fronting Broadway, contain three 2-story buildings, including 2101 Broadway (currently vacant, originally constructed as a bank), 2127 Broadway (Bank of the West), and 2131-2147 Broadway (a commercial building currently occupied by a mix of tenants). Parcels that comprise the project site are not included on any hazardous waste and substances sites list compiled pursuant to Government Code Section 65962.5.

To allow flexibility for the Eastline project to be responsive to changes in market demands and opportunities, a Planned Unit Development (PUD) approval is proposed and considered in this EIR. A PUD includes two tiers of approval, which are both considered in this EIR:

- **Planned Unit Development/Preliminary Development Plan (PUD/PDP)**. A development framework to guide and regulate redevelopment of the site into an urban mixed-use development with up to 2.8 million square feet, consistent with the site's maximum floor area ratio (FAR) of 20. Four illustrative development scenarios are programmed in the PUD/PDP: a maximum residential scenario, a maximum office scenario, an office and residential scenario, and an all office scenario.
- **Final Development Plan(s) (FDP).** Approval of a FDP is required subsequent to approval of the PUD/PDP. The FDP shall conform in all major respects with the approved PDP and provide sufficient detail to indicate fully the ultimate operation and appearance of the development. The FDP that will be built is not yet known, but to ready the site for redevelopment as soon as possible, the development team has submitted two FDPs that are currently under review by the City.

    - Residential/Office Mix FDP: Up to 880,550 square feet of large floor-plate office, a 365,000-square-foot residential tower (395 units), 85,000 square feet of ground floor retail, 18,500 square feet of community space, and six levels of parking.

    Another FDP was developed and submitted subsequent to the Residential/Office Mix FDP in response to more current downtown market conditions. The All Office FDP is within the "book-ends" established in the PUD/PDP.

    - All Office FDP: Up to 1,450,000 square feet of large floor-plate office, 80,000 square feet of ground floor retail, 22,790 square feet of community space, and six levels of parking.

The Residential/Office Mix FDP was submitted in conjunction with the PUD/PDP and is specifically considered throughout this EIR. The All Office FDP falls within the scope of the PUD/PDP EIR analysis and in any cases where potentially unique findings may be associated with the All Office FDP, such cases are described.

The project sponsor anticipates that full buildout of the Eastline project will be less intense than what is allowed under the site's FAR and the proposed PUD/PDP as the project for CEQA purposes. However, this EIR analyzes a maximum buildout under the proposed PUD/PDP to provide a comprehensive and conservative analysis that will cover subsequent FDP proposals that conform in all major respects with the proposed PUD/PDP. The two currently proposed FDPs fall within the "book-ends" of the two maximum development scenarios and are consistent with the blended development program included in the PUD/PDP.

C. EIR SCOPE

The City of Oakland published and circulated a Notice of Preparation (NOP) on December 2, 2016. The public comment period for the scope of the EIR was December 2, 2016 to January 3, 2017. The NOP was sent to property owners within 300 feet of the project site as well as to responsible and trustee agencies, organizations, and other interested individuals. A copy of the NOP was also sent to the State Clearinghouse.

A project scoping session was held before the Landmarks Preservation Advisory Board on December 12, 2016 and before the Planning Commission on December 21, 2016. NOP comments on a wide range of issues—received from public agencies, area property owners, and concerned citizens—were taken into account during the preparation of this EIR. The resource areas most widely referenced in the NOP comment letters are historic resources and transportation. The NOP and the written public review comments are included in Appendix A. A short description of the non-CEQA topics addressed in the NOP comment letters is contained in *Chapter II, Summary*.

The following environmental topics are addressed in greater detail in Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures, of this EIR:

A. Land Use
B. Cultural and Historical Resources
C. Traffic and Transportation
D. Air Quality
E. Greenhouse Gas Emissions
F. Soils, Geology, and Seismicity
G. Hazards and Hazardous Materials
H. Hydrology and Water Quality
I. Noise and Vibration
J. Aesthetics, Shade and Shadow, and Wind
K. Public Services, Utilities, and Recreation

Chapter VI, Effects Found Not to Be Significant or Less Than Significant with Standard Conditions of Approval, includes a brief analysis of each environmental topics for which effects from the project were found to be either not significant or less than significant through the scoping process and preliminary review. These topics include: Agriculture and Forest Resources; Biological Resources; Mineral Resources; and Population and Housing.

As described above, the project sponsor anticipates that full buildout of the project will be less intense than what is allowed under the site's FAR and would be permitted under the proposed PUD/PDP. However, to fully analyze the PUD/PDP and ensure there is adequate analysis to inform the consideration of the City's approval of the PUD/PDP and any alternate FDP that may be proposed consistent with the PUD/PDP, this EIR provides a comprehensive analysis of the maximum development and associated worst-case impacts that could occur under the PUD/PDP as the project for CEQA purposes. In most cases, the Maximum Office Scenario is the most environmentally impactful under CEQA. As such, the analysis in this EIR focuses on Maximum Office Scenario for all topics where it represents a worst-cases analysis. In a few circumstances (i.e., water supply), the impacts associated with the Maximum Residential Scenario would be greater or substantively different (i.e., shade and shadow) than those associated with the Maximum Office Scenario. In these unique situations, supplemental analysis is provided. Supplemental analysis is also provided when different mitigation measures or level of mitigation may be warranted depending on the development scenario. As an example, a shade and shadow analysis is provided for all development scenarios to ensure the range of potential impacts is fully understood and disclosed and mitigation measures specific to the impact are recommended. In contrast, for topics such as soils, geology, and seismicity and hydrology and water quality, there is no substantial variation in the level of impact or required mitigation measures. As a result, for these topics an analysis or mitigation measures unique to the different development scenarios is not warranted. Whenever the analysis, an impact, or mitigation measure is unique to a specific development scenario, it is clearly specified.

D. REPORT ORGANIZATION

This EIR is organized into the following chapters:

Chapter I – Introduction: Discusses the overall EIR purpose; provides a summary of the proposed project; describes the EIR scope; and summarizes the organization of the EIR.

Chapter II – Summary: Summarizes the impacts that would result from implementation of the proposed project, and describes the SCAs and mitigation measures recommended to avoid or reduce significant impacts.

Chapter III – Project Description: Describes the project objectives, project site, site development history, proposed development, and required approval process.

Chapter IV – Planning Policy: Evaluates the project's consistency with applicable planning documents, such as the General Plan, and identifies potential conflicts.

Chapter V – Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures: Provides analysis of each environmental technical topic: existing conditions (setting), SCAs, significance criteria, potential environmental impacts and their level of significance, SCAs relied upon to ensure that significant impacts would not occur, and mitigation measures recommended when necessary to mitigate identified impacts. Cumulative impacts are also discussed in each technical topic section. Potential adverse impacts are identified by levels of significance, as follows: less-than-significant impact (LTS), significant impact (S), and significant and unavoidable impact (SU). The significance level is identified for each impact before and after implementation of the recommended mitigation measure(s).

CEQA requires the analysis of potential adverse effects of the project on the environment. Potential effects of the environment on the project are **not** legally required to be analyzed or mitigated under CEQA. Nevertheless, this document analyzes the potential effects of the environment on the project in order to provide information to the public and decision-makers. Where a potential significant effect of the environment on the project is identified, the document, as appropriate, identifies City SCAs and/or project-specific non-CEQA recommendations to address these issues.

Chapter VI – Effects Found Not to be Significant or Less Than Significant with Standard Conditions of Approval: Provides a brief analysis of the topic areas found through the NOP scoping process and preliminary analysis to have no impacts or less-than-significant environmental impacts with implementation of the City's SCAs. These topic areas are as follows: Agriculture and Forest Resources; Biological Resources; Mineral Resources; and Population and Housing.

Chapter VII – Alternatives: Evaluates three alternatives to the proposed project. The alternatives are included to meet the CEQA requirement that require an EIR to describe a reasonable range of alternatives to the project that would feasibly attain most of the basic objectives of the project, but that would avoid or substantially lessen any of the significant effects of the project. The CEQA alternatives include the No Project/ No Build Alternative, the Reduced Office Alternative, and the Reduced Building/Preservation Alternative.

Chapter VIII – CEQA-Required Assessment Conclusions: Provides the required analysis of growth-inducing impacts; significant irreversible changes; and significant unavoidable and cumulative impacts. Effects found not to be significant are discussed in *Chapter V*, as noted above.

Chapter IX – Report Preparation: Identifies the preparers of the EIR, references used, and persons and organizations contacted.

Appendices: The appendices include the NOP and written comments received in response to the NOP; technical analyses and data for transportation and air quality and greenhouse gas emissions.

All supporting technical documents and reference documents are available for public review at the City of Oakland Planning and Building Department, under case file ER16-011.

The Draft EIR is available for public review for the period identified in the NOA attached to the front of this document. During this time, written comments on the Draft EIR may be submitted to the City of Oakland Planning and Building Department at the address indicated on the NOA. Responses to all comments received on the environmental analysis in the Draft EIR during the specified review period will be included in the Response to Comments/Final EIR.

II. SUMMARY

A. OVERVIEW OF PROPOSED PROJECT

This Environmental Impact Report (EIR) has been prepared to evaluate the potential environmental effects of the proposed Eastline Project – 2100 Telegraph (Eastline project or project). The approximately 3.21-acre project site is in the Uptown District of greater Downtown Oakland, and is composed of five parcels with the following Assessor's Parcels Numbers: 008-0648-011-03, 008-0648-016-03, 008-0648-018-0, 008-0648-017-00, and 008-0648-001-00. The site encompasses one full city block bounded by Telegraph Avenue to the west, 22nd Street to the north, Broadway to the east, and 21st Street to the south. The project site is within one block of the 19th Street Bay Area Rapid Transit District (BART) Station and approximately ½-mile east of Interstate 980.

Two primary project approvals are considered in this EIR, as follows:

- **Planned Unit Development/Preliminary Development Plan (PUD/PDP)**. A development framework to guide and regulate redevelopment of the site into an urban mixed-use development with up to 2.8 million square feet, consistent with the site's maximum floor area ratio (FAR) of 20. Four illustrative development scenarios are programmed in the PUD/PDP: a maximum residential scenario, a maximum office scenario, an office and residential scenario, and an all office scenario.
- **Final Development Plan(s) (FDP).** Approval of a FDP is required subsequent to approval of the PUD/PDP. The FDP shall conform in all major respects with the approved PDP and provide sufficient detail to indicate fully the ultimate operation and appearance of the development. The FDP that will be built is not yet known, but to ready the site for redevelopment as soon as possible, the development team has submitted two FDPs that are currently under review by the City. The first was submitted in conjunction with the PUD/PDP and is specifically considered throughout this EIR.
  - Residential/Office Mix FDP: Up to 880,550 square feet of large floor-plate office, a 365,000-square-foot residential tower (395 units), 85,000 square feet of ground floor retail, 18,500 square feet of community space, and six levels of parking.

  Another FDP, the All Office FDP, was developed and submitted subsequent to the Residential/Office Mix FDP in response to more current downtown market conditions. The All Office FDP is within the "book-ends" established in the PUD/PDP.

- All Office FDP: Up to 1,450,000 square feet of large floor-plate office, 80,000 square feet of ground floor retail, 22,790 square feet of community space, and six levels of parking.

The All Office FDP falls within the scope of the PUD/PDP EIR analysis and in any cases where potentially unique findings may be associated with this development scenario, such cases are described.

The project sponsor anticipates that full buildout of the Eastline project will be less intense than what is allowed under the site's FAR and the proposed PUD/PDP. However, this EIR analyzes a maximum buildout under the proposed PUD/PDP as the project for CEQA purposes to provide a comprehensive and conservative analysis that will cover subsequent FDP proposals that conform in all major respects with the proposed PUD/PDP. The proposed FDPs fall within the "bookends" of the two maximum development scenarios and are consistent with the blended development program included in the PUD/PDP.

Table II-1 shows the maximum development allowed under current development standards and the maximum development range that would be permitted under the proposed PUD/PDP. The two parcels that front on Telegraph Avenue are in Height Area 6, while the three parcels fronting on Broadway are in Height Area 7.

TABLE II-1 CITY DEVELOPMENT STANDARDS AND PROPOSED PUD/PDP RANGE

	Allowed Development[1]	Proposed PUD/PDP[2]
Floor Area Ratio (FAR)	20	10.53–20
Building Square Feet	2,800,820 sf	1,475,050–2,800,000 sf
Dwelling units (90 sf per lot area per unit)	1,556	395–1,556
Tower Height Area 6	No Limit	413–550 feet
Tower Height Area 7	No Limit	397–920 feet

Note: sf = square feet
Sources: City of Oakland Zoning Code, 2009; Urban Planning Partners, 2017; Gensler, 2016 and 2017.

An overview of the four development scenarios presented in the PUD/PDP is provided in Table II-2.

[1] Based on existing site area of 140,041sf
[2] Based on existing site area of 140,041sf

TABLE II-2 SUMMARY OF PROPOSED PUD/PDP ILLUSTRATIVE DEVELOPMENT SCENARIOS

	Residential		Commercial			
Development Scenario	**Residential Building Area (sf)**	**Dwellings (units)**	**Office Building Area (sf)**	**Retail Building Area**	**Community Space (sf)**	**Parking Levels**
Maximum Residential	1,652,000	1,556	–	99,220	37,150	3
Residential/ Office Mix	**365,000**	395	**880,550**	**85,000**	**18,500**	**6**
All Office	**0**	**0**	**1,450,000**	**80,000**	**22,790**	**6**
Maximum Office	0	0	2,689,000	87,000	0	3
Total Development Range	up to 1,652,000	up to 1,556	up to 2,689,000	80,000–99,220	0–37,150	3–6

Notes: sf = square feet
The development scenarios aligned with the FDPs are presented in **bold**.
Source: Gensler, 2016 and 2017.

B. SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

The summary that follows provides an overview of the analysis contained in *Chapters V* through *VIII* of this EIR. CEQA requires a summary to include discussion of (1) potential areas of controversy; (2) significant impacts, and proposed mitigation measures (Standard Conditions of Approval [SCAs] are also included in this summary); (3) cumulative impacts; (4) significant and unavoidable impacts; and (5) alternatives to the project. Each of these topics is summarized below.

1. Potential Areas of Controversy

Written letters and verbal comments were received by the City regarding the scope of this EIR during the Notice of Preparation (NOP) (dated December 2, 2016) 30-day public comment period. Written comments received are included in Appendix A. Key areas of concern and/or controversy raised in the comments included:

- Effects of increased traffic at and around the project site, and the appropriate guidelines to use when preparing a transportation impact study;
- Consideration of preservation and relocation of a historic building on the project site and/or appropriate mitigations for impacts to historic resources; and

- Potential impacts relating to aesthetic resources, relating to shade and shadow on a nearby plaza.

The issues raised by these comments are addressed in *Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures* and *Chapter VI, Effects Found Not to be Significant or Less Than Significant with Standard Conditions of Approval*. Copies of the NOP and written comments are included in Appendix A.

2. Significant Impacts, Cumulative Impacts, SCAs, and Mitigation Measures

Under CEQA, a significant impact on the environment is defined as "…a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."[1]

As discussed in *Chapter V, Setting, Impacts, Standard Conditions of Approval and Mitigation Measures* and *Chapter VI, Effects Found Not to be Significant or Less Than Significant with Standard Conditions of Approval*, and shown in Table II-3 below, the project would result in several potentially significant impacts. However, all of the impacts identified, with the exception of those related to Cultural and Historical Resources, Air Quality, and Wind, could be mitigated to a less-than-significant level with implementation of the identified SCAs and/or recommended mitigation measures.

Potentially significant impacts that would be reduced to a less-than-significant level are identified for the following topics in this EIR and are fully evaluated in *Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures* of this EIR:

- Cultural and Historical Resources
- Air Quality
- Greenhouse Gas Emissions
- Soils, Geology, and Seismicity
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise and Vibration
- Aesthetics, Shade and Shadow, and Wind

[1] Title 14 of the California Code of Regulations, Section 15382; Public Resources Code Section 21068.

Potentially significant and unavoidable impacts that cannot be mitigated to a less-than-significant level are identified for the following topics in this EIR and are fully evaluated in *Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures* of this EIR:

- Cultural and Historical Resources
- Air Quality for the Maximum Office Scenario
- Wind levels for the Maximum Residential, All Office, and Maximum Office Scenarios

The environmental topics for which the project would result in no impact or a less-than-significant impact are briefly described in *Chapter VI, Effects Found Not to be Significant or Less Than Significant with Standard Conditions of Approval* of this EIR:

- Agriculture and Forest Resources
- Biological Resources
- Mineral Resources
- Population and Housing

Cumulative impacts are discussed in each of the topic sections included in *Chapter V, Setting, Impact, Standard Conditions of Approval and Mitigation Measures*. The project, with the exception of Cultural and Historical Resources, Air Quality, and Wind would not contribute to or be affected by any significant cumulative impacts.

3. Alternatives to the Project

Chapter VII, Alternatives analyzes three alternatives to the project to meet the CEQA requirements for analysis of a reasonable range of project alternatives. The three project alternatives analyzed in *Chapter VII* are as follows:

- **No Project/No Build Alternative,** which assumes that the Eastline project would not be developed. Structures on the existing site would remain in their current state, with no new construction on the project site.
- **Reduced Office Alternative**, which assumes a less dense office project than the Maximum Office Scenario. This alternative would include 1,579,000 square feet of office space and 80,000 square feet of retail space and 1,750 parking spaces.
- **Reduced Building/Preservation Alternative**, which assumes development would occur on the entire site except for the former Kwik Way at 495 22nd Street, considered to be a historic resource, which would be preserved under this alternative. Development would include a 38-level residential tower and an 18-level office tower with ground-floor retail space.

C. SUMMARY TABLE

Information in Table II-3, Summary of Impacts, Standard Conditions of Approval, and Mitigation Measures has been organized to correspond with environmental issues discussed in *Chapter V* and *Chapter VI* of this EIR. The table is arranged in four columns: (1) impacts; (2) level of significance prior to mitigation measures, (3) mitigation measures/SCAs; and (4) level of significance after implementation of SCAs or mitigation measures, which for each topic area except for Cultural and Historical Resources, Air Quality, and Aesthetics, Shade and Shadow, and Wind, is less than significant (LTS). The table also includes an SCA Implementation Measure identified to further implement the SCA. The EIR found that all potentially significant impacts, with the exception of those related to Cultural and Historical Resources, Air Quality, and Wind, would be reduced to a less-than-significant level with implementation of SCAs and mitigation measures. All SCAs and mitigation measures necessary to ensure that no significant impacts would occur are included in Table II-1 for reference. For a complete description of environmental findings and required mitigation measures and SCAs, please refer to the specific discussions in *Chapter V* and *Chapter VI*.

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
A. LAND USE			
Implementation of the project would not result in any significant land use impacts.			
B. CULTURAL AND HISTORICAL RESOURCES			
HIST-1: The project proposes demolition of all buildings in the project site, including a building that could be eligible for the California Register of Historical Resources: 2150 Telegraph Avenue/495 22nd Street.	S	Mitigation Measure HIST-1: The following measures shall be incorporated to diminish this impact: Mitigation Measure HIST-1a: The following measures shall be incorporated to diminish this impact: ▪ Drawings: sketch floor plan of the building and a site plan; ▪ Photographs: photographs taken with large-format negatives of exterior and interior views; and ▪ Written History: a historical report summarizing the history of the building, property description, and historical significance. ▪ A qualified architectural historian meeting the qualifications in the Secretary of the Interior's Professional Qualifications Standards for architectural history shall oversee the preparation of drawings, photographs, and written history. The documentation will be printed on archival paper. Mitigation Measure HIST-1b: Commemoration and Public Interpretation. The project applicant shall prepare a permanent exhibit/display, in coordination with an experienced museum professional, of the history of the building including, but not limited to, historic and current condition photographs, interpretive text, drawings, video, or interactive media. The interpretive display will be placed in a suitable public space in the project site. Mitigation Measure HIST-1c: City of Oakland Façade Improvement Program. The project proponent shall contribute to the City of Oakland's Façade Improvement program. The amount of contribution to the program is based on the following formula: ▪ $10,000 for the first 25 feet of two façades of a building and	SU

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		$2,500 per each 10 additional linear feet of those two same façades beyond 25 feet. ▪ There shall be a 20 percent increase for the buildings designated as Historical Resources under CEQA. ▪ For the purposes of this mitigation, the two façades along 22nd Street and Telegraph Avenue are approximately 50 feet and 25 feet long, respectively. The building appears eligible as a historical resource under CEQA, but is not located in an API. The following calculation results in a total contribution of $26,500: 22nd Street façade: $10,000 + $2,500 x 25/10 feet = $16,250 Telegraph Avenue façade: $10,000 $16,250 + $10,000 = $26,250 CEQA Historical Resource - increase by 20 percent: $26,250 x 1.20 = $31,500. <u>Mitigation Measure HIST-1d</u>: Relocation. The project applicant shall first make funds available for relocating the building. Contingent on plans for relocation, the façade improvement fee as well as demolition cost estimate would be made available by the applicant. If relocation is not feasible, the project applicant shall use commercially reasonable efforts to salvage the Googie-style cubes located above the former Kwik Way (Space Burger) building and the Googie-style awning across the building's main, street-facing façade. The applicant must make available a portion of the total $31,500 façade improvement fee required under Mitigation Measure HIST-1c as a contribution to an individual or group willing to take custody and/or to utilize these Googie–styled architectural elements. Although implementation of Mitigation Measures HIST-1a, HIST-1b, HIST-1c, and HIST-1d would diminish the level of impact to this historical resource as a result of the project, this impact cannot be mitigated to a less-than-significant level, and the impact after mitigation would be significant and unavoidable.	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		SCA-CULT-1: Archaeological and Paleontological Resources – Discovery During Construction. (#29) Requirement: Pursuant to CEQA Guidelines section 15064.5(f), in the event that any historic or prehistoric subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources shall be halted and the project applicant shall notify the City and consult with a qualified archaeologist or paleontologist, as applicable, to assess the significance of the find. In the case of discovery of paleontological resources, the assessment shall be done in accordance with the Society of Vertebrate Paleontology standards. If any find is determined to be significant, appropriate avoidance measures recommended by the consultant and approved by the City must be followed unless avoidance is determined unnecessary or infeasible by the City. Feasibility of avoidance shall be determined with consideration of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery, excavation) shall be instituted. Work may proceed on other parts of the project site while measures for the cultural resources are implemented. In the event of data recovery of archaeological resources, the project applicant shall submit an Archaeological Research Design and Treatment Plan (ARDTP) prepared by a qualified archaeologist for review and approval by the City. The ARDTP is required to identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. The ARDTP shall identify the scientific/historic research questions applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. The ARDTP shall include the analysis and specify the curation and storage methods. Data recovery, in general, shall be limited to the portions of the archaeological resource that could be impacted by the proposed project. Destructive data recovery methods shall not be applied to portions of the archaeological resources	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		if nondestructive methods are practicable. Because the intent of the ARDTP is to save as much of the archaeological resource as possible, including moving the resource, if feasible, preparation and implementation of the ARDTP would reduce the potential adverse impact to less than significant. The project applicant shall implement the ARDTP at his/her expense. In the event of excavation of paleontological resources, the project applicant shall submit an excavation plan prepared by a qualified paleontologist to the City for review and approval. All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and/or a report prepared by a qualified paleontologist, as appropriate, according to current professional standards and at the expense of the project applicant. When Required: During construction. Initial Approval: N/A Monitoring/Inspection: Bureau of Building **SCA-CULT-2: Archaeologically Sensitive Areas – Pre-Construction Measures (#30)** Requirement: The project applicant shall implement either Provision A (Intensive Pre-Construction Study) or Provision B (Construction ALERT Sheet) concerning archaeological resources. **Provision A: Intensive Pre-Construction Study** The project applicant shall retain a qualified archaeologist to conduct a site-specific, intensive archaeological resources study for review and approval by the City prior to soil-disturbing activities occurring on the project site. The purpose of the site-specific, intensive archaeological resources study is to identify early the potential presence of history-period archaeological resources on the project site. At a minimum, the study shall include: a) Subsurface presence/absence studies of the project site. Field studies may include, but are not limited to, auguring and other	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		common methods used to identify the presence of archaeological resources. b) A report disseminating the results of this research. c) Recommendations for any additional measures that could be necessary to mitigate any adverse impacts to recorded and/or inadvertently discovered cultural resources. If the results of the study indicate a high potential presence of historic-period archaeological resources on the project site, or a potential resource is discovered, the project applicant shall hire a qualified archaeologist to monitor any ground disturbing activities on the project site during construction and prepare an ALERT sheet pursuant to Provision B below that details what could potentially be found at the project site. Archaeological monitoring would include briefing construction personnel about the type of artifacts that may be present (as referenced in the ALERT sheet, required per Provision B below) and the procedures to follow if any artifacts are encountered, field recording and sampling in accordance with the Secretary of Interior's Standards and Guidelines for Archaeological Documentation, notifying the appropriate officials if human remains or cultural resources are discovered, and preparing a report to document negative findings after construction is completed if no archaeological resources are discovered during construction. **Provision B: Construction ALERT Sheet** The project applicant shall prepare a construction "ALERT" sheet developed by a qualified archaeologist for review and approval by the City prior to soil-disturbing activities occurring on the project site. The ALERT sheet shall contain, at a minimum, visuals that depict each type of artifact that could be encountered on the project site. Training by the qualified archaeologist shall be provided to the project's prime contractor, any project subcontractor firms (including demolition, excavation, grading, foundation, and pile driving), and utility firms involved in soil-disturbing activities within the project site.	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		The ALERT sheet shall state, in addition to the basic archaeological resource protection measures contained in other standard conditions of approval, all work must stop and the City's Environmental Review Officer contacted in the event of discovery of the following cultural materials: concentrations of shellfish remains; evidence of fire (ashes, charcoal, burnt earth, fire-cracked rocks); concentrations of bones; recognizable Native American artifacts (arrowheads, shell beads, stone mortars [bowls], humanly shaped rock); building foundation remains; trash pits, privies (outhouse holes); floor remains; wells; concentrations of bottles, broken dishes, shoes, buttons, cut animal bones, hardware, household items, barrels, etc.; thick layers of burned building debris (charcoal, nails, fused glass, burned plaster, burned dishes); wood structural remains (building, ship, wharf); clay roof/floor tiles; stone walls or footings; or gravestones. Prior to any soil-disturbing activities, each contractor shall be responsible for ensuring that the ALERT sheet is circulated to all field personnel, including machine operators, field crew, pile drivers, and supervisory personnel. The ALERT sheet shall also be posted in a visible location at the project site. When Required: Prior to approval of construction-related permit; during construction Initial Approval: Bureau of Building Monitoring/Inspection: Bureau of Building	
		SCA-CULT-3: Human Remains – Discovery During Construction (#31) Requirement: Pursuant to CEQA Guidelines section 15064.5(e)(1), in the event that human skeletal remains are uncovered at the project site during construction activities, all work shall immediately halt and the project applicant shall notify the City and the Alameda County Coroner. If the County Coroner determines that an investigation of the cause of death is required or that the remains are Native American, all work shall cease within 50 feet of the remains until appropriate arrangements are made. In the event that the remains are Native American, the City shall contact the California Native American Heritage Commission (NAHC),	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		pursuant to subdivision (c) of section 7050.5 of the California Health and Safety Code. If the agencies determine that avoidance is not feasible, then an alternative plan shall be prepared with specific steps and timeframe required to resume construction activities. Monitoring, data recovery, determination of significance, and avoidance measures (if applicable) shall be completed expeditiously and at the expense of the project applicant. When Required: During construction Initial Approval: N/A Monitoring/Inspection: Bureau of Building	
		SCA-CULT-4: Property Relocation Rather than Demolition (#32) Requirement: Pursuant to Policy 3.7 of the Historic Preservation Element of the Oakland General Plan, the project applicant shall make a good faith effort to relocate the historic resource to a site acceptable to the City. A good faith effort includes, at a minimum, all of the following: a. Advertising the availability of the building by: (1) posting of large visible signs (such as banners, at a minimum of 3' x 6' size or larger) at the site; (2) placement of advertisements in Bay Area news media acceptable to the City; and (3) contacting neighborhood associations and for-profit and not-for-profit housing and preservation organizations; b. Maintaining a log of all the good faith efforts and submitting that along with photos of the subject building showing the large signs (banners) to the City; c. Maintaining the signs and advertising in place for a minimum of 90 days; and d. Making the building available at no or nominal cost (the amount to be reviewed by the Oakland Cultural Heritage Survey) until removal is necessary for construction of a replacement project, but in no case for less than a period of 90 days after such advertisement. When Required: Prior to approval of construction-related permit Initial Approval: Bureau of Planning (including Oakland Cultural	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		Resource Survey) Monitoring/Inspection: N/A	
C. TRAFFIC AND TRANSPORTATION			
Implementation of the project would not result in any significant impacts related to transportation, however, the following City SCAs apply.	S	**SCA-TRANS-1: Construction Activity in the Public Right-of-Way (#68)** ***a. Obstruction Permit Required*** Requirement: The project applicant shall obtain an obstruction permit from the City prior to placing any temporary construction-related obstruction in the public right-of-way, including City streets and sidewalks. When Required: Prior to approval of construction-related permit Initial Approval: Bureau of Building Monitoring/Inspection: Bureau of Building ***b. Traffic Control Plan Required*** Requirement: In the event of obstructions to vehicle or bicycle travel lanes, the project applicant shall submit a Traffic Control Plan to the City for review and approval prior to obtaining an obstruction permit. The project applicant shall submit evidence of City approval of the Traffic Control Plan with the application for an obstruction permit. The Traffic Control Plan shall contain a set of comprehensive traffic control measures for auto, transit, bicycle, and pedestrian detours, including detour signs if required, lane closure procedures, signs, cones for drivers, and designated construction access routes. The project applicant shall implement the approved Plan during construction. When Required: Prior to approval of construction-related permit Initial Approval Public Works Department, Transportation Services Division Monitoring/Inspection: Bureau of Building ***c. Repair of City Streets*** Requirement: The project applicant shall repair any damage to the public right-of way, including streets and sidewalks caused by project	LTS

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		construction at his/her expense within one week of the occurrence of the damage (or excessive wear), unless further damage/excessive wear may continue; in such case, repair shall occur prior to approval of the final inspection of the construction-related permit. All damage that is a threat to public health or safety shall be repaired immediately. When Required: Prior to building permit final Initial Approval: N/A Monitoring/Inspection: Bureau of Building **SCA-TRANS-2: Bicycle Parking (#69)** Requirement: The project applicant shall comply with the City of Oakland Bicycle Parking Requirements (Chapter 17.118 of the Oakland Planning Code). The project drawings submitted for construction-related permits shall demonstrate compliance with the requirements. When Required: Prior to approval of construction-related permit Initial Approval: Bureau of Planning Monitoring/Inspection: Bureau of Building **SCA-TRANS-3: Transportation Improvements (#70)** Requirement: The project applicant shall implement the recommended on- and off-site transportation-related improvements contained within the Transportation Impact Study for the project (e.g., signal timing adjustments, restriping, signalization, traffic control devices, roadway reconfigurations, and pedestrian and bicyclist amenities). The project applicant is responsible for funding and installing the improvements, and shall obtain all necessary permits and approvals from the City and/or other applicable regulatory agencies such as, but not limited to, Caltrans (for improvements related to Caltrans facilities) and the California Public Utilities Commission (for improvements related to railroad crossings), prior to installing the improvements. To implement this measure for intersection modifications, the project applicant shall submit Plans, Specifications, and Estimates (PS&E) to the City for review and approval. All elements shall be designed to applicable City	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		standards in effect at the time of construction and all new or upgraded signals shall include these enhancements as required by the City. All other facilities supporting vehicle travel and alternative modes through the intersection shall be brought up to both City standards and ADA standards (according to Federal and State Access Board guidelines) at the time of construction. Current City Standards call for, among other items, the elements listed below: a. 2070L Type Controller with cabinet accessory b. GPS communication (clock) c. Accessible pedestrian crosswalks according to Federal and State Access Board guidelines with signals (audible and tactile) d. Countdown pedestrian head module switch out e. City Standard ADA wheelchair ramps f. Video detection on existing (or new, if required) g. Mast arm poles, full activation (where applicable) h. Polara Push buttons (full activation) i. Bicycle detection (full activation) j. Pull boxes k. Signal interconnect and communication with trenching (where applicable), or through existing conduit (where applicable), 600 feet maximum l. Conduit replacement contingency m. Fiber switch n. PTZ camera (where applicable) o. Transit Signal Priority (TSP) equipment consistent with other signals along corridor p. Signal timing plans for the signals in the coordination group <u>When Required</u>: Prior to building permit final or as otherwise specified <u>Initial Approval</u>: Bureau of Building; Public Works Department, Transportation Services Division <u>Monitoring/Inspection</u>: Bureau of Building	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		SCA-TRANS-4: Transportation and Parking Demand Management (#71) ***a. Transportation and Parking Demand Management (TDM) Plan Required*** <u>Requirement</u>: The project applicant shall submit a Transportation and Parking Demand Management (TDM) Plan for review and approval by the City. i. The goals of the TDM Plan shall be the following: ▪ Reduce vehicle traffic and parking demand generated by the project to the maximum extent practicable, consistent with the potential traffic and parking impacts of the project. ▪ Achieve the following project vehicle trip reductions (VTR): • Projects generating 50-99 net new AM or PM peak hour vehicle trips: 10 percent VTR • Projects generating 100 or more net new AM or PM peak hour vehicle trips: 20 percent VTR ▪ Increase pedestrian, bicycle, transit, and carpool/vanpool modes of travel. All four modes of travel shall be considered, as appropriate. ▪ Enhance the City's transportation system, consistent with City policies and programs. ii. TDM strategies to consider include, but are not limited to, the following: ▪ Inclusion of additional long-term and short-term bicycle parking that meets the design standards set forth in Chapter 5 of the Bicycle Master Plan and the Bicycle Parking Ordinance (Chapter 17.117 of the Oakland Planning Code), and shower and locker facilities in commercial developments that exceed the requirement. ▪ Construction of and/or access to bikeways per the Bicycle Master Plan; construction of priority bikeways, on-site signage and bike	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		lane striping. ▪ Installation of safety elements per the Pedestrian Master Plan (such as crosswalk striping, curb ramps, count down signals, bulb outs, etc.) to encourage convenient and safe crossing at arterials, in addition to safety elements required to address safety impacts of the project. ▪ Installation of amenities such as lighting, street trees, and trash receptacles per the Pedestrian Master Plan and any applicable streetscape plan. ▪ Construction and development of transit stops/shelters, pedestrian access, way finding signage, and lighting around transit stops per transit agency plans or negotiated improvements. ▪ Direct on-site sales of transit passes purchased and sold at a bulk group rate (through programs such as AC Transit Easy Pass or a similar program through another transit agency). ▪ Provision of a transit subsidy to employees or residents, determined by the project applicant and subject to review by the City, if employees or residents use transit or commute by other alternative modes. ▪ Provision of an ongoing contribution to transit service to the area between the project and nearest mass transit station prioritized as follows: 1) Contribution to AC Transit bus service; 2) Contribution to an existing area shuttle service; and 3) Establishment of new shuttle service. The amount of contribution (for any of the above scenarios) would be based upon the cost of establishing new shuttle service (Scenario 3). ▪ Guaranteed ride home program for employees, either through 511.org or through separate program. ▪ Pre-tax commuter benefits (commuter checks) for employees. ▪ Free designated parking spaces for on-site car-sharing program (such as City Car Share, Zip Car, etc.) and/or car-share	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		membership for employees or tenants. ▪ On-site carpooling and/or vanpool program that includes preferential (discounted or free) parking for carpools and vanpools. ▪ Distribution of information concerning alternative transportation options. ▪ Parking spaces sold/leased separately for residential units. Charge employees for parking, or provide a cash incentive or transit pass alternative to a free parking space in commercial properties. ▪ Parking management strategies including attendant/valet parking and shared parking spaces. ▪ Requiring tenants to provide opportunities and the ability to work off-site. ▪ Allow employees or residents to adjust their work schedule in order to complete the basic work requirement of five 8-hour workdays by adjusting their schedule to reduce vehicle trips to the worksite (e.g., working four 10-hour days; allowing employees to work from home 2 days per week). ▪ Provide or require tenants to provide employees with staggered work hours involving a shift in the set work hours of all employees at the workplace or flexible work hours involving individually determined work hours. The TDM Plan shall indicate the estimated VTR for each strategy, based on published research or guidelines where feasible. For TDM Plans containing ongoing operational VTR strategies, the Plan shall include an ongoing monitoring and enforcement program to ensure the Plan is implemented on an ongoing basis during project operation. If an annual compliance report is required, as explained below, the TDM Plan shall also specify the topics to be addressed in the annual report. When Required: Prior to approval of construction-related permit	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		Initial Approval: Bureau of Planning Monitoring/Inspection: N/A ***b. TDM Implementation – Physical Improvements*** Requirement: For VTR strategies involving physical improvements, the project applicant shall obtain the necessary permits/approvals from the City and install the improvements prior to the completion of the project. When Required: Prior to building permit final Initial Approval: Bureau of Building Monitoring/Inspection: Bureau of Building ***c. TDM Implementation – Operational Strategies*** Requirement: For projects that generate 100 or more net new AM or PM peak hour vehicle trips and contain ongoing operational VTR strategies, the project applicant shall submit an annual compliance report for the first 5 years following completion of the project (or completion of each phase for phased projects) for review and approval by the City. The annual report shall document the status and effectiveness of the TDM program, including the actual VTR achieved by the project during operation. If deemed necessary, the City may elect to have a peer review consultant, paid for by the project applicant, review the annual report. If timely reports are not submitted and/or the annual reports indicate that the project applicant has failed to implement the TDM Plan, the project will be considered in violation of the Conditions of Approval and the City may initiate enforcement action as provided for in these Conditions of Approval. The project shall not be considered in violation of this Condition if the TDM Plan is implemented but the VTR goal is not achieved. When Required: Ongoing Initial Approval: Bureau of Planning Monitoring/Inspection: Bureau of Planning	
D. AIR QUALITY			

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
AIR-1: Operation of the project, under the Maximum Office Scenario, would generate criteria air pollutants that could violate an air quality standard or contribute substantially to an existing or projected air quality violation.	S	No SCA or mitigation measure would apply. The City's Green Building Code would help minimize this impact but there are no additional feasible mitigations to reduce the impact.	SU
No significant construction period impacts related to air quality under all project scenarios and no significant operation period impacts related to air quality under the Residential/Office Mix Scenario, All Office Scenario, and Maximum Residential Scenario would occur with implementation of the City SCAs listed in this table.		**SCA-AIR-1: Construction-Related Air Pollution Controls (Dust and Equipment Emissions) (#19)** Requirement: The project applicant shall implement all of the following applicable air pollution control measures during construction of the project: **Enhanced Controls** a) Water all exposed surfaces of active construction areas at least twice daily. Watering should be sufficient to prevent airborne dust from leaving the site. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water should be used whenever feasible. b) Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer). c) All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. d) Pave all roadways, driveways, sidewalks, etc. within one month of site grading or as soon as feasible. In addition, building pads should be laid within one month of grading or as soon as feasible unless seeding or soil binders are used. e) Enclose, cover, water twice daily, or apply (non-toxic) soil stabilizers to exposed stockpiles (dirt, sand, etc.). f) Limit vehicle speeds on unpaved roads to 15 miles per hour. g) Idling times on all diesel-fueled commercial vehicles over 10,000	LTS

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		lbs. shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485, of the California Code of Regulations). Clear signage to this effect shall be provided for construction workers at all access points. h) Idling times on all diesel-fueled off-road vehicles over 25 horsepower shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes and fleet operators must develop a written policy as required by Title 23, Section 2449, of the California Code of Regulations ("California Air Resources Board Off-Road Diesel Regulations"). i) All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. j) Portable equipment shall be powered by electricity if available. If electricity is not available, propane or natural gas shall be used if feasible. Diesel engines shall only be used if electricity is not available and it is not feasible to use propane or natural gas. k) All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe. l) All excavation, grading, and demolition activities shall be suspended when average wind speeds exceed 20 mph. m) Install sandbags or other erosion control measures to prevent silt runoff to public roadways. n) Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for one month or more). o) Designate a person or persons to monitor the dust control program	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holidays and weekend periods when work may not be in progress. p) Install appropriate wind breaks (e.g., trees, fences) on the windward side(s) of actively disturbed areas of the construction site to minimize wind blown dust. Wind breaks must have a maximum 50 percent air porosity. q) Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established. r) Activities such as excavation, grading, and other ground-disturbing construction activities shall be phased to minimize the amount of disturbed surface area at any one time. s) All trucks and equipment, including tires, shall be washed off prior to leaving the site. t) Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel. u) All equipment to be used on the construction site and subject to the requirements of Title 13, Section 2449, of the California Code of Regulations ("California Air Resources Board Off-Road Diesel Regulations") must meet emissions and performance requirements one year in advance of any fleet deadlines. Upon request by the City, the project applicant shall provide written documentation that fleet requirements have been met. v) Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., BAAQMD Regulation 8, Rule 3: Architectural Coatings). w) All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of NOx and PM. x) Off-road heavy diesel engines shall meet the California Air Resources Board's most recent certification standard.	

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Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		y) Post a publicly-visible large on-site sign that includes the contact name and phone number for the project complaint manager responsible for responding to dust complaints and the telephone numbers of the City's Code Enforcement unit and the Bay Area Air Quality Management District. When contacted, the project complaint manager shall respond and take corrective action within 48 hours. When Required: During construction Initial Approval: N/A Monitoring/Inspection: Building Services Division	
		SCA-AIR-2: Exposure to Air Pollution (Toxic Air Contaminants) (#20) **Health Risk Reduction Measures** Requirement: The project applicant shall incorporate appropriate measures into the project design in order to reduce the potential health risk due to exposure to toxic air contaminants. The project applicant shall choose one of the following methods: i. The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with California Air Resources Board (CARB) and Office of Environmental Health and Hazard Assessment requirements to determine the health risk of exposure of project residents/occupants/users to air pollutants. The HRA shall be submitted to the City for review and approval. If the HRA concludes that the health risk is at or below acceptable levels, then health risk reduction measures are not required. If the HRA concludes that the health risk exceeds acceptable levels, health risk reduction measures shall be identified to reduce the health risk to acceptable levels. Identified risk reduction measures shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City. ii. The project applicant shall incorporate the following health risk reduction measures into the project. These features shall be	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City: ▪ Installation of air filtration to reduce cancer risks and Particulate Matter exposure for residents and other sensitive populations in the project that are in close proximity to sources of air pollution. Air filter devices shall be rated MERV-13 [insert MERV-16 for projects located in the West Oakland Specific Plan area] or higher. As part of implementing this measure, an ongoing maintenance plan for the building's HVAC air filtration system shall be required. ▪ Where appropriate, install passive electrostatic filtering systems, especially those with low air velocities (i.e., 1 mph). ▪ Phasing of residential developments when proposed within 500 feet of freeways such that homes nearest the freeway are built last, if feasible. ▪ The project shall be designed to locate sensitive receptors as far away as feasible from the source(s) of air pollution. Operable windows, balconies, and building air intakes shall be located as far away from these sources as feasible. If near a distribution center, residents shall be located as far away as feasible from a loading dock or where trucks concentrate to deliver goods. ▪ Sensitive receptors shall be located on the upper floors of buildings, if feasible. ▪ Planting trees and/or vegetation between sensitive receptors and pollution source, if feasible. Trees that are best suited to trapping PM shall be planted, including one or more of the following: Pine (Pinus nigra var. maritima), Cypress (X Cupressocyparis leylandii), Hybrid popular (Populus deltoids X trichocarpa), and Redwood (Sequoia sempervirens). ▪ Sensitive receptors shall be located as far away from truck activity areas, such as loading docks and delivery areas, as feasible.	

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Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		▪ Existing and new diesel generators shall meet CARB's Tier 4 emissions standards, if feasible. ▪ Emissions from diesel trucks shall be reduced through implementing the following measures, if feasible: • Installing electrical hook-ups for diesel trucks at loading docks. • Requiring trucks to use Transportation Refrigeration Units (TRU) that meet Tier 4 emission standards. • Requiring truck-intensive projects to use advanced exhaust technology (e.g., hybrid) or alternative fuels. • Prohibiting trucks from idling for more than two minutes. • Establishing truck routes to avoid sensitive receptors in the project. A truck route program, along with truck calming, parking, and delivery restrictions, shall be implemented. When Required: Prior to approval of construction-related permit Initial Approval: Planning and Zoning Division Monitoring/Inspection: Building Services Division **Maintenance of Health Risk Reduction Measures** Requirement: The project applicant shall maintain, repair, and/or replace installed health risk reduction measures, including but not limited to the HVAC system (if applicable), on an ongoing and as-needed basis. Prior to occupancy, the project applicant shall prepare and then distribute to the building manager/operator an operation and maintenance manual for the HVAC system and filter including the maintenance and replacement schedule for the filter. When Required: Ongoing Initial Approval: N/A Monitoring/Inspection: Building Services Division **SCA-AIR-3: Stationary Sources of Air Pollution (Toxic Air Contaminants) (#21)** Requirement: The project applicant shall incorporate appropriate	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		measures into the project design in order to reduce the potential health risk due to on-site stationary sources of toxic air contaminants. The project applicant shall choose one of the following methods: i. The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with California Air Resources Board (CARB) and Office of Environmental Health and Hazard Assessment requirements to determine the health risk associated with proposed stationary sources of pollution in the project. The HRA shall be submitted to the City for review and approval. If the HRA concludes that the health risk is at or below acceptable levels, then health risk reduction measures are not required. If the HRA concludes the health risk exceeds acceptable levels, health risk reduction measures shall be identified to reduce the health risk to acceptable levels. Identified risk reduction measures shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City. ii. The project applicant shall incorporate the following health risk reduction measures into the project. These features shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City: • Installation of non-diesel fueled generators, if feasible, or; • Installation of diesel generators with an EPA-certified Tier 4 engine or engines that are retrofitted with a CARB Level 3 Verified Diesel Emissions Control Strategy, if feasible. When Required: Prior to approval of construction-related permit Initial Approval: Planning and Zoning Division Monitoring/Inspection: Building Services Division **SCA-AIR-4: Asbestos in Structures (#23)** Requirement: The project applicant shall comply with all applicable laws and regulations regarding demolition and renovation of Asbestos Containing Materials (ACM), including but not limited to California Code	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		of Regulations, Title 8; California Business and Professions Code, Division 3; California Health and Safety Code sections 25915-25919.7; and Bay Area Air Quality Management District, Regulation 11, Rule 2, as may be amended. Evidence of compliance shall be submitted to the City upon request. When Required: Prior to approval of construction-related permit Initial Approval: Applicable regulatory agency with jurisdiction Monitoring/Inspection: Applicable regulatory agency with jurisdiction **SCA-TRANS-4: Transportation and Parking Demand Management (#71)** *See SCA-TRANS-4 above.*	
E. GREENHOUSE GAS EMISSIONS			
No significant impacts to greenhouse gas emissions would occur with implementation of the City's SCAs listed in this table.		**SCA-GHG-1: Greenhouse Gas (GHG) Reduction Plan (#38)** ***a. Greenhouse Gas (GHG) Reduction Plan Required*** Requirement: The project applicant shall retain a qualified air quality consultant to develop a Greenhouse Gas (GHG) Reduction Plan for City review and approval and shall implement the approved GHG Reduction Plan. The requirement for a Greenhouse Gas Reduction Plan**,** would apply under any of the following scenarios: **Scenario A:** Projects which (a) involve a land use development (i.e., a project that does not require a permit from the Bay Area Air Quality Management District (BAAQMD) to operate), (b) exceed the greenhouse gas (GHG) emissions screening criteria contained in the BAAQMD CEQA Guidelines, AND (c) after a GHG analysis is prepared would produce total GHG emissions of more than 1,100 metric tons of CO_2e annually AND more than 4.6 metric tons of CO_2e per service population annually (with "service population" defined as the total number of employees and residents of the project).	LTS

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		Scenario B: Projects which (a) involve a land use development, (b) exceed the GHG emissions screening criteria contained in the BAAQMD CEQA Guidelines, (c) after a GHG analysis is prepared would exceed <u>at least one</u> of the BAAQMD Thresholds of Significance (more than 1,100 metric tons of CO_2e annually <u>OR</u> more than 4.6 metric tons of CO_2e per service population annually), <u>AND</u> (d) are considered to be "Very Large Projects." **Scenario C:** Projects which (a) involve a stationary source of GHG (i.e., a project that requires a permit from BAAQMD to operate) <u>AND</u> (b) after a GHG analysis is prepared would produce total GHG emissions of more than 10,000 metric tons of CO_2e annually. The goal of the GHG Reduction Plan shall be to increase energy efficiency and reduce GHG emissions to below at least one of the Bay Area Quality Management District's (BAAQMD's) CEQA Thresholds of Significance (1,100 metric tons of CO2e per year or 4.6 metric tons of CO2e per year per service population) AND to reduce GHG emissions by 36 percent below the project's "business-as usual" scenario (as explained below) to help achieve the City's goal of reducing GHG emissions. The GHG Reduction Plan shall include, at a minimum, (a) a detailed GHG emissions inventory for the project under a "business-as-usual" scenario with no consideration of project design features, or other energy efficiencies, (b) an "adjusted" baseline GHG emissions inventory for the project, taking into consideration energy efficiencies included as part of the project (including the City's Standard Conditions of Approval, proposed mitigation measures, project design features, and other City requirements), (c) a comprehensive set of quantified additional GHG reduction measures available to further reduce GHG emissions beyond the adjusted GHG emissions, and (d) requirements for ongoing monitoring and reporting to demonstrate that the additional GHG reduction measures are being implemented. If the project is to be constructed in phases, the GHG Reduction Plan shall provide GHG emissions scenarios by phase.	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		Potential GHG reduction measures to be considered include, but are not be limited to, measures recommended in BAAQMD's latest CEQA Air Quality Guidelines, the California Air Resources Board Scoping Plan (December 2008, as may be revised), the California Air Pollution Control Officers Association (CAPCOA) Quantifying Greenhouse Gas Mitigation Measures (August 2010, as may be revised), the California Attorney General's website, and Reference Guides on Leadership in Energy and Environmental Design (LEED) published by the U.S. Green Building Council. The types of allowable GHG reduction measures include the following (listed in order of City preference): (1) physical design features; (2) operational features; and (3) the payment of fees to fund GHG-reducing programs (i.e., the purchase of "carbon credits") as explained below. The allowable locations of the GHG reduction measures include the following (listed in order of City preference): (1) the project site; (2) off site within the city of Oakland; (3) off site within the SFBAAB; (4) off site within the state of California; then (5) elsewhere in the U.S. As with preferred locations for the implementation of all GHG reductions measures, the preference for carbon credit purchases include those that can be achieved as follows (listed in order of City preference): (1) within the city of Oakland; (2) within the SFBAAB; (3) within the state of California; then (4) elsewhere in the U.S. The cost of carbon credit purchases shall be based on current market value at the time purchased and shall be based on the project's operational emissions estimated in the GHG Reduction Plan or subsequent approved emissions inventory, which may result in emissions that are higher or lower than those estimated in the GHG Reduction Plan. For physical GHG reduction measures to be incorporated into the design of the project, the measures shall be included on the drawings submitted for construction-related permits. When Required: Prior to approval of construction-related permit	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		Initial Approval: Bureau of Planning Monitoring/Inspection: N/A ***b. GHG Reduction Plan Implementation During Construction*** Requirement: The project applicant shall implement the GHG Reduction Plan during construction of the project. For physical GHG reduction measures to be incorporated into the design of the project, the measures shall be implemented during construction. For physical GHG reduction measures to be incorporated into off-site projects, the project applicant shall obtain all necessary permits/approvals and the measures shall be included on drawings and submitted to the City Planning Director or his/her designee for review and approval. These off-site improvements shall be installed prior to completion of the subject project (or prior to completion of the project phase for phased projects). For GHG reduction measures involving the purchase of carbon credits, evidence of the payment/purchase shall be submitted to the City for review and approval prior to completion of the project (or prior to completion of the project phase, for phased projects). When Required: During construction Initial Approval: Bureau of Planning Monitoring/Inspection: Bureau of Building ***c. GHG Reduction Plan Implementation After Construction*** Requirement: The project applicant shall implement the GHG Reduction Plan after construction of the project (or at the completion of the project phase for phased projects). For operational GHG reduction measures to be incorporated into the project or off-site projects, the measures shall be implemented on an indefinite and ongoing basis. The project applicant shall satisfy the following requirements for ongoing monitoring and reporting to demonstrate that the additional GHG reduction measures are being implemented. The GHG Reduction Plan requires regular periodic evaluation over the life of the project (generally estimated to be at least 40 years) to determine how the Plan	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		is achieving required GHG emissions reductions over time, as well as the efficacy of the specific additional GHG reduction measures identified in the Plan. **Annual Report.** Implementation of the GHG reduction measures and related requirements shall be ensured through compliance with Conditions of Approval adopted for the project. Generally, starting two years after the City issues the first Certificate of Occupancy for the project, the project applicant shall prepare each year of the useful life of the project an Annual GHG Emissions Reduction Report ("Annual Report"), for review and approval by the City Planning Director or his/her designee. The Annual Report shall be submitted to an independent reviewer of the City's choosing, to be paid for by the project applicant. The Annual Report shall summarize the project's implementation of GHG reduction measures over the preceding year, intended upcoming changes, compliance with the conditions of the Plan, and include a brief summary of the previous year's Annual Report results (starting the second year). The Annual Report shall include a comparison of annual project emissions to the baseline emissions reported in the GHG Plan. The GHG Reduction Plan shall be considered fully attained when project emissions are less than either applicable numeric BAAQMD CEQA Thresholds AND GHG emissions are 36 percent below the project's "adjusted" baseline GHG emissions, as confirmed by the City through an established monitoring program. Monitoring and reporting activities will continue at the City's discretion, as discussed below. **Corrective Procedure.** If the third Annual Report, or any report thereafter, indicates that, in spite of the implementation of the GHG Reduction Plan, the project is not achieving the GHG reduction goal, the project applicant shall prepare a report for City review and approval, which proposes additional or revised GHG measures to better achieve the GHG emissions reduction goals, including without limitation, a	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		discussion on the feasibility and effectiveness of the menu of other additional measures ("Corrective GHG Action Plan"). The project applicant shall then implement the approved Corrective GHG Action Plan. If, one year after the Corrective GHG Action Plan is implemented, the required GHG emissions reduction target is still not being achieved, or if the project applicant fails to submit a report at the times described above, or if the reports do not meet City requirements outlined above, the City may, in addition to its other remedies, (a) assess the project applicant a financial penalty based upon actual percentage reduction in GHG emissions as compared to the percent reduction in GHG emissions established in the GHG Reduction Plan; or (b) refer the matter to the City Planning Commission for scheduling of a compliance hearing to determine whether the project's approvals should be revoked, altered or additional conditions of approval imposed. The penalty as described in (a) above shall be determined by the City Planning Director or his/her designee and be commensurate with the percentage GHG emissions reduction not achieved (compared to the applicable numeric significance thresholds) or required percentage reduction from the "adjusted" baseline. In determining whether a financial penalty or other remedy is appropriate, the City shall not impose a penalty if the project applicant has made a good faith effort to comply with the GHG Reduction Plan. The City would only have the ability to impose a monetary penalty after a reasonable cure period and in accordance with the enforcement process outlined in Planning Code Chapter 17.152. If a financial penalty is imposed, such penalty sums shall be used by the City solely toward the implementation of the GHG Reduction Plan. **Timeline Discretion and Summary.** The City shall have the discretion to reasonably modify the timing of reporting, with reasonable notice	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		and opportunity to comment by the applicant, to coincide with other related monitoring and reporting required for the project. When Required: Ongoing Initial Approval: Bureau of Planning Monitoring/Inspection: Bureau of Planning **SCA-TRANS-4: Transportation and Parking Demand Management (#71)** *See SCA-TRANS-4 above.* **SCA-UTL-3: Construction and Demolition Waste Reduction and Recycling (#74)** *See SCA-UTL-3 below.* **SCA-UTL-6: Green Building Requirements (#77)** *See SCA-UTL-6 below.*	
F. SOILS, GEOLOGY, AND SEISMICITY			
GEO-1: Damage to structures could result from unstable soil conditions during the operation period of the project.	S	Mitigation Measure GEO-1: Implementation of the following three-part mitigation measure would reduce impacts to project structures or property related to unstable soils to a less-than-significant level: Mitigation Measure GEO-1a: Prior to the issuance of any grading or construction permits, a final geotechnical investigation report shall be prepared by a qualified Geotechnical Engineer or Certified Engineering Geologist with input from a structural engineer and submitted to the City of Oakland Bureau of Building for review and acceptance. In addition to all other requirements, the final geotechnical investigation report shall specifically provide recommendations to minimize the following: ▪ The potential damage to structures, utilities, and pavements from total and differential settlement, soil collapse, and cyclic densification	LTS

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Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		▪ The potential for damage to structures, utilities, and pavements caused by expansive soils ▪ The potential for damage to nearby structures, utilities, and pavements caused by any construction-period dewatering-induced subsidence ▪ The potential for damage caused by expected seismic shaking The final geotechnical investigation report shall include estimates of allowable settlement, construction-period and post-construction settlement monitoring methods, and measures to be taken if settlement monitoring results indicate exceedance of allowable settlement estimates. All design measures, recommendations, design criteria, and specifications set forth in the final geotechnical investigation report shall be implemented as a condition of project approval. <u>Mitigation Measure GEO-1b</u>: A licensed Geotechnical Engineer with specific experience in foundation design of high-rise buildings, and whose selection is approved by the Building Official, shall peer review the draft geotechnical aspects of the design and engineering plans. The Geotechnical Engineer shall be allowed sufficient time to provide the project design team with comments prior to the building permit application. These comments shall be considered by the Geotechnical Engineer or Certified Engineering Geologist preparing the plans. Where consensus is reached between the two parties, the plans shall be modified accordingly, prior to building permit application. If consensus is not reached, another third-party Geotechnical Engineer whose selection is approved by the Building Official shall make the determination. <u>Mitigation Measure GEO-1c</u>: A licensed Geotechnical Engineer, or representative, whose selection is approved by the Building Official, shall provide third-party geotechnical observation and testing during all earthwork and foundation construction activities. The	

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Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		Geotechnical Engineer shall be allowed to evaluate any conditions differing from those encountered during the geotechnical investigation, and shall provide supplemental recommendations to the Building Official, as necessary, which the City shall require the project applicant to implement. At the end of construction, the Geotechnical Engineer shall provide a letter regarding contractor compliance with project plans and specifications and with the recommendations of the final geotechnical investigation report and any supplemental recommendations issued during construction. The letter shall be submitted for review to the City. Implementation of the above three-part mitigation measure would reduce this impact to a less-than-significant level. **SCA-GEO-2: Seismic Hazards Zone (Landslide/Liquefaction) (#36)** Requirement: The project applicant shall submit a site-specific geotechnical report, consistent with California Geological Survey Special Publication 117 (as amended), prepared by a registered geotechnical engineer for City review and approval containing at a minimum a description of the geological and geotechnical conditions at the site, an evaluation of site-specific seismic hazards based on geological and geotechnical conditions, and recommended measures to reduce potential impacts related to liquefaction and/or slope stability hazards. The project applicant shall implement the recommendations contained in the approved report during project design and construction. When Required: Prior to approval of construction-related permit Initial Approval: Bureau of Building Monitoring/Inspection: Bureau of Building	
No significant construction period impacts related to soils, geology, and seismicity would occur with implementation of the City's SCAs listed in this table.		**SCA-GEO-1: Construction-Related Permit(s) (#33)** Requirement: The project applicant shall obtain all required construction-related permits/approvals from the City. The project shall comply with all standards, requirements and conditions contained in construction-related codes, including but not limited to the Oakland Building Code and the Oakland Grading Regulations, to ensure	LTS

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Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		structural integrity and safe construction. When Required: Prior to approval of construction-related permit Initial Approval: Bureau of Building Monitoring/Inspection: Bureau of Building	
G. HAZARDS AND HAZARDOUS MATERIALS			
HAZ-1: Contaminated soil, groundwater, and potential USTs in the subsurface of the project site could pose a risk of exposure to hazardous materials.	S	SCA Implementation Measure HAZ-1: Additional characterization of soil in the areas to be excavated shall be performed by an environmental professional before the start of construction. If contaminated soil or groundwater is identified that could pose hazards to human health or the environment, the SMP shall be updated to ensure that the SMP includes appropriate procedures to mitigate potential hazards to human health or the environment to a less-than-significant level, the appropriate regulatory agencies shall be immediately notified of the identified soil or groundwater contamination, and the updated SMP shall be submitted to the appropriate regulatory agencies for review and approval. The SMP must be finalized and certified by an environmental professional prior to the start of construction. Additional investigation of the former gas station area shall be performed by an environmental professional after removing the existing parking structure, including a geophysical survey and soil borings. If potential USTs are identified by the geophysical survey or if contaminated soil is encountered in the borings, the area of the former gas station shall be restricted from further development until the appropriate regulatory agencies have been notified and further investigation or remediation activities have been performed under regulatory agency oversight. An environmental professional shall be hired by the applicant to monitor and document excavation, dewatering, and waste transportation and disposal activities to ensure that the procedures of the SMP are followed.	LTS

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Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		SCA-HAZ-2: Site Contamination (#40) ***a. Hazardous Building Materials Assessment*** Requirement: The project applicant shall submit a comprehensive assessment report to the Bureau of Building, signed by a qualified environmental professional, documenting the presence or lack thereof of asbestos-containing materials (ACMs), lead-based paint, polychlorinated biphenyls (PCBs), and any other building materials or stored materials classified as hazardous materials by State or federal law. If lead-based paint, ACMs, PCBs, or any other building materials or stored materials classified as hazardous materials are present, the project applicant shall submit specifications prepared and signed by a qualified environmental professional, for the stabilization and/or removal of the identified hazardous materials in accordance with all applicable laws and regulations. The project applicant shall implement the approved recommendations and submit to the City evidence of approval for any proposed remedial action and required clearances by the applicable local, state, or federal regulatory agency. When Required: Prior to approval of demolition, grading, or building permits Initial Approval: Bureau of Building Monitoring/Inspection: Bureau of Building ***b. Environmental Site Assessment Required*** Requirement: The project applicant shall submit a Phase I Environmental Site Assessment report, and Phase II Environmental Site Assessment report if warranted by the Phase I report, for the project site for review and approval by the City. The report(s) shall be prepared by a qualified environmental assessment professional and include recommendations for remedial action, as appropriate, for hazardous materials. The project applicant shall implement the approved recommendations and submit to the City evidence of approval for any proposed remedial action and required clearances by the applicable local, state, or federal regulatory agency. When Required: Prior to approval of construction-related permit	

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Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		Initial Approval: Bureau of Building Monitoring/Inspection: Bureau of Building ***c. Health and Safety Plan Required*** Requirement: The project applicant shall submit a Health and Safety Plan for the review and approval by the City in order to protect project construction workers from risks associated with hazardous materials. The project applicant shall implement the approved Plan. When Required: Prior to approval of construction-related permit Initial Approval: Applicable regulatory agency with jurisdiction Monitoring/Inspection: Applicable regulatory agency with jurisdiction ***d. Best Management Practices (BMPs) Required for Contaminated Sites*** Requirement: The project applicant shall ensure that BMPs are implemented by the contractor during construction to minimize potential soil and groundwater hazards. These shall include the following: i. Soil generated by construction activities shall be stockpiled on-site in a secure and safe manner. All contaminated soils determined to be hazardous or non-hazardous waste must be adequately profiled (sampled) prior to acceptable reuse or disposal at an appropriate off-site facility. Specific sampling and handling and transport procedures for reuse or disposal shall be in accordance with applicable local, state, and federal requirements. ii. Groundwater pumped from the subsurface shall be contained on-site in a secure and safe manner, prior to treatment and disposal, to ensure environmental and health issues are resolved pursuant to applicable laws and policies. Engineering controls shall be utilized, which include impermeable barriers to prohibit groundwater and vapor intrusion into the building. When Required: During construction Initial Approval: N/A Monitoring/Inspection: Bureau of Building	

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Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
No significant construction period impacts related to hazards would occur with implementation of the City's SCAs listed in this table.		**SCA-HAZ-1: Hazardous Materials Related to Construction (#39)** Requirement: The project applicant shall ensure that Best Management Practices (BMPs) are implemented by the contractor during construction to minimize potential negative effects on groundwater, soils, and human health. These shall include, at a minimum, the following: a. Follow manufacture's recommendations for use, storage, and disposal of chemical products used in construction; Avoid overtopping construction equipment fuel gas tanks; During routine maintenance of construction equipment, properly contain and remove grease and oils; Properly dispose of discarded containers of fuels and other chemicals; Implement lead-safe work practices and comply with all local, regional, state, and federal requirements concerning lead (for more information refer to the Alameda County Lead Poisoning Prevention Program); and If soil, groundwater, or other environmental medium with suspected contamination is encountered unexpectedly during construction activities (e.g., identified by odor or visual staining, or if any underground storage tanks, abandoned drums or other hazardous materials or wastes are encountered), the project applicant shall cease work in the vicinity of the suspect material, the area shall be secured as necessary, and the applicant shall take all appropriate measures to protect human health and the environment. Appropriate measures shall include notifying the City and applicable regulatory agency(ies) and implementation of the actions described in the City's Standard Conditions of Approval, as necessary, to identify the nature and extent of contamination. Work shall not resume in the area(s) affected until the measures have been implemented under the oversight of the City or regulatory agency, as appropriate. When Required: During construction Initial Approval: N/A Monitoring/Inspection: Bureau of Building	LTS

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H. HYDROLOGY AND WATER QUALITY			
No significant impacts related to hydrology and water quality would occur with implementation of the City's SCAs listed in this table.		**SCA-HYD-1: Erosion and Sedimentation Control Plan for Construction (#45)** ***Erosion and Sedimentation Control Plan Required*** Requirement: The project applicant shall submit an Erosion and Sedimentation Control Plan to the City for review and approval. The Erosion and Sedimentation Control Plan shall include all necessary measures to be taken to prevent excessive stormwater runoff or carrying by stormwater runoff of solid materials onto lands of adjacent property owners or public streets or into creeks as a result of conditions created by grading and/or construction operations. The plan shall include, but not be limited to, such measures as short-term erosion control planting; waterproof slope covering; check dams; interceptor ditches; benches; storm drains; dissipation structures; diversion dikes; retarding berms and barriers; devices to trap, store, and filter out sediment; and stormwater retention basins. Off-site work by the project applicant could be necessary. The project applicant shall obtain permission or easements necessary for off-site work. There shall be a clear notation that the plan is subject to modification as changing conditions occur. Calculations of anticipated stormwater runoff and sediment volumes shall be included, if required by the City. The plan shall specify that, after construction is completed, the project applicant shall ensure that the storm drain system is inspected and that the project applicant clears the system of any debris or sediment. When Required: Prior to approval of construction-related permit Initial Approval: Bureau of Building Monitoring/Inspection: N/A ***Erosion and Sedimentation Control During Construction*** Requirement: The project applicant shall implement the approved Erosion and Sedimentation Control Plan. No grading shall occur during the wet-weather season (October 15 through April 15) unless specifically authorized in writing by the Bureau of Building.	LTS

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		When Required: During construction Initial Approval: N/A Monitoring/Inspection: Bureau of Building **SCA-HYD-2: State Construction General Permit (#46)** Requirement: The project applicant shall comply with the requirements of the Construction General Permit issued by the SWRCB. The project applicant shall submit an NOI, SWPPP, and other required Permit Registration Documents to the SWRCB. The project applicant shall submit evidence of compliance with permit requirements to the City. When Required: Prior to approval of construction-related permit Initial Approval: SWRCB; evidence of compliance submitted to Bureau of Building Monitoring/Inspection: SWRCB **SCA-HYD-3: NPDES C.3 Stormwater Requirements for Regulated Projects (#50)** ***Post-Construction Stormwater Management Plan Required*** Requirement: The project applicant shall comply with the requirements of Provision C.3 of the Municipal Regional Stormwater Permit issued under the NPDES. The project applicant shall submit a Post-Construction Stormwater Management Plan to the City for review and approval with the project drawings submitted for site improvements, and shall implement the approved plan during construction. The Post-Construction Stormwater Management Plan shall include and identify the following: i. Location and size of new and replaced impervious surface. ii. Directional surface flow of stormwater runoff. iii. Location of proposed on-site storm drain lines. iv. Site design measures to reduce the amount of impervious surface area. v. Source control measures to limit stormwater pollution. vi. Stormwater treatment measures to remove pollutants from stormwater runoff, including the method used to hydraulically size	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		the treatment measures. vii. Hydromodification management measures, if required by Provision C.3, so that post-project stormwater runoff flow and duration match pre-project runoff. When Required: Prior to approval of construction-related permit Initial Approval: Bureau of Planning; Bureau of Building Monitoring/Inspection: Bureau of Building ***Maintenance Agreement Required*** Requirement: The project applicant shall enter into a maintenance agreement with the City, based on the Standard City of Oakland Stormwater Treatment Measures Maintenance Agreement, in accordance with Provision C.3, which provides, in part, for the following: i. The project applicant accepting responsibility for the adequate installation/construction, operation, maintenance, inspection, and reporting of any on-site stormwater treatment measures being incorporated into the project until the responsibility is legally transferred to another entity. ii. Legal access to the on-site stormwater treatment measures for representatives of the City, the local vector control district, and staff of the RWQCB, San Francisco Bay Region, for the purpose of verifying the implementation, operation, and maintenance of the on-site stormwater treatment measures, and to take corrective action if necessary. The maintenance agreement shall be recorded at the County Recorder's Office at the applicant's expense. When Required: Prior to building permit final Initial Approval: Bureau of Building Monitoring/Inspection: Bureau of Building	
I. NOISE AND VIBRATION			
No significant impacts related to noise and vibration would occur with implementation of the City's SCAs listed		**SCA-NOI-1: Construction Days/Hours (#58)** Requirement: The project applicant shall comply with the following	LTS

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
in this table.		restrictions concerning construction days and hours: a. Construction activities are limited to between 7:00 a.m. and 7:00 p.m. Monday through Friday, except that pier drilling and/or other extreme noise generating activities greater than 90 dBA shall be limited to between 8:00 a.m. and 4:00 p.m. b. Construction activities are limited to between 9:00 a.m. and 5:00 p.m. on Saturday. In residential zones and within 300 feet of a residential zone, construction activities are allowed from 9:00 a.m. to 5:00 p.m. only within the interior of the building with the doors and windows closed. No pier drilling or other extreme noise generating activities greater than 90 dBA are allowed on Saturday. c. No construction is allowed on Sunday or federal holidays. Construction activities include, but are not limited to, truck idling, moving equipment (including trucks, elevators, etc.) or materials, deliveries, and construction meetings held on-site in a non-enclosed area. Any construction activity proposed outside of the above days and hours for special activities (such as concrete pouring which may require more continuous amounts of time) shall be evaluated on a case-by-case basis by the City, with criteria including the urgency/emergency nature of the work, the proximity of residential or other sensitive uses, and a consideration of nearby residents'/occupants' preferences. The project applicant shall notify property owners and occupants located within 300 feet at least 14 calendar days prior to construction activity proposed outside of the above days/hours. When submitting a request to the City to allow construction activity outside of the above days/hours, the project applicant shall submit information concerning the type and duration of proposed construction activity and the draft public notice for City review and approval prior to distribution of the public notice. When Required: During construction Initial Approval: N/A Monitoring/Inspection: Bureau of Building	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		SCA-NOI-2: Construction Noise (#59) Requirement: The project applicant shall implement noise reduction measures to reduce noise impacts due to construction. Noise reduction measures include, but are not limited to, the following: a. Equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds) wherever feasible. b. Except as provided herein, impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used, if such jackets are commercially available, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures. c. Applicant shall use temporary power poles instead of generators where feasible. d. Stationary noise sources shall be located as far from adjacent properties as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or use other measures as determined by the City to provide equivalent noise reduction. e. The noisiest phases of construction shall be limited to less than 10 days at a time. Exceptions may be allowed if the City determines an extension is necessary and all available noise reduction controls are implemented. When Required: During construction	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		Initial Approval: N/A Monitoring/Inspection: Bureau of Building **SCA-NOI-3: Extreme Construction Noise (#60)** ***a. Construction Noise Management Plan Required*** Requirement: Prior to any extreme noise generating construction activities (e.g., pier drilling, pile driving and other activities generating greater than 90dBA), the project applicant shall submit a Construction Noise Management Plan prepared by a qualified acoustical consultant for City review and approval that contains a set of site-specific noise attenuation measures to further reduce construction impacts associated with extreme noise generating activities. The project applicant shall implement the approved Plan during construction. Potential attenuation measures include, but are not limited to, the following: i. Erect temporary plywood noise barriers around the construction site, particularly along on sites adjacent to residential buildings; ii. Implement “quiet” pile driving technology (such as pre-drilling of piles, the use of more than one pile driver to shorten the total pile driving duration), where feasible, in consideration of geotechnical and structural requirements and conditions; iii. Utilize noise control blankets on the building structure as the building is erected to reduce noise emission from the site; iv. Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings by the use of sound blankets for example and implement such measure if such measures are feasible and would noticeably reduce noise impacts; and v. Monitor the effectiveness of noise attenuation measures by taking noise measurements. When Required: Prior to approval of construction-related permit Initial Approval: Bureau of Building Monitoring/Inspection: Bureau of Building	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		b. Public Notification Required Requirement: The project applicant shall notify property owners and occupants located within 300 feet of the construction activities at least 14 calendar days prior to commencing extreme noise generating activities. Prior to providing the notice, the project applicant shall submit to the City for review and approval the proposed type and duration of extreme noise generating activities and the proposed public notice. The public notice shall provide the estimated start and end dates of the extreme noise generating activities and describe noise attenuation measures to be implemented. When Required: During construction Initial Approval: Bureau of Building Monitoring/Inspection: Bureau of Building **SCA-NOI-4: Construction Noise Complaints (#62)** Requirement: The project applicant shall submit to the City for review and approval a set of procedures for responding to and tracking complaints received pertaining to construction noise, and shall implement the procedures during construction. At a minimum, the procedures shall include: a. Designation of an on-site construction complaint and enforcement manager for the project; b. A large on-site sign near the public right-of-way containing permitted construction days/hours, complaint procedures, and phone numbers for the project complaint manager and City Code Enforcement unit; c. Protocols for receiving, responding to, and tracking received complaints; and d. Maintenance of a complaint log that records received complaints and how complaints were addressed, which shall be submitted to the City for review upon the City's request. When Required: Prior to approval of construction-related permit Initial Approval: Bureau of Building Monitoring/Inspection: Bureau of Building	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		SCA-NOI-5: Exposure to Community Noise (#63) Requirement: The project applicant shall submit a Noise Reduction Plan prepared by a qualified acoustical engineer for City review and approval that contains noise reduction measures (e.g., sound-rated window, wall, and door assemblies) to achieve an acceptable interior noise level in accordance with the land use compatibility guidelines of the Noise Element of the Oakland General Plan. The applicant shall implement the approved Plan during construction. To the maximum extent practicable, interior noise levels shall not exceed the following: a. 45 dBA: Residential activities, civic activities, hotels b. 50 dBA: Administrative offices; group assembly activities c. 55 dBA: Commercial activities d. 65 dBA: Industrial activities When Required: Prior to approval of construction-related permit Initial Approval: Bureau of Planning Monitoring/Inspection: Bureau of Building **SCA-NOI-6: Operational Noise (#64)** Requirement: Noise levels from the project site after completion of the project (i.e., during project operation) shall comply with the performance standards of chapter 17.120 of the Oakland Planning Code and chapter 8.18 of the Oakland Municipal Code. If noise levels exceed these standards, the activity causing the noise shall be abated until appropriate noise reduction measures have been installed and compliance verified by the City. When Required: Ongoing Initial Approval: N/A Monitoring/Inspection: Bureau of Building **SCA-NOI-7: Exposure to Vibration (#65)** Requirement: The project applicant shall submit a Vibration Reduction Plan prepared by a qualified acoustical consultant for City review and approval that contains vibration reduction measures to reduce groundborne vibration to acceptable levels per Federal Transit	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		Administration (FTA) standards. The applicant shall implement the approved Plan during construction. Potential vibration reduction measures include, but are not limited to, the following: a. Isolation of foundation and footings using resilient elements such as rubber bearing pads or springs, such as a "spring isolation" system that consists of resilient spring supports that can support the podium or residential foundations. The specific system shall be selected so that it can properly support the structural loads, and provide adequate filtering of groundborne vibration to the residences above. b. Trenching, which involves excavating soil between the railway and the project so that the vibration path is interrupted, thereby reducing the vibration levels before they enter the project's structures. Since the reduction in vibration level is based on a ratio between trench depth and vibration wavelength, additional measurements shall be conducted to determine the vibration wavelengths affecting the project. Based on the resulting measurement findings, an adequate trench depth and, if required, suitable fill shall be identified (such as foamed styrene packing pellets [i.e., Styrofoam] or low-density polyethylene). When Required: Prior to approval of construction-related permit Initial Approval: Bureau of Planning Monitoring/Inspection: Bureau of Building	
J. Aesthetics and Shade and Shadow			
AES-1: Under the All Office Scenario and Maximum Office Scenario, wind levels could exceed the City's wind hazard criterion of winds above 36 mph for more than 1 hour per year during daylight hours during the year.	S	Mitigation Measure AES-1: Wind testing shall be repeated to reduce wind hazards, as feasible. The testing results shall be reviewed and approved by the City prior to submittal of an application for building permit(s).	SU

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
AES-2: Under the Maximum Residential Scenario, All Office Scenario, and Maximum Office Scenario, cumulative wind levels could exceed the City's wind hazard criterion of winds above 36 mph for more than 1 hour per year during daylight hours during the year.	S	Mitigation Measure AES-2: Implement Mitigation Measure AES-1.	SU
No significant impacts related to aesthetics or shade/shadow would occur with implementation of the City's SCAs listed in this table.		**SCA-AES-1: Graffiti Control (#16)** Requirement: a. During construction and operation of the project, the project applicant shall incorporate best management practices reasonably related to the control of graffiti and/or the mitigation of the impacts of graffiti. Such best management practices may include, without limitation: i. Installation and maintenance of landscaping to discourage defacement of and/or protect likely graffiti-attracting surfaces. ii. Installation and maintenance of lighting to protect likely graffiti-attracting surfaces. iii. Use of paint with anti-graffiti coating. iv. Incorporation of architectural or design elements or features to discourage graffiti defacement in accordance with the principles of Crime Prevention Through Environmental Design (CPTED). v. Other practices approved by the City to deter, protect, or reduce the potential for graffiti defacement. b. The project applicant shall remove graffiti by appropriate means within seventy-two (72) hours. Appropriate means include the following: i. Removal through scrubbing, washing, sanding, and/or scraping (or similar method) without damaging the surface and without discharging wash water or cleaning detergents into the City storm drain system. Ii. Covering with new paint to match the color of the surrounding	LTS

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		surface. iii. Replacing with new surfacing (with City permits if required). When Required: Ongoing Initial Approval: N/A Monitoring/Inspection: Bureau of Building **SCA-AES-2: Landscape Plan (#17)** a. Landscape Plan Required Prior to the final building permit, the project applicant shall submit a final Landscape Plan for City review and approval that is consistent with the approved Landscape Plan. The Landscape Plan shall be included with the set of drawings submitted for the construction-related permit and shall comply with the landscape requirements of chapter 17.124 of the Planning Code. When Required: Prior to approval of construction-related permit Initial Approval: Bureau of Planning Monitoring/Inspection: N/A b. Landscape Installation Requirement: The project applicant shall implement the approved Landscape Plan unless a bond, cash deposit, letter of credit, or other equivalent instrument acceptable to the Director of City Planning, is provided. The financial instrument shall equal the greater of $2,500 or the estimated cost of implementing the Landscape Plan based on a licensed contractor's bid. When Required: Prior to building permit final Initial Approval: Bureau of Planning Monitoring/Inspection: Bureau of Building **SCA-AES-3: Lighting (#18)** Requirement: Prior to the issuance of an electrical or building permit. The proposed lighting fixtures shall be adequately shielded to a point below the light bulb and reflector and that prevent unnecessary glare onto adjacent	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		properties. Plans shall be submitted to the Planning and Zoning Division and the Electrical Services Division of the Public Works Agency for review and approval. All lighting shall be architecturally integrated into the site. When Required: Prior to building permit final Initial Approval: N/A Monitoring/Inspection: Bureau of Building	
K. Public Services, Utilities, and Recreation			
Implementation of the project would not result in any public services, utilities, and recreation impacts; however, the following City SCAs listed in this table apply.		**SCA-UTL-1: Compliance with Other Requirements (#3)** The project applicant shall comply with all other applicable federal, state, regional, and local laws/codes, requirements, regulations, and guidelines, including but not limited to those imposed by the City's Bureau of Building, Fire Marshal, and Public Works Department. Compliance with other applicable requirements may require changes to the approved use and/or plans. These changes shall be processed in accordance with the procedures contained in Condition #4. **SCA-UTL-2: Construction Management Plan (#13)** Prior to the issuance of the first construction-related permit, the project applicant and his/her general contractor shall submit a Construction Management Plan (CMP) for review and approval by the Bureau of Planning, Bureau of Building, and other relevant City departments such as the Fire Department and the Public Works Department as directed. The CMP shall contain measures to minimize potential construction impacts including measures to comply with all construction-related Conditions of Approval (and mitigation measures if applicable) such as dust control, construction emissions, hazardous materials, construction days/hours, construction traffic control, waste reduction and recycling, stormwater pollution prevention, noise control, complaint management, and cultural resource management (see applicable Conditions below). The CMP shall provide project-specific information including descriptive procedures, approval documentation, and drawings (such as a site logistics plan, fire safety plan, construction phasing plan, proposed	LTS

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		truck routes, traffic control plan, complaint management plan, construction worker parking plan, and litter/debris clean-up plan) that specify how potential construction impacts will be minimized and how each construction-related requirement will be satisfied throughout construction of the project. **SCA-UTL-3: Construction and Demolition Waste Reduction and Recycling (#74)** Requirement: The project applicant shall comply with the City of Oakland Construction and Demolition Waste Reduction and Recycling Ordinance (Chapter 15.34 of the Oakland Municipal Code) by submitting a Construction and Demolition Waste Reduction and Recycling Plan (WRRP) for City review and approval, and shall implement the approved WRRP. Projects subject to these requirements include all new construction, renovations/alterations/modifications with construction values of $50,000 or more (except R-3 type construction), and all demolition (including soft demolition) except demolition of type R-3 construction. The WRRP must specify the methods by which the project will divert construction and demolition debris waste from landfill disposal in accordance with current City requirements. The WRRP may be submitted electronically at www.greenhalosystems.com or manually at the City's Green Building Resource Center. Current standards, FAQs, and forms are available on the City's website and in the Green Building Resource Center. When Required: Prior to approval of construction-related permit Initial Approval: Public Works Department, Environmental Services Division Monitoring/Inspection: Public Works Department, Environmental Services Division **SCA-UTL-4: Underground Utilities (#75)** Requirement: The project applicant shall place underground all new utilities serving the project and under the control of the project applicant and the City, including all new gas, electric, cable, and	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		telephone facilities, fire alarm conduits, street light wiring, and other wiring, conduits, and similar facilities. The new facilities shall be placed underground along the project's street frontage and from the project structures to the point of service. Utilities under the control of other agencies, such as PG&E, shall be placed underground if feasible. All utilities shall be installed in accordance with standard specifications of the serving utilities. When Required: During construction Initial Approval: N/A Monitoring/Inspection: Bureau of Building **SCA-UTL-5: Recycling Collection and Storage Space (#76)** Requirement: The project applicant shall comply with the City of Oakland Recycling Space Allocation Ordinance (chapter 17.118 of the Oakland Planning Code). The project drawings submitted for construction-related permits shall contain recycling collection and storage areas in compliance with the Ordinance. For residential projects, at least two cubic feet of storage and collection space per residential unit is required, with a minimum of ten cubic feet. For nonresidential projects, at least two cubic feet of storage and collection space per 1,000 square feet of building floor area is required, with a minimum of ten cubic feet. When Required: Prior to approval of construction-related permit Initial Approval: Bureau of Planning Monitoring/Inspection: Bureau of Building **SCA-UTL-6: Green Building Requirements (#77)** ***a. Compliance with Green Building Requirements During Plan-Check*** Requirement: The project applicant shall comply with the requirements of the California Green Building Standards (CALGreen) mandatory measures and the applicable requirements of the City of Oakland Green Building Ordinance (chapter 18.02 of the Oakland Municipal Code). i. The following information shall be submitted to the City for review and approval with the application for a building permit:	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		▪ Documentation showing compliance with Title 24 of the current version of the California Building Energy Efficiency Standards. ▪ Completed copy of the final green building checklist approved during the review of the Planning and Zoning permit. ▪ Copy of the Unreasonable Hardship Exemption, if granted, during the review of the Planning and Zoning permit. ▪ Permit plans that show, in general notes, detailed design drawings, and specifications as necessary, compliance with the items listed in subsection (ii) below. ▪ Copy of the signed statement by the Green Building Certifier approved during the review of the Planning and Zoning permit that the project complied with the requirements of the Green Building Ordinance. ▪ Signed statement by the Green Building Certifier that the project still complies with the requirements of the Green Building Ordinance, unless an Unreasonable Hardship Exemption was granted during the review of the Planning and Zoning permit. ▪ Other documentation as deemed necessary by the City to demonstrate compliance with the Green Building Ordinance. ii. The set of plans in subsection (i) shall demonstrate compliance with the following: ▪ CALGreen mandatory measures. ▪ All pre-requisites per the green building checklist approved during the review of the Planning and Zoning permit, or, if applicable, all the green building measures approved as part of the Unreasonable Hardship Exemption granted during the review of the Planning and Zoning permit. ▪ The point level certification requirement is <u>53 points</u> for residential and <u>LEED Gold (mid-60s minus cool roof requirements)</u> for non-residential per the appropriate checklist approved during the Planning entitlement process.	

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Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		▪ All green building points identified on the checklist approved during review of the Planning and Zoning permit, unless a Request for Revision Plan-check application is submitted and approved by the Bureau of Planning that shows the previously approved points that will be eliminated or substituted. ▪ The required green building point minimums in the appropriate credit categories. When Required: Prior to approval of construction-related permit Initial Approval: Bureau of Building Monitoring/Inspection: N/A ***b. Compliance with Green Building Requirements During Construction*** Requirement: The project applicant shall comply with the applicable requirements of CALGreen and the Oakland Green Building Ordinance during construction of the project. The following information shall be submitted to the City for review and approval: i. Completed copies of the green building checklists approved during the review of the Planning and Zoning permit and during the review of the building permit. ii. Signed statement(s) by the Green Building Certifier during all relevant phases of construction that the project complies with the requirements of the Green Building Ordinance. iii. Other documentation as deemed necessary by the City to demonstrate compliance with the Green Building Ordinance. When Required: During construction Initial Approval: N/A Monitoring/Inspection: Bureau of Building ***c. Compliance with Green Building Requirements After Construction*** Requirement: Within sixty (60) days of the final inspection of the	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		building permit for the project, the Green Building Certifier shall submit the appropriate documentation to Build It Green (Res) / Green Building Certification Institute (Commercial) and attain the minimum required certification/point level. Within one year of the final inspection of the building permit for the project, the applicant shall submit to the Bureau of Planning the Certificate from the organization listed above demonstrating certification and compliance with the minimum point/certification level noted above. When Required: After project completion as specified Initial Approval: Bureau of Planning Monitoring/Inspection: Bureau of Building **SCA-UTL-7: Sanitary Sewer System (#79)** Requirement: The project applicant shall prepare and submit a Sanitary Sewer Impact Analysis to the City for review and approval in accordance with the City of Oakland Sanitary Sewer Design Guidelines. The Impact Analysis shall include an estimate of pre-project and post-project wastewater flow from the project site. In the event that the Impact Analysis indicates that the net increase in project wastewater flow exceeds City-projected increases in wastewater flow in the sanitary sewer system, the project applicant shall pay the Sanitary Sewer Impact Fee in accordance with the City's Master Fee Schedule for funding improvements to the sanitary sewer system. When Required: Prior to approval of construction-related permit Initial Approval: Public Works Department, Department of Engineering and Construction Monitoring/Inspection: N/A **SCA-UTL-8: Storm Drain System (#80)** Requirement: The project storm drainage system shall be designed in accordance with the City of Oakland's Storm Drainage Design Guidelines. To the maximum extent practicable, peak stormwater runoff from the project site shall be reduced by at least 25 percent compared to the pre-project condition.	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		When Required: Prior to approval of construction-related permit Initial Approval: Bureau of Building Monitoring/Inspection: Bureau of Building **SCA-HYD-1: Erosion and Sedimentation Control Plan for Construction (#45)** *See SCA-HYD-1 above.* **SCA-HYD-3: NPDES C.3 Stormwater Requirements for Regulated Projects (#50)** *See SCA-HYD-3 above* **SCA-GHG-1: Greenhouse Gas Reduction Plan (#38)** *See SCA-GHG-1 above.*	
VI. Effects Found not to be Significant			
Implementation of the project would not result in any impacts related to biology, mineral resources, or population and housing; however, the following City SCAs listed in this table apply.		**SCA-BIO-1: Tree Removal During Bird Breeding Season (#26)** Requirement: To the extent feasible, removal of any tree and/or other vegetation suitable for nesting of birds shall not occur during the bird breeding season of February 1 to August 15 (or during December 15 to August 15 for trees located in or near marsh, wetland, or aquatic habitats). If tree removal must occur during the bird breeding season, all trees to be removed shall be surveyed by a qualified biologist to verify the presence or absence of nesting raptors or other birds. Pre-removal surveys shall be conducted within 15 days prior to the start of work and shall be submitted to the City for review and approval. If the survey indicates the potential presence of nesting raptors or other birds, the biologist shall determine an appropriately sized buffer around the nest in which no work will be allowed until the young have successfully fledged. The size of the nest buffer will be determined by the biologist in consultation with the California Department of Fish and Wildlife, and will be based to a large extent on the nesting species and its sensitivity to disturbance. In general, buffer sizes of 200 feet for raptors and 50	LTS

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Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		feet for other birds should suffice to prevent disturbance to birds nesting in the urban environment, but these buffers may be increased or decreased, as appropriate, depending on the bird species and the level of disturbance anticipated near the nest. When Required: Prior to removal of trees Initial Approval: Bureau of Building Monitoring/Inspection: Bureau of Building **SCA-BIO-2: Tree Permit (#27)** *a. Tree Permit Required* Requirement: Pursuant to the City's Tree Protection Ordinance (OMC chapter 12.36), the project applicant shall obtain a tree permit and abide by the conditions of that permit. When Required: Prior to approval of construction-related permit Initial Approval: Permit approval by Public Works Department, Tree Division; evidence of approval submitted to Bureau of Building Monitoring/Inspection: Bureau of Building *b. Tree Protection During Construction* Requirement: Adequate protection shall be provided during the construction period for any trees which are to remain standing, including the following, plus any recommendations of an arborist: i. Before the start of any clearing, excavation, construction, or other work on the site, every protected tree deemed to be potentially endangered by said site work shall be securely fenced off at a distance from the base of the tree to be determined by the project's consulting arborist. Such fences shall remain in place for duration of all such work. All trees to be removed shall be clearly marked. A scheme shall be established for the removal and disposal of logs, brush, earth and other debris which will avoid injury to any protected tree. ii. Where proposed development or other site work is to encroach upon the protected perimeter of any protected tree, special measures shall	

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Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		be incorporated to allow the roots to breathe and obtain water and nutrients. Any excavation, cutting, filing, or compaction of the existing ground surface within the protected perimeter shall be minimized. No change in existing ground level shall occur within a distance to be determined by the project's consulting arborist from the base of any protected tree at any time. No burning or use of equipment with an open flame shall occur near or within the protected perimeter of any protected tree. iii. No storage or dumping of oil, gas, chemicals, or other substances that may be harmful to trees shall occur within the distance to be determined by the project's consulting arborist from the base of any protected trees, or any other location on the site from which such substances might enter the protected perimeter. No heavy construction equipment or construction materials shall be operated or stored within a distance from the base of any protected trees to be determined by the project's consulting arborist. Wires, ropes, or other devices shall not be attached to any protected tree, except as needed for support of the tree. No sign, other than a tag showing the botanical classification, shall be attached to any protected tree. iv. Periodically during construction, the leaves of protected trees shall be thoroughly sprayed with water to prevent buildup of dust and other pollution that would inhibit leaf transpiration. v. If any damage to a protected tree should occur during or as a result of work on the site, the project applicant shall immediately notify the Public Works Department and the project's consulting arborist shall make a recommendation to the City Tree Reviewer as to whether the damaged tree can be preserved. If, in the professional opinion of the Tree Reviewer, such tree cannot be preserved in a healthy state, the Tree Reviewer shall require replacement of any tree removed with another tree or trees on the same site deemed adequate by the Tree Reviewer to compensate for the loss of the tree that is removed. vi. All debris created as a result of any tree removal work shall be removed by the project applicant from the property within two weeks	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		of debris creation, and such debris shall be properly disposed of by the project applicant in accordance with all applicable laws, ordinances, and regulations. When Required: During construction Initial Approval: Public Works Department, Tree Division Monitoring/Inspection: Bureau of Building *c. Tree Replacement Plantings* Requirement: Replacement plantings shall be required for tree removals for the purposes of erosion control, groundwater replenishment, visual screening, wildlife habitat, and preventing excessive loss of shade, in accordance with the following criteria: i. No tree replacement shall be required for the removal of nonnative species, for the removal of trees which is required for the benefit of remaining trees, or where insufficient planting area exists for a mature tree of the species being considered. ii. Replacement tree species shall consist of Sequoia sempervirens (Coast Redwood), Quercus agrifolia (Coast Live Oak), Arbutus menziesii (Madrone), Aesculus californica (California Buckeye), Umbellularia californica (California Bay Laurel), or other tree species acceptable to the Tree Division. iii. Replacement trees shall be at least twenty-four (24) inch box size, unless a smaller size is recommended by the arborist, except that three fifteen (15) gallon size trees may be substituted for each twenty-four (24) inch box size tree where appropriate. iv. Minimum planting areas must be available on site as follows: ▪ For Sequoia sempervirens, three hundred fifteen (315) square feet per tree; ▪ For other species listed, seven hundred (700) square feet per tree. v. In the event that replacement trees are required but cannot be planted due to site constraints, an in lieu fee in accordance with the City's Master Fee Schedule may be substituted for required replacement plantings, with all such revenues applied toward tree	

TABLE II-3 SUMMARY OF IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

Impacts	Level of Significance Prior to Mitigation Measure	SCAs/Mitigation Measures	Level of Significance With SCA or Mitigation Measure
		planting in city parks, streets and medians. vi. The project applicant shall install the plantings and maintain the plantings until established. The Tree Reviewer of the Tree Division of the Public Works Department may require a landscape plan showing the replacement plantings and the method of irrigation. Any replacement plantings which fail to become established within one year of planting shall be replanted at the project applicant's expense. When Required: Prior to building permit final Initial Approval: Public Works Department, Tree Division Monitoring/Inspection: Bureau of Building	

III. PROJECT DESCRIPTION

This chapter describes the proposed Eastline Project – 2100 Telegraph (Eastline project or project), which is the subject of this Environmental Impact Report (EIR). The chapter begins with a description of the project site, regional and planning context, project objectives, and context discussion of relevant project background. These are followed by a detailed description of the proposed development program and project, a discussion of the intended uses of the EIR, and an explanation of required project approvals and entitlements.

A. PROJECT SITE

1. Location

The project site encompasses one full city block within the Uptown District of greater downtown Oakland. It is bounded by Telegraph Avenue to the west, 22nd Street to the north, Broadway to the east, and 21st Street to the south. The project site is within one block of the 19th Street Bay Area Rapid Transit District (BART) station and approximately ½-mile east of Interstate 980. Figure III-1, Project Location and Vicinity Map, illustrates the location and context of the project site.

2. Site Characteristics

The project site is urban in character and is currently developed with five structures, including a two-level parking structure owned by the City of Oakland (City). The train tracks for three BART lines (Richmond-Millbrae, Pittsburg/Bay Point–Millbrae, and Richmond-Fremont) traverse the site within below-grade tunnels. The 3.21-acre block comprises the following five parcels:

- **2150 Telegraph Avenue/495 22nd Street** (Assessor's Parcel Number [APN] 008-0648-011-03). This 21,269-square-foot parcel is situated at the corner of 22nd Street and Telegraph Avenue. It is currently developed with a small, vacant fast-food restaurant and a paved parking lot. At the northwest corner of the parcel are two fragment parcels that serve as a City right-of-way (of which 3,050 square feet is included in the project site).
- **2100 Telegraph** (APN 008-0648-016-03). This L-shaped, 1.65-acre (72,064-square-foot) parcel fronts on 22nd Street, Telegraph Avenue, and 21st Street. It contains the Telegraph Plaza Parking Garage, a City-owned two-level parking structure with 351 spaces.

Source: Urban Planning Partners, Google Earth, 2017

Figure III-1

Project Location and Vicinity Map

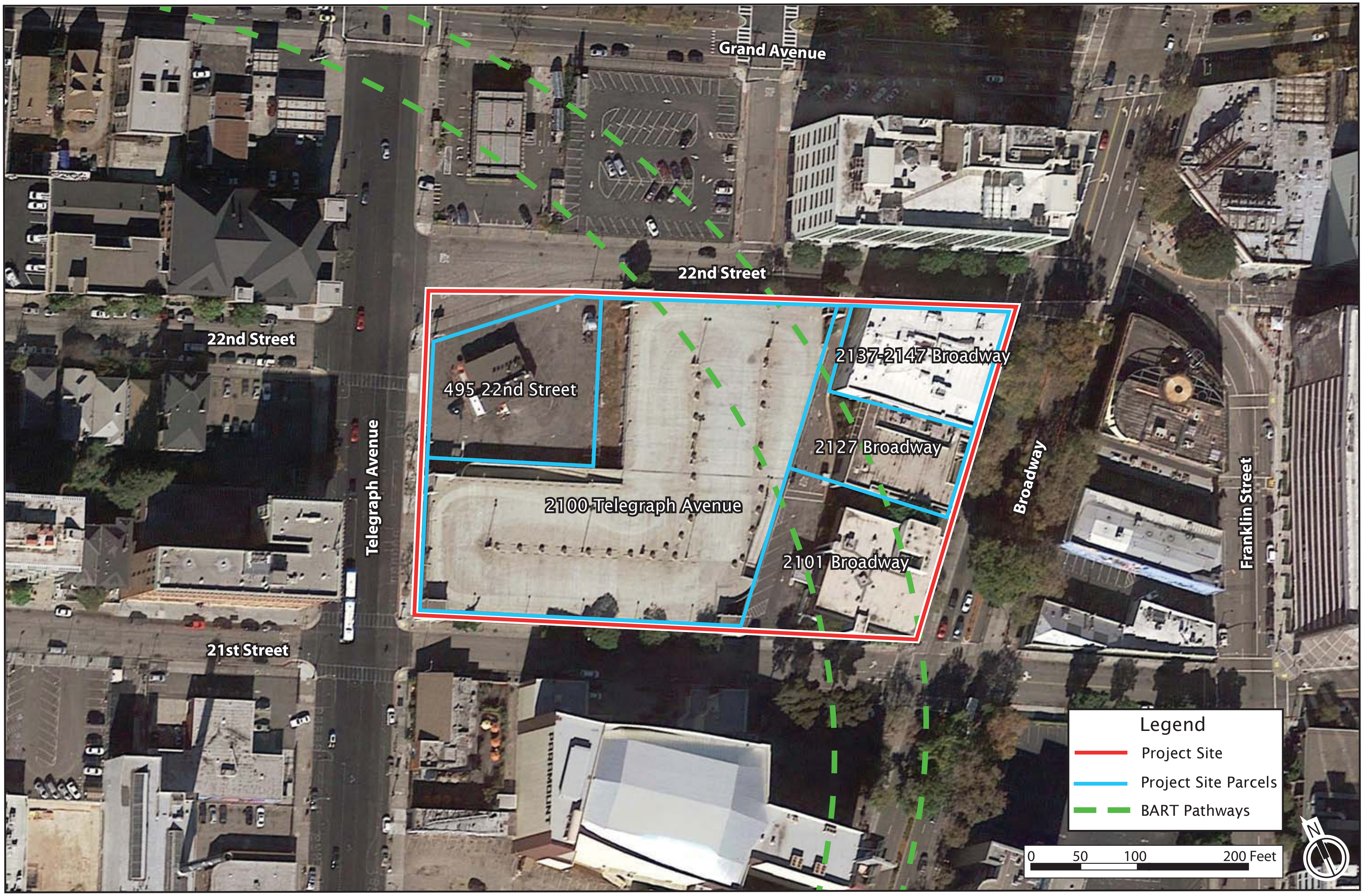
- **2101-2115 Broadway** (APN 008-0648-018-00). This 0.43-acre (18,610-square-foot) parcel at the corner of 21st Street and Broadway contains a two-story building and a small paved parking area behind the building that is accessed from 21st Street. The building is currently vacant, and was originally constructed as a bank.
- **2121-2127 Broadway** (APN 008-0648-017-00). This 0.29-acre (12,553-square-foot) parcel is midblock between 21st and 22nd Streets and is developed with a two-story building. The current tenant of the building is Bank of the West. Behind the building are a small surface parking and a service area. The parcel has a narrow connection to 22nd Street that provides access to the rear of the building.
- **2135–2147 Broadway** (APN 008-0648-001-00). This 0.28-acre (12,351-square-foot) parcel at the corner of 22nd Street and Broadway is developed with a two-story commercial building (sometimes referred to as the "Sherman Clay" building). The building has a mix of tenants and is less than 50 percent occupied.

All of the parcels on the project site are under single, private ownership, except for APN 008-0648-016-03 (which contains the Telegraph Plaza Parking Garage) and the fragment parcels at the corner of 22nd Street and Telegraph. Parcels that comprise the project site are not included on any hazardous waste and substances sites list compiled pursuant to Government Code Section 65962.5.

The BART tunnels and associated tunnel zone of influence[1] adjacent to the tunnels traverse the site from the corner of 21st Street and Broadway to 22nd Street between Valley Street and Telegraph Avenue, as shown on Figure III-2. The BART tunnels range from approximately 12–30 feet below ground. The BART tunnel zone of influence accounts for approximately half of the site. Construction of any structures above or near the tunnels requires costly engineering measures to avoid placing excessive weight, or lateral stresses on the tunnels. The project proposes three-story steel trusses to address weight and lateral stress on the tunnels.

Sidewalks surround all four sides of the project site. Existing landscaping includes sparse vegetation and 29 mature trees along most of the perimeter, although the corner parcel on Telegraph Avenue and 22nd Street has no trees. There are bike lanes along Telegraph Avenue. The City owns and/or has an easement over the two fragment parcels within the street right-of-way at the corner of Telegraph Avenue and 22nd Street adjacent to 2150 Telegraph Avenue/495 22nd Street (APN 008-0648-011-03).

[1] Zone of Influence is defined by BART as the area above a Line of Influence which is a line from the critical point of substructure at a slope of 1½ horizontal to 1 vertical (line sloping towards ground level).



Source: Urban Planning Partners, Google Earth, 2017

Eastline Project - 2100 Telegraph EIR

Figure III-2
Existing Site Conditions

3. Surrounding Land Uses

A mix of land uses surround the project site and all of these land uses are separated from the site by at least the width of the adjoining road. Existing uses are primarily commercial (including retail and restaurant/entertainment), office, and multi-family residential. To the north, existing uses include a gas station, a surface parking lot, and office space. Existing uses to the south include a theater (the Paramount Theater), a small surface parking lot (owned by BART), and a food and drink establishment (Lost and Found Beer Garden). To the east is a mix of small retail and restaurants, the Franklin Plaza, a night club, a children's dentist office (Pediatric Dentistry), and a philanthropic organization (the Kapor Center for Social Impact). Existing uses to the west include a church (First Baptist Church of Oakland) and an affordable housing organization (Mercy Housing).

The project site is across the street from several historic resources including the YMCA Building and the First Baptist Church of Oakland on Telegraph Avenue, and the Paramount Theater and Breuner Building on Broadway. Several other historic resources are within a 1- to 2-block radius including the I. Magnin Building on Broadway and the Emporium-Capwell building on Telegraph Avenue. Additionally, two potential historic districts—the Cathedral District and the Uptown Shopping/Entertainment District Areas of Primary Importance (APIs)—front on streets that border the project area. A more detailed discussion of existing and planned land uses is provided in *Section IV.A, Land Use*. Figure IV.A-1 illustrates the existing land uses on and surrounding the project site.

4. Existing General Plan and Zoning Designation

The City of Oakland General Plan[1] land use classification for the site, as established by the Land Use and Transportation Element, is Central Business District (CBD). The land use classifications for the project site and surrounding area are shown on Figure IV-1, in *Chapter IV, Planning Policy*. The intent of the CBD designation is to encourage, support, and enhance the downtown area as a high-density, mixed-use urban center of regional importance and a primary hub for business, communications, office, government, high technology, retail, entertainment, and transportation in Northern California.

The zoning designation for the site is Central Business District Pedestrian Retail Commercial Zone (CBD-P). The CBD-P zone is intended to create, maintain, and enhance areas of the Central Business District for ground-level, pedestrian-oriented, active storefront uses. Upper-story spaces are intended to be available for a wide range of office and residential activities. The maximum density allowed within both height areas is

[1] City of Oakland, March 1998. General Plan, Land Use and Transportation Element.

capped at a 20 floor area ratio (FAR). A more detailed discussion of the project's consistency with relevant land use policies is provided in *Chapter IV, Planning Policy*.

B. PROJECT BACKGROUND

1. Acquisition of Parcels

On March 26, 2015, pursuant to Resolution No. 85220 C.M.S. dated October 21, 2014, the City and TB2 Retail Complex, LLC, a California limited liability company comprised of the Strategic Urban Development Alliance (SUDA) and Hensel Phelps Construction Company (HPCC) executed an Exclusive Negotiation Negotiating Agreement (ENA) for development of a mixed-use development project on the property[1], consisting of at least 250 rental residential units, with 15 percent of the units to be affordable to low and moderate income households, approximately 220 residential parking spaces, a minimum of 15,000 square feet of ground floor retail, and a new parking garage to replace an existing City-owned public parking facility currently located on the property. The ENA was scheduled to expire October 21, 2016.

In November 2015, TB2 Retail Complex, LLC submitted a request for (1) an assignment of the ENA from TB2 Retail Complex, LLC to Developer, a joint venture partnership comprised of TB2 Retail Complex, LLC and Lane Partners/Walton Street Capital Partners, for development of a mixed-use office/retail project with a potential residential component in a second phase; (2) an amendment to extend the term of the ENA for a period of six months; and (3) an amendment of the ENA to extend certain performance deadlines (the "First Amendment"). The First Amendment was approved by the City in October 2016. A Second Amendment was approved by the City Administrator on April 21, 2017 extending the ENA negotiation period by six months to October 21, 2017. A Third Amendment to extend the ENA negotiation period by one year to October 21, 2018 (with a potential six-month additional extension) was approved by the City Council on October 17, 2017.

2. Current Planning Efforts in the Area

a. Downtown Oakland Specific Plan

The City of Oakland is in the process of preparing a specific plan for Downtown Oakland to ensure continued growth and revitalization that will benefit both Downtown residents and the larger community. It is anticipated the Specific Plan would not be considered for approval until 2019.

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[1] Property in this instance refers to the 1.76-acre property owned by the City.

b. Telegraph Avenue Complete Streets

The City of Oakland, in collaboration with the Alameda County Transportation Commission, is working to improve transportation safety and integration on Telegraph Avenue between 20th and 57th Streets for all modes of travel. The project builds on past planning efforts along Telegraph Avenue, including the 2005 Pedestrian Streetscape Improvement Project.[1] The initial planning phase of the project concluded in December 2014, and the first phase of implementation was completed in May 2016.

C. PROJECT OBJECTIVES

The development team's overarching objective is a project of viable scale that enhances Oakland's rich heritage, addresses critical market needs, and embraces the possibility of the future. Specific project objectives include the following:

- Redevelop a block composed of underutilized downtown properties into an iconic mixed-use development that maximizes the site's development potential based on the site's General Plan and zoning designations and market demand.
- Develop a project that strengthens and revitalizes the urban fabric of Downtown and the Uptown District, improves public safety, and activates the connection between Broadway and Telegraph Avenue.
- Establish a development program and project of a scale that is feasible given the unique development and engineering constraints associated with the BART tunnels and zone of influence that traverse the site and that provides flexibility to be responsive to market demand.
- Establish a development program and project that will successfully integrate the significant historic resources near the project site.
- Include a vibrant mix of uses including office, retail, community, and/or residential uses at densities to help address an existing deficit and anticipated future need for these types of spaces in downtown Oakland.
- Provide an increased opportunity for office tenants desiring a significant amount of large floor-plate space to locate in Oakland.
- Enhance and create employment opportunities and provide a robust economic impact on the City.

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[1] City of Oakland, 2016. Telegraph Avenue Complete Streets. Available at: http://www2.oaklandnet.com/Government/o/PWA/o/EC/s/TelegraphAvenue/, accessed December, 2016.

- Collaborate with Oakland's vibrant arts community to integrate local art and community elements into the project.
- Increase transit ridership and enhance quality of life at and around the 19th Street BART station and Downtown transit corridor by encouraging and supporting high quality transit-oriented development within walking distance of the BART station.
- Utilize advanced sustainable building design to be environmentally responsible and resource efficient throughout the life cycle of the development.
- Utilize progressive parking management strategies and ensure areas utilized for parking are designed to support conversion to alternative uses.
- Replace existing parking.
- Provide connectivity between the Broadway and Telegraph corridors and between Uptown and Downtown uses.
- Support the City's General Plan goals by creating a high density, vibrant infill development project that helps revitalize the City's Downtown Corridor and embodies principles of sustainable planning and construction.
- Generate significant new revenue streams for the City through increased property tax bases, retail revenue, jobs creation, gross receipts taxes, impact fees and new office worker population that support Broadway and Telegraph Avenue businesses.

D. PROPOSED PROJECT

To allow flexibility for the Eastline project to be responsive to changes in market demands and opportunities, two tiers of development approvals are proposed and considered in this EIR:

- **Planned Unit Development/Preliminary Development Plan (PUD/PDP).** A development framework to guide and regulate redevelopment of the site into an urban mixed-use development with up to 2.8 million square feet, consistent with the site's maximum floor area ratio (FAR) of 20. Four illustrative development scenarios are programmed in the PUD/PDP: a maximum residential scenario, a maximum office scenario, an office and residential scenario, and an all office scenario.
- **Final Development Plan(s) (FDP).** Approval of a FDP is required subsequent to approval of the PUD/PDP. The FDP shall conform in all major respects with the approved PDP and provide sufficient detail to indicate fully the ultimate operation and appearance of the development. The FDP that will be built is not yet known, but to ready the site for redevelopment as soon as possible, the development team has submitted two FDPs that are currently under review by the City. The first was

submitted in conjunction with the PUD/PDP and is specifically considered throughout this EIR.

- Residential/Office Mix FDP: Up to 880,550 square feet of large floor-plate office, a 365,000-square-foot residential tower (395 units), 85,000 square feet of ground floor retail, 18,500 square feet of community space, and six levels of parking.

Another FDP, the All Office FDP, was developed and submitted subsequent to the Residential/Office Mix FDP in response to current downtown market conditions. The All Office FDP is within the "book-ends" established in the PUD/PDP.

- All Office FDP: Up to 1,450,000 square feet of large floor-plate office, 80,000 square feet of ground floor retail, and six levels of parking.

The All Office FDP falls within the scope of the PUD/PDP EIR analysis. In any cases where potentially unique findings may be associated with the All Office FDP development scenario, such cases are described.

The project sponsor anticipates that full buildout of the Eastline project will be less intense than is the maximum allowed under the site's FAR and under the proposed PUD/PDP. However, this EIR analyzes a maximum buildout under the proposed PUD/PDP as the project for CEQA purposes to provide a comprehensive and conservative analysis that will cover subsequent FDP proposals that conform in all major respects with the proposed PUD/PDP. The proposed FDPs both fall within the "book-ends" of the two maximum development scenarios and are consistent with the blended development program included in the PUD/PDP.

1. Development Program

Table III-1 shows the maximum development allowed under current development standards and the maximum development range proposed as part of the PUD/PDP. The two parcels with frontages on Telegraph Avenue are located in Height Area 6, while the three parcels with frontages on Broadway are located in Height Area 7.

Four development scenarios are presented in the PUD/PDP to illustrate the range of development that could occur: a Maximum Residential Scenario, a Maximum Office Scenario, and the two scenarios that fall between the two maximum buildout scenarios (as shown in Table III-2). The two less intensive scenarios are also reflective of the two FDP submissions being considered. An overview of each development scenario is provided in Table III-2 and shown in Figure III-3a and Figure III-3b.

TABLE III-1 CITY DEVELOPMENT STANDARDS AND PUD/PDP RANGE

	Allowed Development[1]	Proposed PUD/PDP[1]
Floor Area Ratio (FAR)	20	10.53–20
Building Square Feet	2,800,820 sf	1,475,050–2,800,000 sf
Dwelling units (90 sf per lot area per unit)	1,556	395–1,556
Tower Height Area 6	No Limit	413–550 feet
Tower Height Area 7	No Limit	397–940 feet

Note: sf = square feet
[1] Based on existing site area of 140,041sf
Sources: City of Oakland Zoning Code, 2009; Urban Planning Partners, 2017; Gensler, 2016 and 2017.

TABLE III-2 SUMMARY OF PUD/PDP ILLUSTRATIVE DEVELOPMENT SCENARIOS

	Residential		Commercial			
PUD/PDP		395-1,556 units	1,475,050-2,800,000 sf			
Development Scenarios	**Residential Building Area (sf)**	**Dwellings (units)**	**Office Building Area (sf)**	**Retail Building Area (sf)**	**Community Space (sf)**	**Parking Levels**
Maximum Residential	1,652,000	1,556	–	99,220	37,150	3
Residential/Office Mix	**365,000**	395	**880,550**	**85,000**	**18,500**	**6**
All Office	**0**	0	**1,450,000**	**80,000**	**22,790**	**6**
Maximum Office	0	0	2,689,000	87,000	0	3
Total Development Range	up to 1,652,000	up to 1,556	up to 2,689,000	80,000–99,220	0–37,150	3–6

Notes: sf = square feet
The development scenarios aligned with the FDPs are presented in **bold**.
Source: Gensler, 2016 and 2017.

a. Maximum Residential Scenario

The Maximum Residential Scenario is a mixed-use development with up to 1,556 residential units located in three buildings, 99,220 square feet of ground floor retail, and 37,150 square feet of community space on the second floor at the corner of 22nd Street and Broadway. Figure III-4 shows a conceptual site plan and massing.

The building on the corner of 22nd and Telegraph and the building on 21st between Telegraph and Broadway would each be 41 floors (413 feet), while the building on 22nd Street and Broadway would be 51 floors (509 feet). This scenario would provide three levels of parking above the retail level and one level of subterranean parking. A total of 120,725 square feet of open space is proposed. Proposed site access is consistent for each scenario and is described in more detail below under Circulation and Parking.

b. Residential/Office Mix Scenario

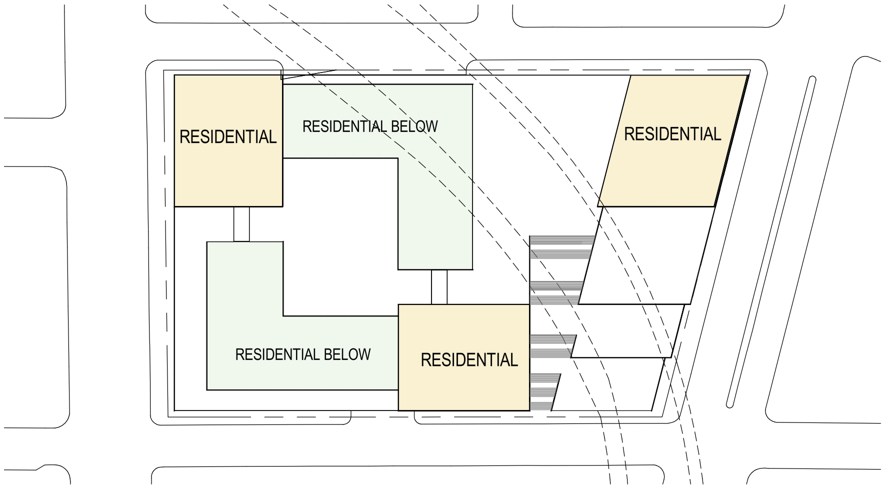
This scenario is a mixed-use development with up to: 880,550 square feet of office, up to 365,000 square-foot residential building (395 units), 85,000 square feet of ground floor retail, and 18,500 square feet of community space on the second floor at the corner of 22nd Street and Broadway. Figure III-5 shows conceptual massing. The residential building would be located on 22nd Street and Broadway and would be 41 floors (397 feet). This scenario would provide six levels of parking above the retail level and one level of subterranean parking. A total of 31,100 square feet of open space would include street-level landscaping and rooftop outdoor spaces and gardens. Other amenities would include a sport court and two private rooftop bars in the office component. This scenario is also consistent with the FDP submitted with the PUD/PDP.

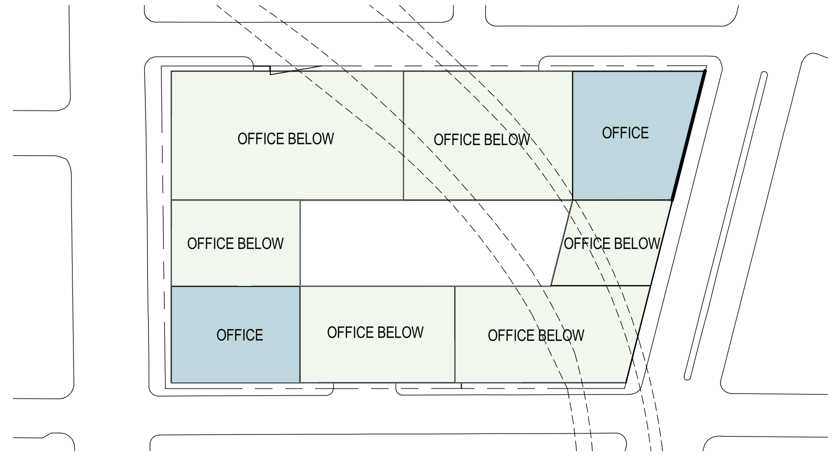
c. All Office Scenario

The scenario is primarily an office development with up to 1,450,000 square feet of office and 80,000 square feet of retail, and 22,790 square feet of community space. The building along the Broadway frontage would be 28 floors (and reach a height of 420 feet), while the building on Telegraph between 21st and 22nd Streets would be 13 floors (200 feet). This scenario would also provide six levels of parking above the retail level and one level of subterranean parking. Figure III-7 shows conceptual massing. This scenario is also consistent with the All Office FDP being considered.

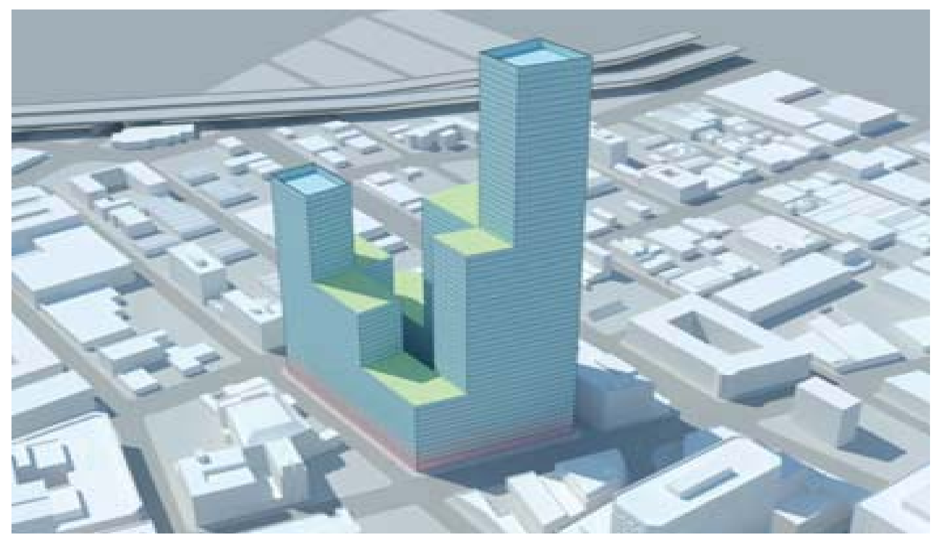
d. Maximum Office Scenario

The Maximum Office Scenario is a mixed-use development with approximately 2,689,000 square feet of office and 87,000 square feet of ground floor retail. Figure III-6 shows conceptual massing. The building at the corner of 22nd Street and Broadway would be 63 floors (940 feet). The second building at the corner of 21st and Telegraph would be 37 floors (550 feet). This scenario would provide three levels of parking above the retail level and one level of subterranean parking.





Maximum Residential Scenario- Massing

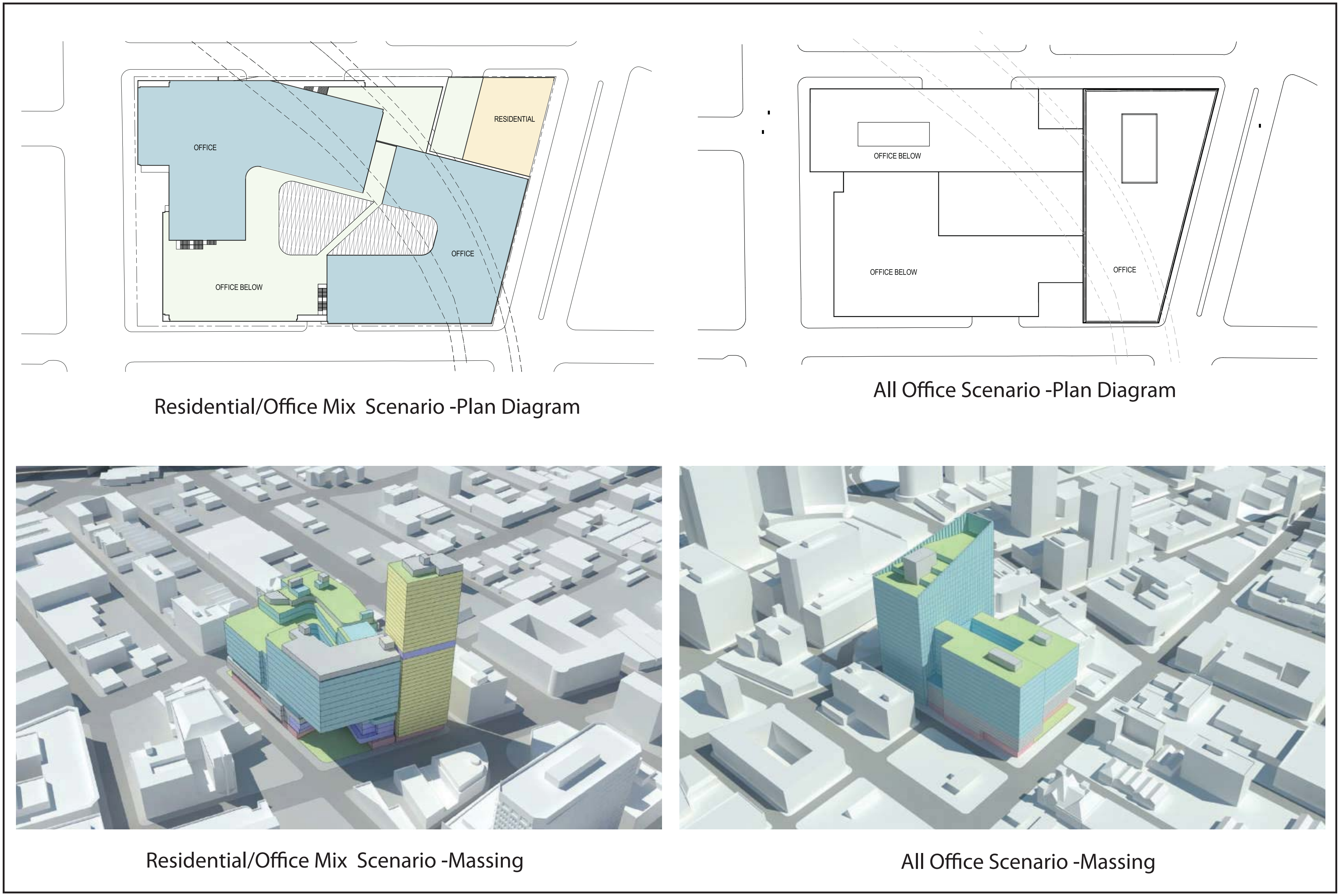


Maximum Office Scenario- Massing

Source: Gensler, 2017

Eastline Project - 2100 Telegraph EIR

Figure III-3a
Illustrative Development Scenarios
Maximum Residential and Maximum Office



Residential/Office Mix Scenario -Plan Diagram

All Office Scenario -Plan Diagram

Residential/Office Mix Scenario -Massing

All Office Scenario -Massing

Source: Gensler, 2017

Eastline Project - 2100 Telegraph EIR

Figure III-3b
Illustrative Development Scenarios
Residential/Office Mix and All Office

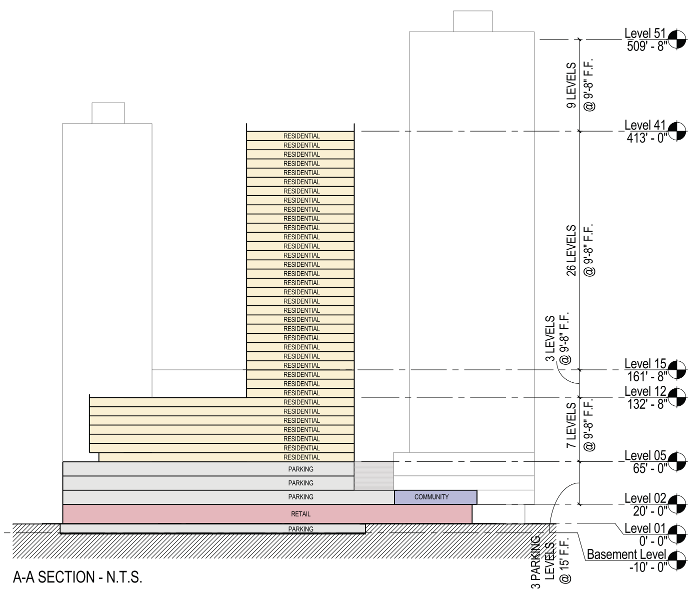
BUILDING AND TOTAL DEVELOPMENT AREA

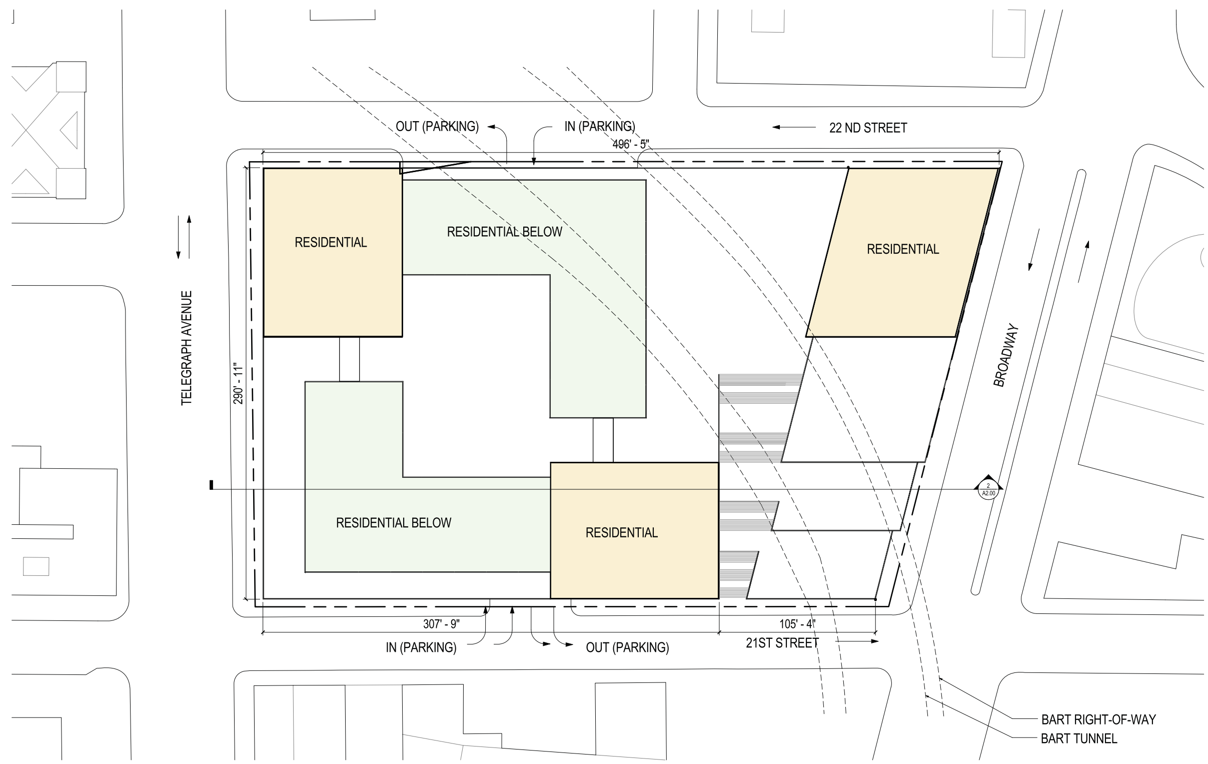
Use		Total GSF
Residential	(1,556 Units)	1,652,385
Community		37,150
Retail		99,220
Building Service		9,390
Total Floor Area		1,798,145
Parking	(1,750 Stalls)	386,800
Total Gross Area		2,184,945

USABLE OPEN SPACE REQUIRMENT
Per section 17.58.070

	Area per Unit	Units	Area Required	Area Provided
Open Space Requirement	75	1,556	116,700 sf	120,725 sf Complies

Note: All provided usable open space will comply with requirements of section 17.58.070 including minimum dimensions, accessibility, and landscaping requirements.





Source: Gensler, 2016

Figure III-4
Conceptual Building Massing - Maximum Residential Scenario

Eastline Project - 2100 Telegraph EIR

BUILDING AND TOTAL DEVELOPMENT AREA

Use	Office Building GSF	Resi Tower GSF	Total GSF
Office	880,550	0	880,550
Residential	0	365,000	365,000
Community	18,500	0	18,500
Retail	80,660	4,340	85,000
Building Service and Mech	109,000	17,000	126,000
Total Floor Area	1,088,710	386,340	1,475,050
Parking	307,600	0	307,600
Total Gross Area	1,396,310	386,340	1,782,650

USABLE OPEN SPACE REQUIRMENT

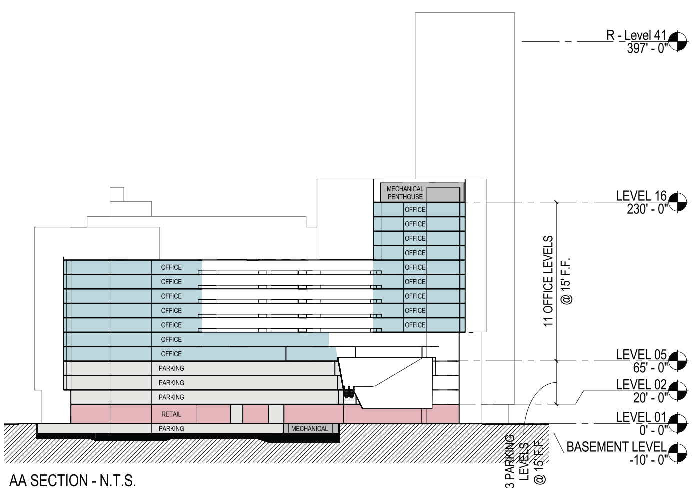
Per section 17.58.070

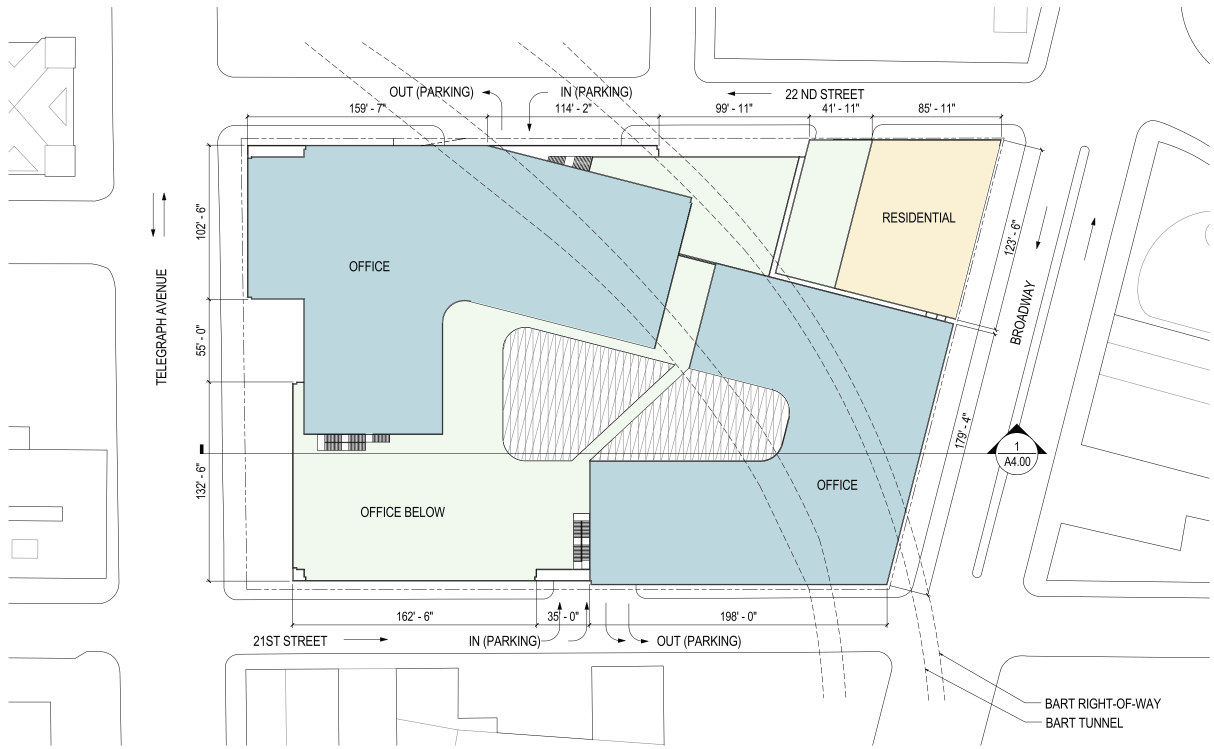
	Area per Unit	Units	Area Required	Area Provided
Open Space Requirement	75	395	29,625 sf	31,100 sf Complies

Note: All provided usable open space will comply with requirements of section 17.58.070 including minimum dimensions, accessibility, and landscaping requirements.

PARKING INFORMATION

Total Parking Area: 307,600 sf
Number of Cars Parked Per Plan: 835 cars
Maximum Number of Cars with Valet and Stacking: 1,750 cars



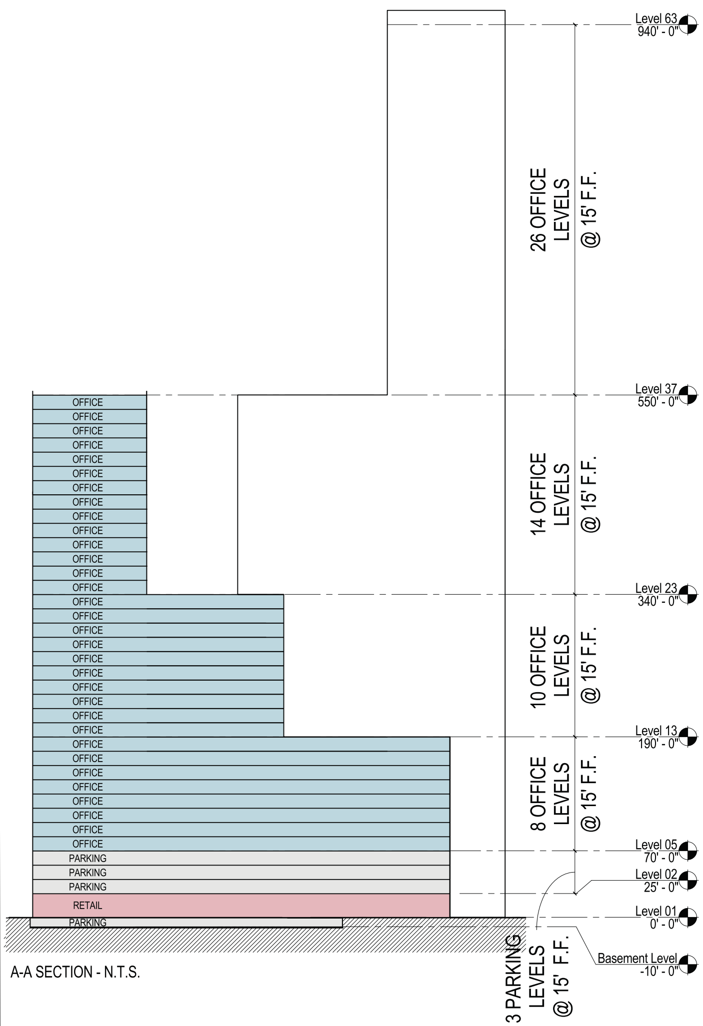


Source: Gensler, 2016

Figure III-5

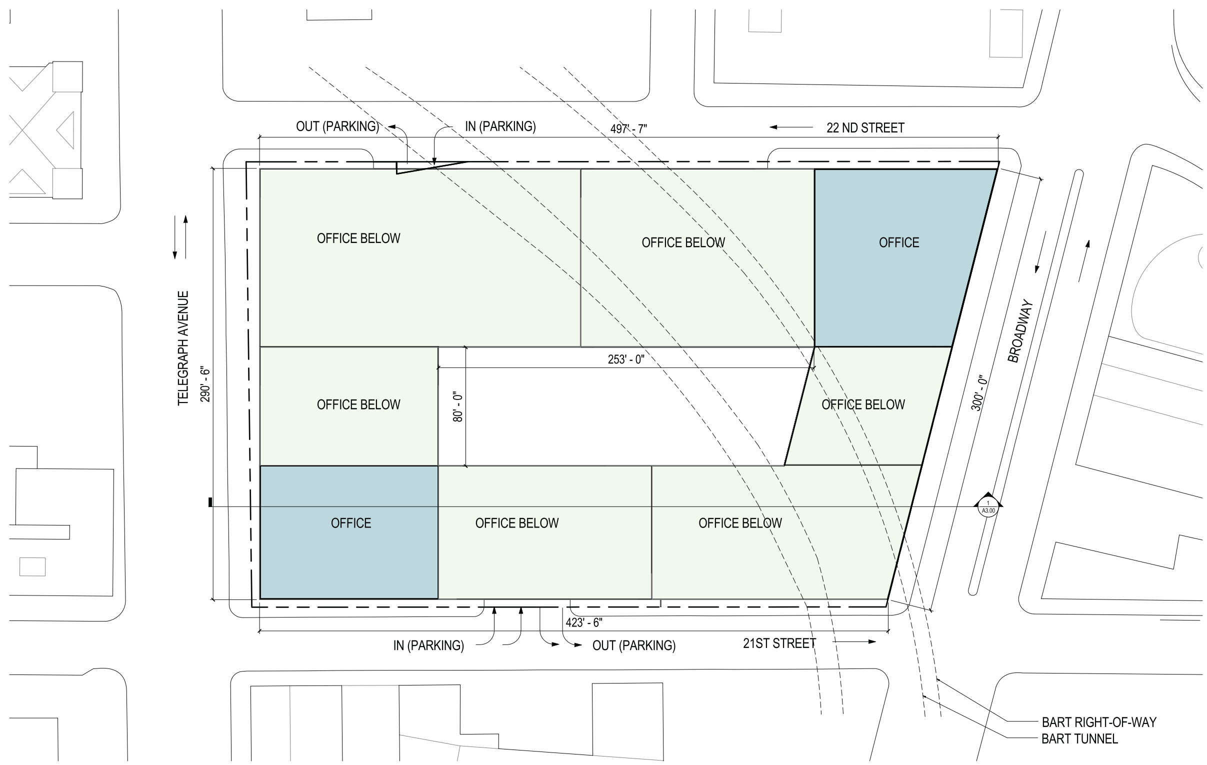
Conceptual Building Massing - Residential/Office Mix Scenario

Eastline Project - 2100 Telegraph EIR



BUILDING AND TOTAL DEVELOPMENT AREA

Use		Total GSF
Office		2,689,000
Retail		87,000
Building Service		24,000
Total Floor Area		2,800,000
Parking	(1,750 Stalls)	310,000
Total Gross Area		3,110,000



Source: Gensler, 2016

Eastline Project - 2100 Telegraph EIR

Figure III-6

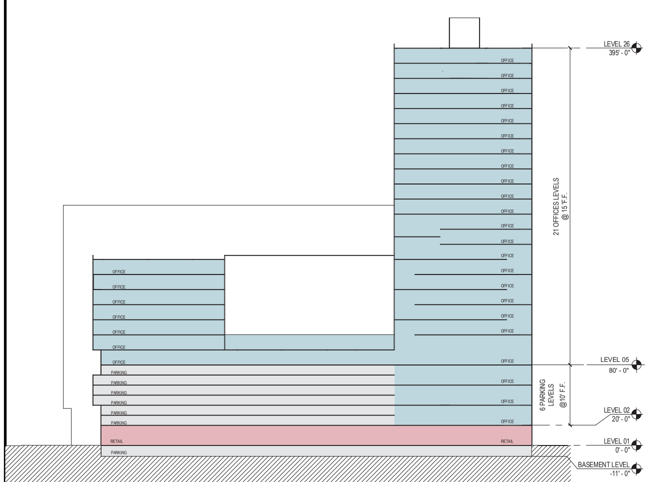
Conceptual Building Massing - Maximum Office Scenario

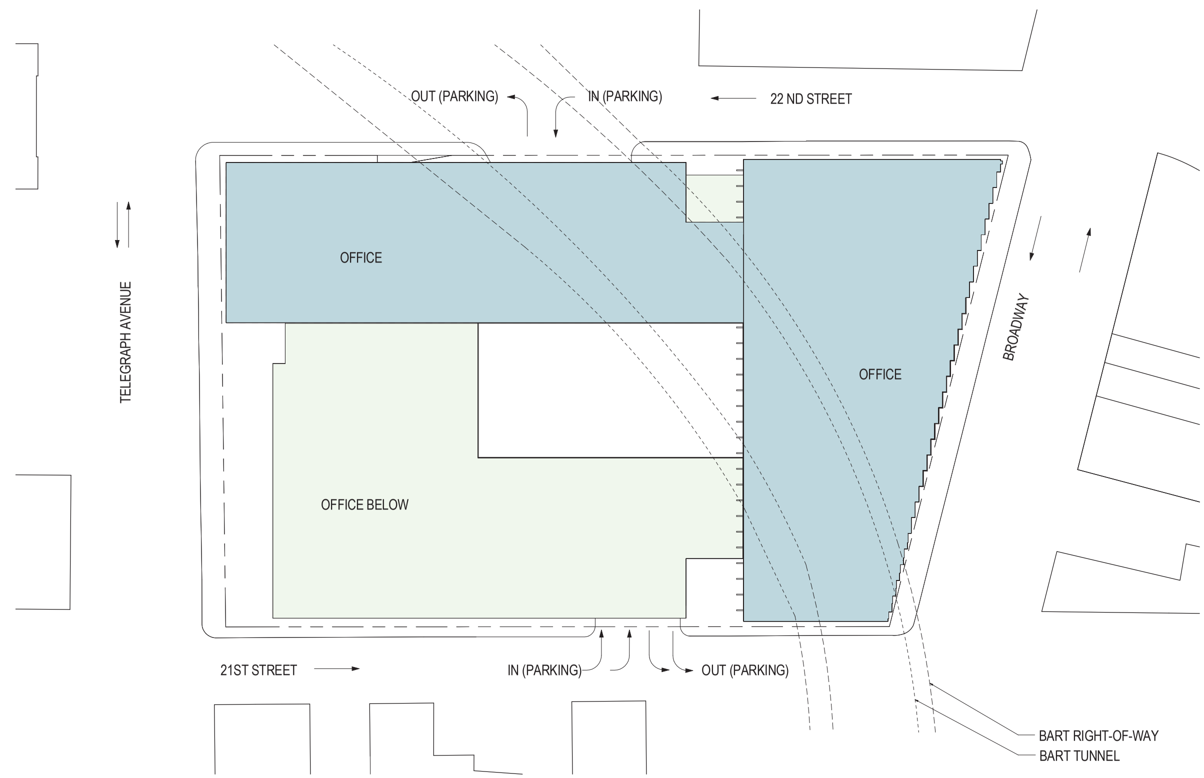
BUILDING AND TOTAL DEVELOPMENT AREA

Use	Total GSF
Office	1,493,920
Retail	62,340
Building Service and Mech	83,340
Total Floor Area	1,639,600
Parking	645,600
Total Gross Area	2,285,200

PARKING INFORMATION

Total Parking Area: 645,600 sf
Total Number of Cars Parked: 1,690 cars





Source: Gensler, 2017

Figure III-7
Conceptual Building Massing - All Office Scenario

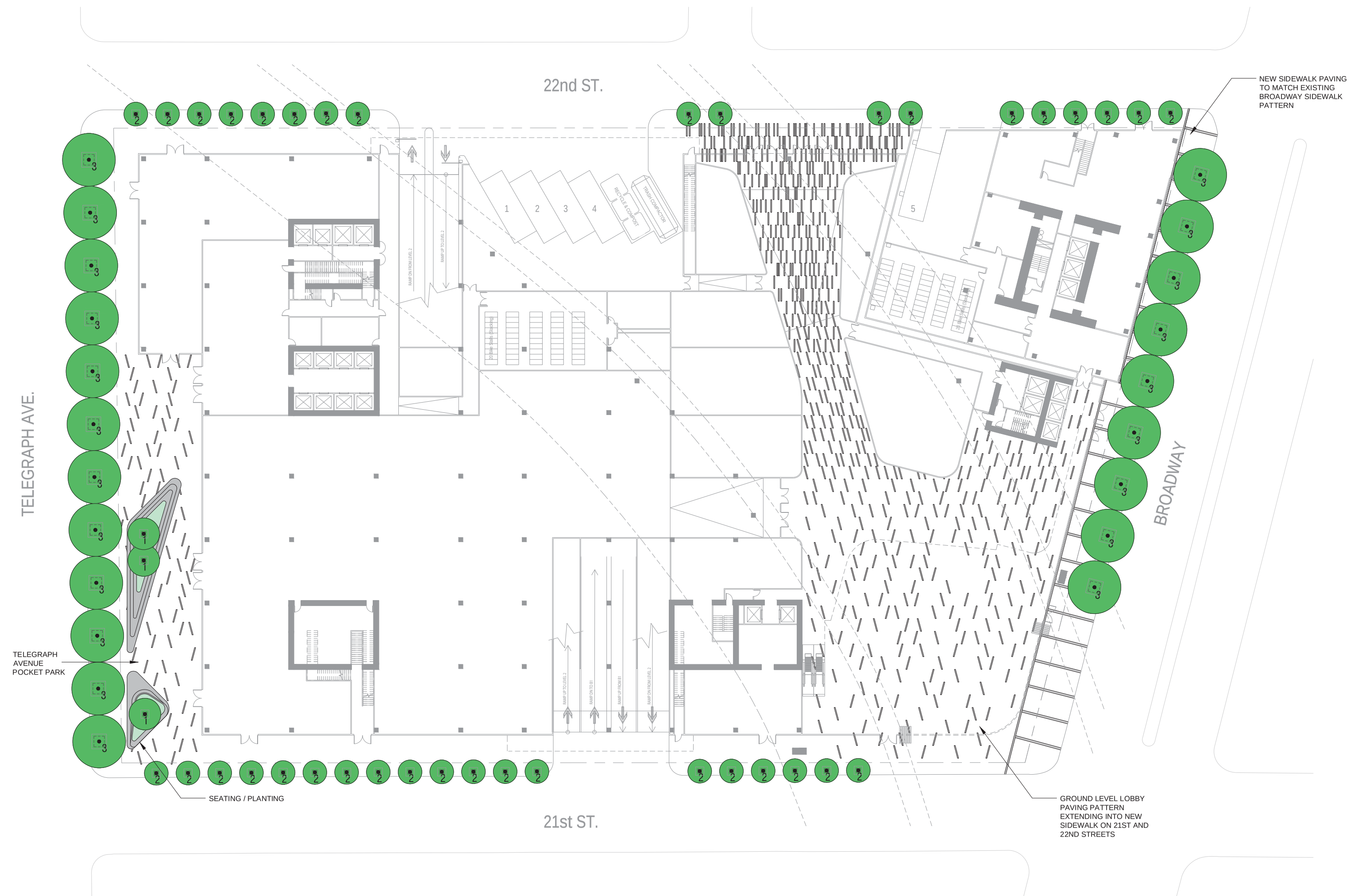
2. Circulation and Parking

Two vehicle access points to and from the parking levels are proposed along 21st and 22nd Streets. The project would provide between three to six levels of parking above the retail level and one level of subterranean parking. Parking supply would be provided at a ratio of up to one space per 500 square feet of office/commercial development, one space per 300 square feet of retail development, one per 500 square feet of community space, and 1.25 spaces per residential unit. Under all development scenarios (except for the All Office Scenario), a total of 1,750 parking stalls would be provided. Bicycle parking would be provided at a ratio of up to one space per 1,000 square feet of office/commercial development, one space per 12,000 square feet of retail, two spaces for the community space (to fulfill the minimum requirement), and one space for every four residential units. Under each of the development scenarios, bicycle storage areas would be provided in the office and/or residential buildings. Under the All Office Scenario, a total of 2,050 parking spaces would be provided.

For each of the development scenarios, truck loading would be located on the ground floor on 22nd Street. Additional parking would be located at the basement level accessible via 21nd Street. Above ground parking is accessible from both 21st and 22nd Streets. The two closest bus stations are located one block away from the project site at Broadway/West Grand Avenue and Telegraph Avenue/West Grand Avenue. The 19th Street BART Station is located one block south of the project site.

3. Landscaping and Streetscape

Each scenario includes landscaping and open space at the street level as well as on multiple building terraces and rooftops. The analysis of landscaping and open space in this EIR focuses on the Office/Residential Mix Scenario and All Office Scenario since they are consistent with the specific developments being pursued. The final landscaping and open space plans would be subject to City approval. An overview of the landscaping and open space amenities on each level for the Residential/Office Mix Scenario is provided below in Table III-3 and shown in Figures III-8 to III-12. An overview of the landscaping and open space amenities for the All Office Scenario is shown in Figure III-13 to III-17.



STREETSCAPE - CANOPY TREES

STREETSCAPE - COLUMNAR TREES

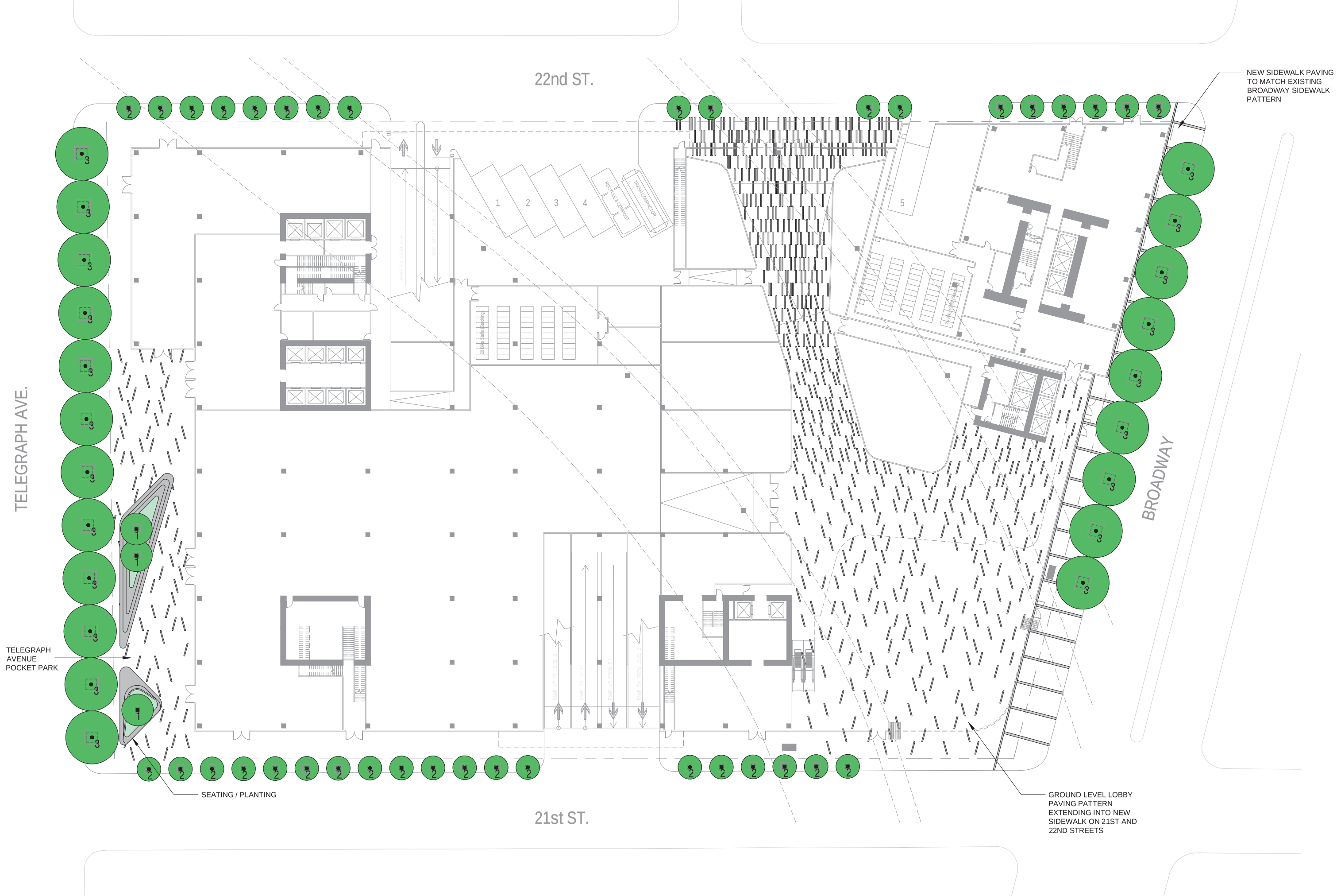
GROUND FLOOR PLANTING SCHEDULE

SYMBOL	TYPE	SCIENTIFIC NAME	COMMON NAME	QUANTITY / AREA (SQ FT)	SIZE	IRRIGATION
1	TREE	*Olea europaea 'Swan Hill'*	Fruitless Olive 'Swan Hill'	3	48" OR 60" Box	Drip Irrigation
2	TREE	*Lophostemon confertus*	Brisbane Box	37	36" Box	Drip Irrigation
3	TREE		London Planetree	21	48" Box	Drip Irrigation
	PLANTING	*Lavandula latifolia*	Lavandula latifolia	462 (SQ FT)	1 Gal	Drip Irrigation

Source: Gensler, 2016

Eastline Project - 2100 Telegraph EIR

Figure III-8
Landscaping and Open Space at Street Level



STREETSCAPE - CANOPY TREES

STREETSCAPE - COLUMNAR TREES

GROUND FLOOR PLANTING SCHEDULE

SYMBOL	TYPE	SCIENTIFIC NAME	COMMON NAME	QUANTITY / AREA (SQ FT)	SIZE	IRRIGATION
1	TREE	*Olea europaea 'Swan Hill'*	Fruitless Olive 'Swan Hill'	3	48" OR 60" Box	Drip Irrigation
2	TREE	*Lophostemon confertus*	Brisbane Box	37	36" Box	Drip Irrigation
3	TREE		London Planetree	21	48" Box	Drip Irrigation
	PLANTING	*Lavandula latifolia*	Lavandula latifolia	462 (SQ FT)	1 Gal	Drip Irrigation

Source: Gensler, 2016

Eastline Project - 2100 Telegraph EIR

Figure III-9

Open Space on 2nd Level of Residential Tower and 5th and 6th Level of Office

LIVING ROOF

ROOFTOP COURTYARDS

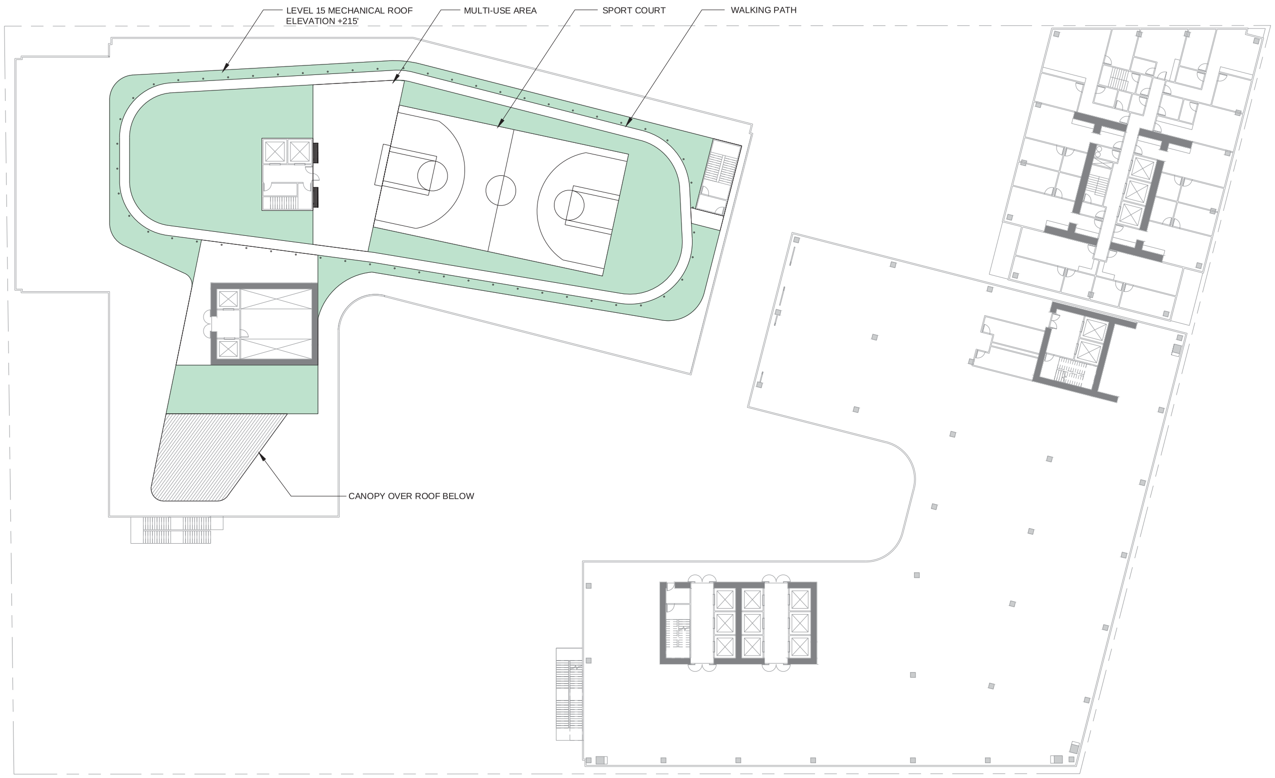
ROOF PLANTING SCHEDULE

SYMBOL	TYPE	QUANTITY / AREA (SQ FT)	IRRIGATION
	TREE	38	Drip Irrigation
	PLANTING (OFFICE)	18,340 (SQ FT)	Drip Irrigation

Source: Gensler, 2016

Eastline Project - 2100 Telegraph EIR

Figure III-10
Open Space on Office Rooftops



ROOF PLANTING SCHEDULE

SYMBOL	TYPE	QUANTITY / AREA (SQ FT)	IRRIGATION
	PLANTING (OFFICE)	10,800 (SQ FT)	Drip Irrigation

LIVING ROOF

SPORT COURTS

Source: Gensler, 2016

Eastline Project - 2100 Telegraph EIR

Figure III-11
Mechanical Rooftop

LIVING ROOF

ROOF PLANTING SCHEDULE

SYMBOL	TYPE	QUANTITY / AREA (SQ FT)	IRRIGATION
	TREE	10	Drip Irrigation
	PLANTING (OFFICE)	1,950 (SQ FT)	Drip Irrigation
	PLANTING (RESIDENTIAL)	1,460 (SQ FT)	Drip Irrigation

OTHER LANDSCAPING ELEMENTS

SYMBOL	TYPE	QUANTITY / AREA (SQ FT)
	POOL (RESIDENTIAL)	660 (SQ FT)

Source: Gensler, 2016

Eastline Project - 2100 Telegraph EIR

Figure III-12
Open Space on Office Rooftop and Residential Tower

TABLE III-3 LANDSCAPING AND OPEN SPACE AMENITIES FOR RESIDENTIAL/OFFICE MIX SCENARIO

	Public Open Space	Private Open Space
Street Level	14,200 sf	–
Balconies	--	8,900 sf
Residential Tower Roof	--	8,000 sf

Note: sf = square feet
Source: Gensler, 2016 and 2017.

a. Residential/Office Mix Scenario

- **Street Level** (see Figure III-8). The street level would include an 8,800-square-foot ground-level lobby as a community gathering area, street trees, planting areas, and seating, as well as up to 5,400-square-foot pocket park on the corner of Telegraph Avenue and 21st Street.
- **Second Level of Residential Tower** (see Figure III-9). This area would include a residential garden and patio area with a living wall.
- **Fifth and Sixth Level of Office** (see Figure III-9). Level 5 would include an outdoor meeting room and Level 6 would include a multi-use space. Both levels would have seating and planting areas.
- **Office Roofs** (see Figure III-10). The rooftops fronting Telegraph Avenue would include a café and bar with seating and planting areas. These rooftops would not be open to the public.
- **Mechanical Roof** (see Figure III-11). This outdoor space would include a walking path, sport court, and multi-use area with planting areas.
- **Office and Residential Roof** (see Figure III-12). The residential rooftop would include a lap pool, and the Office roof fronting Broadway would include a roof terrace. Both rooftops would have additional planting areas.

b. All Office Scenario

- **Street Level** (see Figure III-13). The street level would include an 11,300 square-foot ground-level lobby as a community gathering area, street trees, planting areas, and seating, as well a 4,900 square-foot pocket park on the corner of Telegraph Avenue and 21st Street.

- **Level 12** (see Figure III-14). This area would include a paved seating area, a 2,500-square-foot lawn, outdoor space under trellis, and 20 trees clustered throughout the paved seating areas, trellises, and lawn.
- **Level 17** (see Figure III-15). Level 17 includes a walking path, sport court, a multi-use area with plantings, as well as a lap pool.
- **Level 25** (see Figure III-16). This area would include various plantings equal to 2,200 square feet, and 10 trees.
- **Level 26** (see Figure III-17). This area would include various plantings equal to 4,000 square feet, and 12 trees.

TABLE III-4 LANDSCAPING AND OPEN SPACE AMENITIES FOR ALL OFFICE SCENARIO

	Public Open Space	Private Open Space[2]
Street Level	16, 200	–

Note: sf = square feet
Source: Gensler, 2017.
[2] Levels 12, 17, 25, 26 open space is considered rentable open space.

4. Utilities and Infrastructure Improvements

Utility services are currently provided to existing buildings surrounding the project site, and would be readily available to serve the proposed project. Water supply and treatment, and wastewater treatment are provided to Oakland by EBMUD. The project site is currently served by sanitary sewer and water lines. Minor connections to these existing lines would be required to serve new structures on the project site. The project applicant, the project design, and occupants of the project site would be required to comply with the waste reduction and recycling regulations outlined in Oakland Municipal Code Chapter 15.34.

The project is required to earn LEED Silver but will aim for LEED Gold or Platinum rating. Water efficiency elements include low flow fixtures beyond code requirements, greywater and rainwater recycling, on-site water purification, native plantings, and use of recycled water for all irrigation. Energy efficiency features include a central plant to allow for shared energy between buildings, rooftop solar panels designed to supply 10 percent of more of the building's electricity, high-performance façade to let light in and keep heat out, mixed-mode ventilation and daylighting, integrated smart controls, LED lighting and shading and an underfloor air system to deliver best-in-class indoor air quality.[1]

[1] ARUP, 2017. LEED Checklist for Eastline Project (2100 Telegraph) core and shell. February 28.

GROUND FLOOR PLANTING SCHEDULE

SYMBOL	TYPE	SCIENTIFIC NAME	COMMON NAME	QUANTITY / AREA (SQ FT)	SIZE	IRRIGATION
1	TREE	*Olea europeaa 'Swan Hill'*	Fruitless Olive 'Swan Hill'	3	48" OR 60" Box	Drip Irrigation
2	TREE	*Lophostemon confertus*	Brisbane Box	27	36" Box	Drip Irrigation
3	TREE		London Planetree	18	48" Box	Drip Irrigation
	PLANTING	*Lavandula latifolia*	Lavandula latifolia	462 (SQ FT)	1 Gal	Drip Irrigation

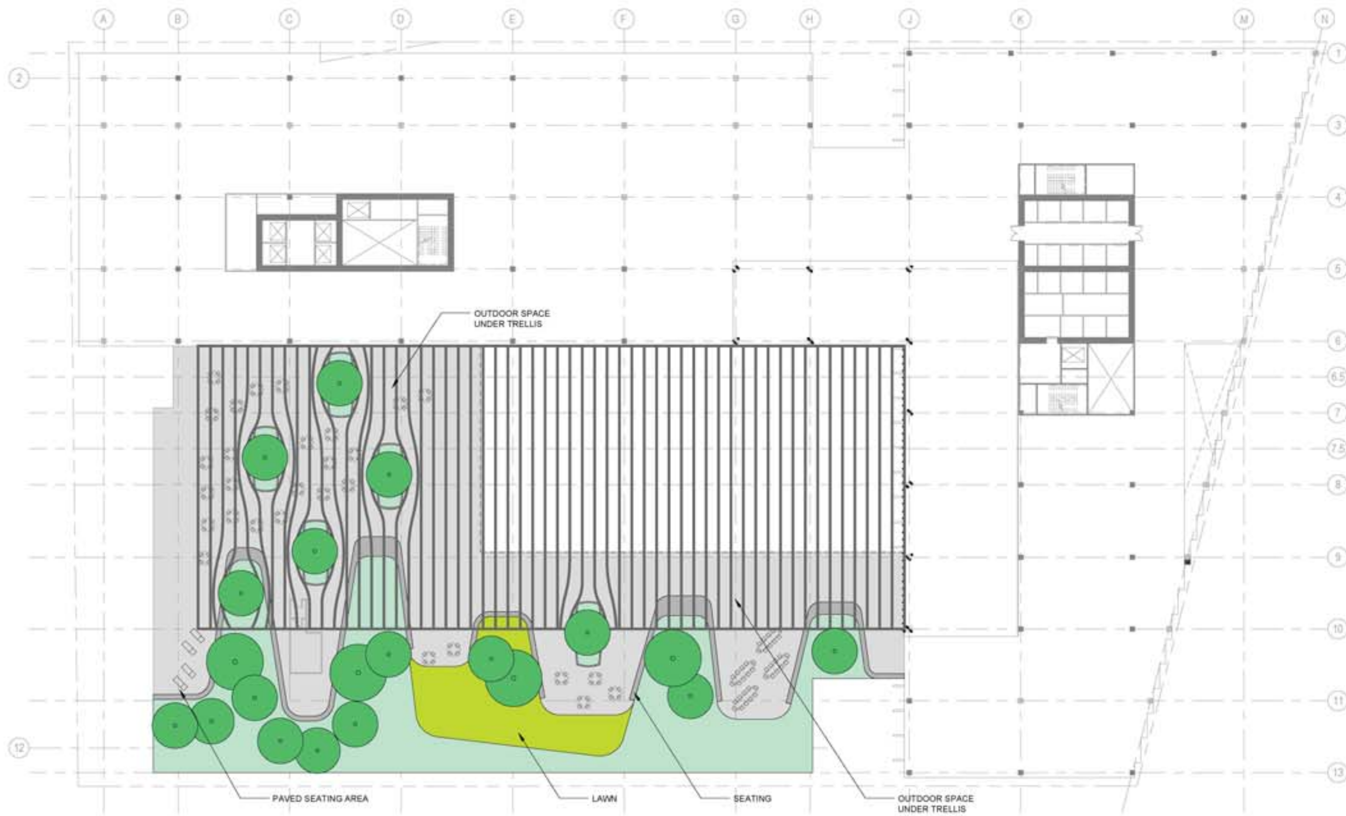
STREETSCAPE - CANOPY TREES

STREETSCAPE - COLUMNAR TREES

Source: Gensler, 2017

Eastline Project - 2100 Telegraph EIR

Figure III-13
Landscaping and Open Space at Street Level for All Office Scenario



ROOF PLANTING SCHEDULE

SYMBOL	TYPE	QUANTITY / AREA (SQ FT)	IRRIGATION
	TREE	20	Drip Irrigation
	PLANTING	11,000 (SQ FT)	Drip Irrigation
	LAWN	2,500 (SQ FT)	Drip Irrigation

TRELLIS

INDOOR / OUTDOOR CONNECTIONS

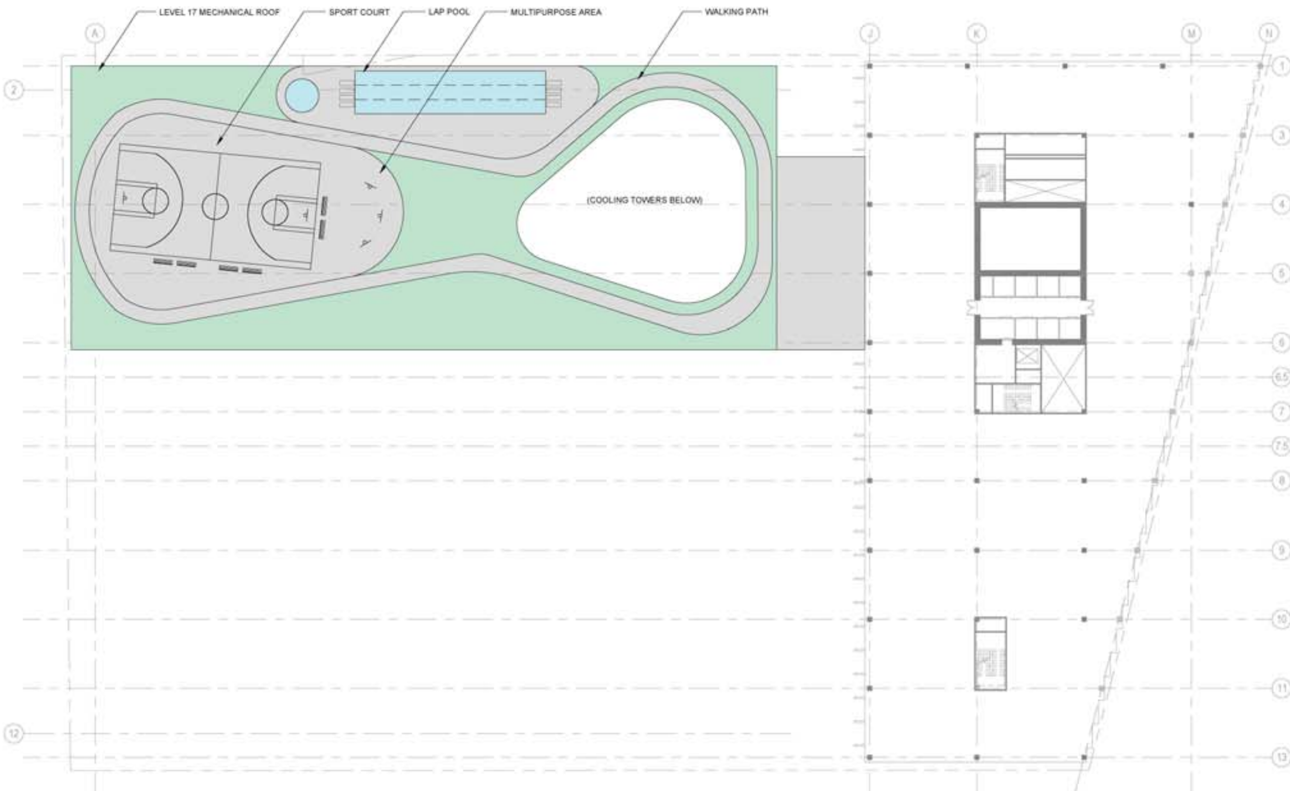
LIVING ROOF

Source: Gensler, 2017

Figure III-14

Landscaping Plan- Level 12

Eastline Project - 2100 Telegraph EIR



ROOF PLANTING SCHEDULE

SYMBOL	TYPE	QUANTITY / AREA (SQ FT)	IRRIGATION
	PLANTING	12,800 (SQ FT)	Drip Irrigation

WALKING PATH

SPORT COURTS

Source: Gensler, 2017

Figure III-15
Landscaping Plan- Level 17

ROOF PLANTING SCHEDULE

SYMBOL	TYPE	QUANTITY / AREA (SQ FT)	IRRIGATION
	TREE	10	Drip Irrigation
	PLANTING	2,200 (SQ FT)	Drip Irrigation

INDOOR / OUTDOOR CONNECTIONS

LIVING ROOF

Source: Gensler, 2017

Figure III-16
Landscaping Plan- Level 25

ROOF PLANTING SCHEDULE

SYMBOL	TYPE	QUANTITY / AREA (SQ FT)	IRRIGATION
	TREE	12	Drip Irrigation
	PLANTING	4,000 (SQ FT)	Drip Irrigation

TRELLIS

INDOOR / OUTDOOR CONNECTIONS

LIVING ROOF

Source: Gensler, 2017

Eastline Project - 2100 Telegraph EIR

Figure III-17
Landscaping Plan- Level 26

5. Demolition and Site Preparation

Other than the BART tunnels, all existing structures, site improvements and landscaping on the project site are planned to be demolished/removed. The current structures include the approximately 154,000-square-foot City-owned parking garage (approximately 351 spaces), three office buildings totaling 53,314 square feet, and the 2,115-square-foot fast-food restaurant building. In addition to buildings and parking lots, all 29 trees on the project site would be removed and replaced. Trees currently exist along most of the perimeter of the site, with the exception of the corner parcel at Telegraph Avenue and 22nd Street.

Excavation for the one subterranean level of parking and building foundations would extend approximately 10 feet below the existing ground surface and require removal of approximately 67,000 cubic yards of soil and 1,000 cubic yards of fill.

a. Construction Operations and Schedule

It is expected that project construction would begin as early as 2018 and last 24 to 30 months, ending in 2020 when building occupation is anticipated. Construction equipment would include excavators, graders, rubber-tired dozers, tractors, loaders, backhoes, cranes, forklifts, generator sets, tractors, loaders, drill rigs, and pumps.

E. DISCRETIONARY ACTIONS

It is anticipated that this EIR will provide environmental review of all discretionary approvals and actions required for the proposed project. A number of permits and approvals would be required before project development could be initiated. As Lead Agency for the proposed project, the City of Oakland would be responsible for the majority of these approvals. The City would require a series of discretionary actions associated with approval of the project, which are described below and summarized in Table III-4. Other agencies would have some authority related to the project and its approvals. A list of permits and approvals that could be required by the City and other agencies, without limitations, is provided in Table III-4.

TABLE III-5 REQUIRED PERMITS AND APPROVALS

Lead Agency	Permit/Approval
City of Oakland	▪ Environmental Review ▪ Planned Unit Development/Preliminary and Final Development Plans ▪ Design Review ▪ Vesting Parcel/Subdivision Maps to combine and/or configure parcels ▪ Disposition and Development Agreement ▪ Development Agreement ▪ Tree Removal Permits ▪ General City Administrative Permits, including demolition, excavation, encroachment, and building permits ▪ Street Vacation for corner the curve at 22nd and Telegraph.
Responsible Agencies	
BART	▪ Issuance of any encroachment permits for BART property, if necessary
San Francisco Bay Regional Water Quality Control Board	▪ National Pollutant Discharge Elimination System permit for stormwater discharge

Source: Urban Planning Partners, 2016.

1. City of Oakland

Key discretionary actions required by the City of Oakland are outlined below.

a. Planned Unit Development/Preliminary Development Plan & Final Development Plans

The project would require approval of a PUD/PDP and subsequent FDPs, depicting the project site layout and design. The PUD/PDP requires review and approval by the Planning Commission. Subsequent FDPs would require approval by the Planning Commission.

b. Design Review

The project would be subject to the design provisions outlined in the Planning Code, which would require approval by the Planning Commission, including preliminary review by the Design Review Committee.

c. Disposition and Development Agreement

The project applicant would enter into a negotiated Disposition and Development Agreement with the City of Oakland which will provide for disposition of the City-owned property, the amount and form of the City's financial assistance for the project, if any, and the requirements that will be placed on the project as a result. This agreement will require review and approval by the City Council. A separate Development Agreement, under Government Code section 65864 et seq. may be pursued.

d. Vesting Parcel/Subdivision Maps

The project would require a vesting parcel and/or subdivision map to consolidate and/or reorganize existing parcel lines for parcels within the project site.

e. Tree Removal Permits

Pursuant to the City's Protected Trees Ordinance, the project applicant would be required to obtain an approved Tree Removal Permit prior to removal of (or construction activity near) a "Protected Tree," as defined in Oakland Municipal Code. Tree permits would require approval by the Oakland Office of Parks and Recreation.

IV. PLANNING POLICY

This chapter discusses the Eastline project's consistency with applicable land use planning and regulatory documents. The documents reviewed include several elements of the City of Oakland General Plan (General Plan)—the Land Use and Transportation Element (LUTE) (adopted March 24, 1998),[1] the Housing Element 2015–2023 (adopted December 9, 2014),[2] the Open Space, Conservation, and Recreation (OSCAR) Element (adopted June, 1996),[3] the Historic Preservation Element,[4] the Noise Element,[5] and the Safety Element[6]—as well as the City of Oakland's (City) Pedestrian Master Plan (adopted November 12, 2002);[7] Bicycle Master Plan (adopted December 7, 2007);[8] Central District Urban Renewal Plan (adopted June 12, 1969, as amended up to April 2012);[9] and the Oakland Planning Code (effective November 3, 2016).[10]

Policy conflicts in and of themselves, in the absence of adverse physical impacts, are not considered to have significant effects on the environment and are differentiated from impacts identified in the other topical sections of this chapter. Pursuant to the California Environmental Quality Act (CEQA), the fact that a specific project does not meet all of a general plan's goals, policies, and objectives does not inherently result in a significant effect on the environment. Physical impacts associated with policy conflicts are addressed in the appropriate technical sections of *Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures* (e.g., Noise, Traffic). Additionally, local, regional,

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[1] City of Oakland, 1998. Land Use and Transportation Element, Final EIR. February.

[2] City of Oakland, 2014. 2015–2023 Housing Element Addendum to the 2010 Housing Element EIR.

[3] City of Oakland, 1996. Open Space, Conservation, and Recreation (OSCAR) Element. June, 1996.

[4] City of Oakland, 1994. City of Oakland Historic Preservation Element, March 8.

[5] City of Oakland, 2005. General Plan, Noise Element. June.

[6] City of Oakland, 2004. General Plan, Safety Element. November, Amended 2012.

[7] City of Oakland, 2002. Land Use and Transportation Element, Pedestrian Master Plan. Adopted November 12, 2002.

[8] City of Oakland, 2007. Land Use and Transportation Element, Bicycle Master Plan. Adopted December, 2007.

[9] Oakland Redevelopment Agency, 2012. Central District Urban Renewal Plan. Adopted June 12, 1969, as amended through April 3, 2012.

[10] City of Oakland, 2016. City of Oakland Planning Code. CEDA: Planning and Zoning. Available at: http://www2.oaklandnet.com/oakca1/groups/ceda/documents/report/oak032032.pdf, accessed January 1, 2017.

and State of California (State) plans and policies, such as those relating to air quality or water quality, are discussed in the applicable sections of this Environmental Impact Report (EIR).

A. APPLICABLE REGULATORY DOCUMENTS AND POLICY CONSISTENCY

Applicable plans and major policies and regulations that pertain to the Eastline project are presented below, followed by a discussion of the project's overall consistency (or inconsistency) with each regulatory document. To assess the project's consistency, the analysis considers each of the four illustrative development scenarios, two of which are the same as the proposed FDPs.

As noted above, conflicts with a general plan do not inherently result in a significant effect on the environment within the context of CEQA. As stated in Section 15358(b) of the CEQA Guidelines, "[e]ffects analyzed under CEQA must be related to a physical change." Section 15125(d) of the CEQA Guidelines states that EIRs shall discuss any inconsistencies between the project and applicable general plans in the "Setting" section of the document (not under "Impacts").

Further, Appendix G of the CEQA Guidelines (Environmental Checklist Form) makes explicit the focus on *environmental* policies and plans, asking if the project would "conflict with any applicable land use plan, policy, or regulation . . . *adopted for the purpose of avoiding or mitigating an environmental effect*" (emphasis added). Even a response in the affirmative, however, does not necessarily indicate that the project would have a significant effect, unless a physical change would occur. To the extent that physical impacts may result from such conflicts, such physical impacts are analyzed elsewhere in this EIR.

1. City of Oakland General Plan

The General Plan is a comprehensive plan for growth and development in Oakland. The General Plan includes policies related to land use and transportation; pedestrians; bicycles; housing; open space, conservation, and recreation; historic resources; estuary policy; safety; scenic highways; and noise. These topics are addressed within individual elements of the General Plan. The project site is also within the area of the draft Downtown Oakland Specific Plan, which is expected to be adopted by 2019.

Regarding a project's consistency with a general plan in the context of CEQA, the City of Oakland General Plan states the following:

> "The General Plan contains many policies which may in some cases address different goals, policies, and objectives and thus some policies may compete with each other. The Planning Commission and City Council, in deciding whether to approve a proposed project, must decide whether, on balance, the project is consistent (i.e., in general harmony) with the General Plan. The fact that a specific project does not meet all General Plan goals, policies and objectives does not inherently result in a significant effect on the environment within the context of the California Environmental Quality Act (CEQA)." (City Council Resolution No. 79312 C.M.S.; adopted June 2005)

The project's consistency and relationship with each applicable element of the General Plan is discussed below and summarized in Table IV-1 at the end of this chapter.

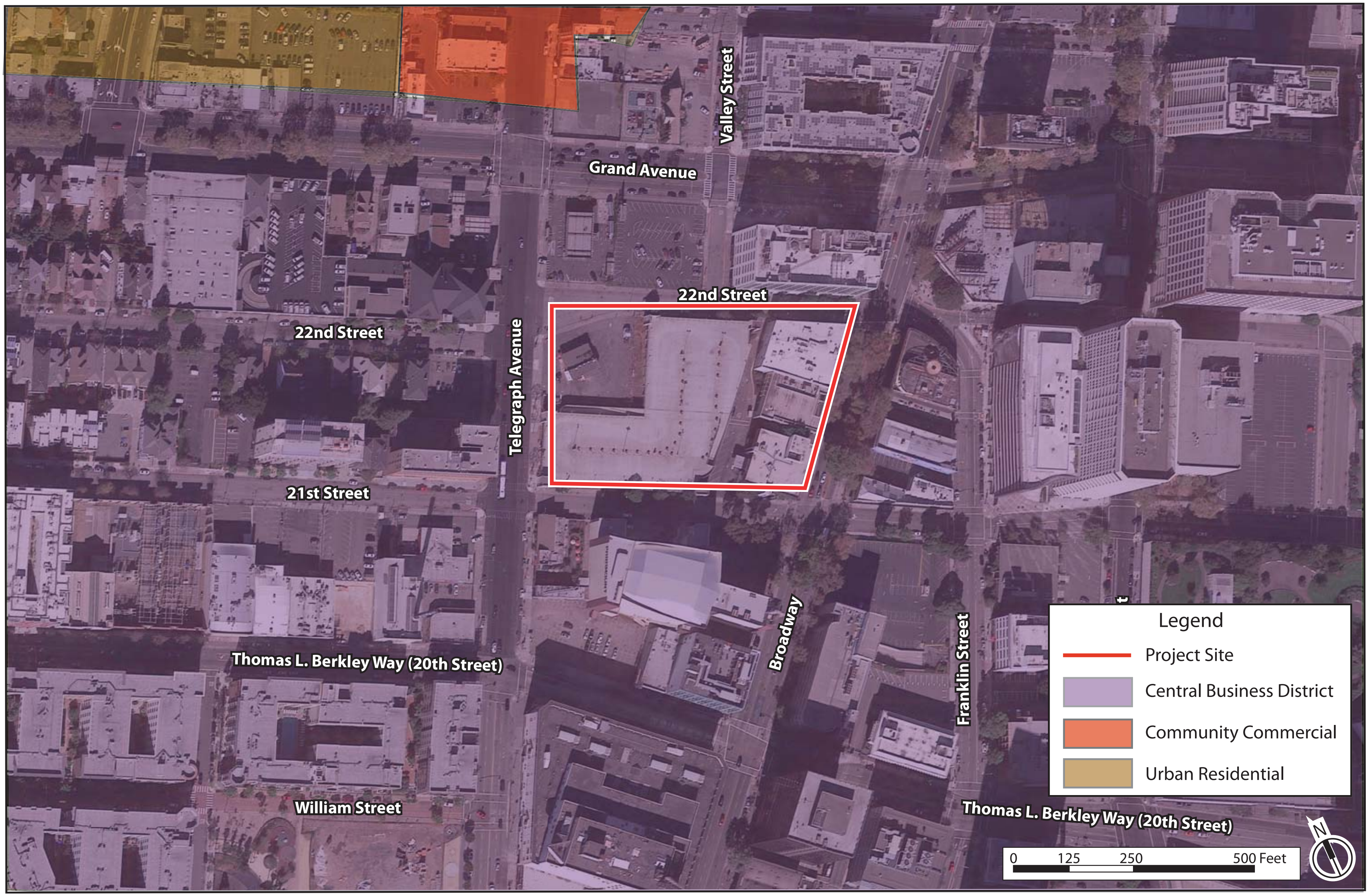
a. Land Use and Transportation Element

(1) Overview

The LUTE, which was adopted in March 1998, identifies policies for utilizing land in Oakland as change takes place, and sets forth an action program to implement the land use policy through development controls and other strategies. The LUTE is bound by a vision for the City that includes creating "clean and attractive neighborhoods rich in character and diversity, each with its own distinctive identity, yet well-integrated into a cohesive urban fabric" in addition to "a diverse and vibrant downtown with around-the-clock activity."

The LUTE includes designations for all land uses within the city of Oakland. The land use designation for the project site is Central Business District (CBD), as shown in Figure IV-1, Project Vicinity Land Use Designations. The LUTE states that the CBD classification is "intended to encourage, support and enhance the downtown areas as a high density mixed-use urban center of regional importance and a primary hub or business, communications, office, government, high technology, service, community facilities, and visitor uses." The maximum commercial floor area ratio (FAR) for this designation is 20.0 and the maximum allowable residential density is 300 units per gross acre. Other land use designations within the vicinity of the project site include Urban Residential and Community Commercial.

The LUTE also introduces a policy framework chapter that identifies specific policies related to industry and commerce, transit-oriented development (TOD), downtown, waterfront, and neighborhood activity centers.



Source: Urban Planning Partners, Google Earth, 2017

Figure IV-1
Project Site and Vicinity Land Use Designations

Transit-Oriented Developments

The LUTE identifies eight Transit-Oriented Districts within the city and provides a policy framework specific to TOD. Of these eight Transit-Oriented Districts, the 12th Street and 19th Street Bay Area Rapid Transit (BART) Stations are identified as critical elements to the business, commercial, retail, and entertainment aspects of the Uptown District. Goals in the LUTE TOD policy framework are as follows:

- *Capitalize on Our Location:* Take full advantage of Oakland's position as a major West Coast transportation hub.
- *Integrate Land Use and Transportation Planning:* Integrate transportation and land use planning at the neighborhood, city, and regional levels by development of TOD, where appropriate, at transit and commercial nodes.
- *Reduce Congestion:* Reduce congestion and improve traffic flow by developing an integrated road system and traffic demand management system that provides an appropriate mix of mobility and accessibility throughout the city.
- *Promote Alternative Transportation Options:* Reduce dependency on the automobile by providing facilities that support use of other transportation modes.
- *Find Funding:* Program and provide adequate funding for needed transportation facilities and services, and related investments.
- *Safety:* Provide safe streets.
- *Improve the Environment:* Improve air quality and reduce exposure to traffic noise.

(2) Consistency

The Eastline project is consistent with the CBD designation, which encourages high-density, mixed-use development within the urban center of Oakland. The project would provide a variety of retail, office, and/or residential uses on the project site. The project would include ground floor commercial retail along Telegraph Avenue and Broadway between 21st and 22nd Streets. The project would not exceed established density of FAR parameters established for the CBD. Based on conceptual plans (see *Chapter III, Project Description*), the PUD/PDP would allow an FAR between 10 and 20.0, with a potential residential density between 123 to 485 units per gross acre.[11] The project would be part of the growing community in the CBD and would support the Downtown revitalization efforts.

[11] FAR and residential density are based on gross site area. Gensler, December 9, 2016.

The project would also further the goals of TOD within the city by introducing new commercial and/or residential land uses within 400 feet of the 19th Street BART Station. The project would not only encourage frequent use of the 19th Street BART Station, but other regularly occurring AC Transit bus lines running along Telegraph Avenue and Broadway. These local lines include 6, 11, 12, 51A, and Transbay line 800.

The project would be consistent with the following policy framework focus areas:

- **Industry and Commerce.** The project would provide retail and office space that would contribute to increased commercial land uses downtown.
- **Transportation and Transit-Oriented Development.** The project would provide concentrated mixed uses within 1 block from 19th Street BART Station and adjacent to multiple bus lines.
- **Downtown.** The project would contribute to a growing, dynamic hub of retail, office, and/or residential uses in Downtown Oakland.

The project's consistency with the above policy framework is discussed in detail in Table IV-1 at the end of this chapter.

b. Pedestrian Master Plan

(1) Overview

The Pedestrian Master Plan (part of the LUTE) is intended to promote pedestrian safety and access to ensure that Oakland is a safe, convenient, and attractive place to walk. It establishes a pedestrian route network, which includes streets, walkways, and trails that connect to schools, libraries, parks, neighborhoods, and commercial districts throughout the City. Telegraph Avenue, adjacent to the project site, is within the pedestrian route network.

The goals of the Pedestrian Master Plan include the following:

- *Pedestrian Safety.* Create a street environment that strives to ensure pedestrian safety.
- *Pedestrian Access.* Develop an environment throughout the city—prioritizing routes to school and transit—that enables pedestrians to travel safely and freely.
- *Streetscaping and Land Use.* Provide pedestrian amenities and promote land uses that enhance public spaces and neighborhood commercial districts.
- *Education.* Educate citizens, community groups, business associations, and developers on the safety, health, and civic benefits of walkable communities.
- *Implementation.* Integrate pedestrian considerations based on federal guidelines into projects, policies, and the City's planning process.

(2) Consistency

The project is consistent with the Pedestrian Master Plan as it incorporates features that enhance and facilitate pedestrian access to the project site. The project includes pedestrian-enhancing features, including sidewalks, curb ramps, and lighting. The project would also facilitate walkability through the project site with the construction of an indoor ground-level community gathering space that includes landscaping and seating. The Pedestrian Master Plan policies applicable to the project are analyzed in Table IV-1 at the end of this chapter.

c. Bicycle Master Plan

(1) Overview

The Bicycle Master Plan (part of the LUTE) is the official policy document addressing the development of facilities and programs to enhance the role of bicycling as a viable transportation choice in Oakland. The Bicycle Master Plan defines City policies and recommends actions that would encourage and support bicycle travel improvements. The project's consistency with the goals of the Bicycle Master Plan is discussed below.

To develop Oakland as a bicycle-friendly community, the Bicycle Master Plan identified the following goals:

- *Goal 1 – Infrastructure*. Develop the physical accommodations, including a network of bikeways and support facilities, to provide for safe and convenient access by bicycle.
- *Goal 2 – Education.* Improve the safety of bicyclists and promote bicycling skills through education, encouragement, and community outreach.
- *Goal 3 – Coordination*. Provide a policy framework and implementation plan for the routine.
- *Goal 4 – Accommodation*: Accommodation of bicyclists in Oakland's projects and programs.

(2) Consistency

The project is generally consistent with the goals of the Bicycle Master Plan. The project incorporates pathways that facilitate bicycle access within the project site and to the 19th Street BART Station. The project would also support the surrounding bike network through increased bicycle parking on site. The Bicycle Master Plan policies applicable to the project are analyzed in Table IV-1 at the end of this chapter.

d. Housing Element

(1) Overview

The 2007–2014 Housing Element of the General Plan was originally adopted by the City Council on June 15, 2004. The City amended the General Plan to adopt Housing Element updates in 2010 and 2014. It certified a 2010 EIR for the 2007–2014 Housing Element, and a 2014 Addendum to the 2010 EIR for the 2015–2023 Housing Element. The General Plan identifies current and projected housing needs and sets goals, policies, and programs to address those needs, as specified by the State's Regional Housing Needs Allocation (RHNA) process. Although the project site is not specified as a "Housing Opportunity Site" in the 2015–2023 Housing Element, the project would contribute to the total number of housing units needed for the City of Oakland to meet its RHNA target, if housing is developed as part of the project.

California law requires that each city and county adopt a housing element that includes an assessment of housing needs; a statement of the community's goals, objectives, and policies related to housing; and a 5-year schedule of actions to implement the goals and objectives of the housing element.

The following goals are identified in the 2015–2023 Housing Element:

- *Goal 1:* Provide adequate sites suitable for housing for all income groups.
- *Goal 2:* Promote the development of adequate housing for low- and moderate-income households.
- *Goal 3:* Remove constraints to the availability and affordability of housing for all income groups.
- *Goal 4:* Conserve and improve older housing and neighborhoods.
- *Goal 5:* Preserve affordable rental housing.
- *Goal 6:* Promote equal housing opportunity.
- *Goal 7:* Promote sustainable development and smart growth.
- *Goal 8:* Increase public access to information through technology.

(2) Consistency

The project is generally consistent with Housing Element policies. The project would provide opportunity to develop residential uses, but also may be developed as primarily office and retail, depending on market demand and opportunity. The residential portion of the project could potentially include approximately 395 to 1,556 residential units. The project plans to contribute to more affordable housing through the payment of impact fees, and/or the provision of on-site or off-site affordable units. The Housing Element does not specifically rely on the project site to meet the City's regional housing needs allocation. Promoting sustainable design principles is a high priority for the project. The project is a TOD providing a variety of transit options as described above, and is anticipated to include ground-floor retail. An analysis of applicable 2015–2023 Housing Element policies is provided in Table IV-1 at the end of this chapter.

e. Open Space, Conservation, and Recreation Element

(1) Overview

The Open Space, Conservation, and Recreation Element (OSCAR), adopted in June 1996, addresses the management of open land, natural resources, and parks in Oakland. This element is divided into four major chapters that discuss open space, conservation, recreation, and area plans.

The citywide park acreage goal set by the OSCAR is 10 acres of parkland per 1,000 residents. The City's park ratio at the time the OSCAR was completed (1996) was approximately 7.5 acres of parkland per 1,000 residents. The Central/Chinatown Planning Area (in which the project is located) is one of the most heavily urbanized parts of Oakland and, with a few exceptions, lacks undeveloped natural areas aside from Lake Merritt. The Central/Chinatown Planning Area is landlocked; however, because of its proximity to Lake Merritt, it is perceived as having greater open space accessibility. Major recommendations for this planning area include the establishment of new plazas and public open spaces within new Downtown development.

(2) Consistency

The project is generally consistent with the OSCAR as it fulfills the intent of providing additional open public space within the Downtown with its inclusion of a large ground-level lobby and community gathering area as well as a pocket park on the corner of Telegraph and 21st Street Policies contained in the OSCAR that are relevant to land use within the project site are listed in Table IV-1 at the end of this chapter and discussed in *Section V.K, Public Services, Utilities, and Recreation*.

f. Historic Preservation Element

(1) Overview

The Historic Preservation Element defines goals, objectives, policies, and actions that encourage preservation and enhancement of Oakland's older buildings, districts, and other physical environmental features having special historic, cultural, educational, architectural, or aesthetic interest or value.

(2) Consistency

The project is consistent with Historic Preservation Element policies. Based on archival research conducted for this EIR analysis, five buildings were identified within the project site. These buildings were evaluated for their status as "historical resources", consistent with CEQA requirements. The building at 2150 Telegraph Avenue/495 22nd Street was determined to be a historical resource eligible for listing in the California Register of Historical Resources (CRHR). The buildings at 2100 Telegraph Avenue, 2101-2115 Broadway, 2121-2127 Broadway, and 2135-2147 Broadway were determined to be individually ineligible for the CRHR. Two historic districts in the vicinity of the project site that were identified in the early 1980s by the Oakland Cultural Heritage Survey (OCHS): The Oakland Cathedral District (located northwest and across Telegraph Avenue from the project site) and the Uptown Commercial District (located south of and across 21st Street from the project site). Historic preservation policies related to the project are listed in Table IV-1, and specific details on the historic resources in the surrounding vicinity are provided in *Section V.B, Cultural and Historic Resources*.

The proposed project would comply with the policies and actions outlined by the Historic Preservation Element of the Oakland General Plan, including:

> **Policy 3.1:** Avoid or Minimize Adverse Historic Preservation Impacts Related to Discretionary City Actions through the commercially-reasonable relocation of Googie-style cubes and Googie-style awning across the building's main facade at 2150 Telegraph Avenue/495 22nd Street;
>
> **Policy 3.7:** Reasonable Efforts at Potential Property Relocation Rather than Demolition of the building at 2150 Telegraph Avenue to an acceptable site;
>
> **Policy 3.8:** CEQA Environmental Review of Properties listed on Oakland's Local Register including modification of the project design to avoid adverse effects to the character-defining elements of potential resources in the project site, relocation of the historical resource to an acceptable site, the salvage and preservation of significant Googie-style features and materials of the structure in a museum facility or Historic American Building Survey documentation of potential resources; and
>
> **Policy 4.1** Archaeological Resources including archaeological resource-specific mitigation measures, such as surface reconnaissance and monitoring by a qualified archaeologist.

Additionally, the project would be subject to Standard Conditions of Approval (SCAs) and Mitigation Measures to minimize both long- and short-term cultural and historical impacts. More information on the project's impacts to these buildings, please see Section *V.B, Cultural and Historical Resources*.

g. Noise Element

(1) Overview

The General Plan Noise Element is required to “analyze and quantify, to the extent practical, current and projected noise levels from the following noise sources: major traffic thoroughfares, passenger and freight railroad operations, commercial and general aviation operations, industrial plants, and other ground stationary noise sources contributing to the community noise environment.” These noise levels are depicted on noise contour maps that are used to guide land use decisions to reduce noise impacts, especially on sensitive receptors. According to the Noise Element, sensitive receptors include “residences, schools, churches, hospitals, elderly-care facilities, hotels and libraries and certain types of passive recreational open space.” The Noise Element also includes a land-use/noise compatibility matrix that illustrates the degree of acceptability of exposing various sensitive land uses to noise.

(2) Consistency

Noise-related policies are included in the LUTE and OSCAR, as well as in the Noise Element. The project site is located between Telegraph Avenue and Broadway, both of which are major downtown arterial streets. The project is not expected to generate new noise sources that would significantly increase noise within the project area. Additionally, the project would be subject to Standard Conditions of Approval (SCAs) and Mitigation Measures to minimize both long- and short-term noise impacts. The project’s relationship with Noise Element policies is shown in Table IV-1 at the end of this chapter and discussed in *Section V.I, Noise and Vibration*.

h. Oakland Safety Element

(1) Overview

Adopted in November 2004, the General Plan Safety Element, titled Protect Oakland, is intended to “reduce the potential risk of death, injuries, property damage and economic and social dislocation resulting from large-scale hazards.” The Safety Element addresses public safety, geologic hazards, fire hazards, hazardous materials, and flooding hazards. Given the topics addressed in the Safety Element, most of its policies generally apply citywide.

(2) Consistency

The project is generally consistent with the Safety Element. The project would be required to conform to all applicable safety regulations and requirements regarding construction, public safety, and hazardous materials. The project would also comply with all regulations related to geologic, fire, and flooding hazards at the project site. A discussion of the project's relationship with relevant Safety Element policies is included in Table IV-1 at the end of this chapter.

2. City of Oakland Planning Code

(1) Overview

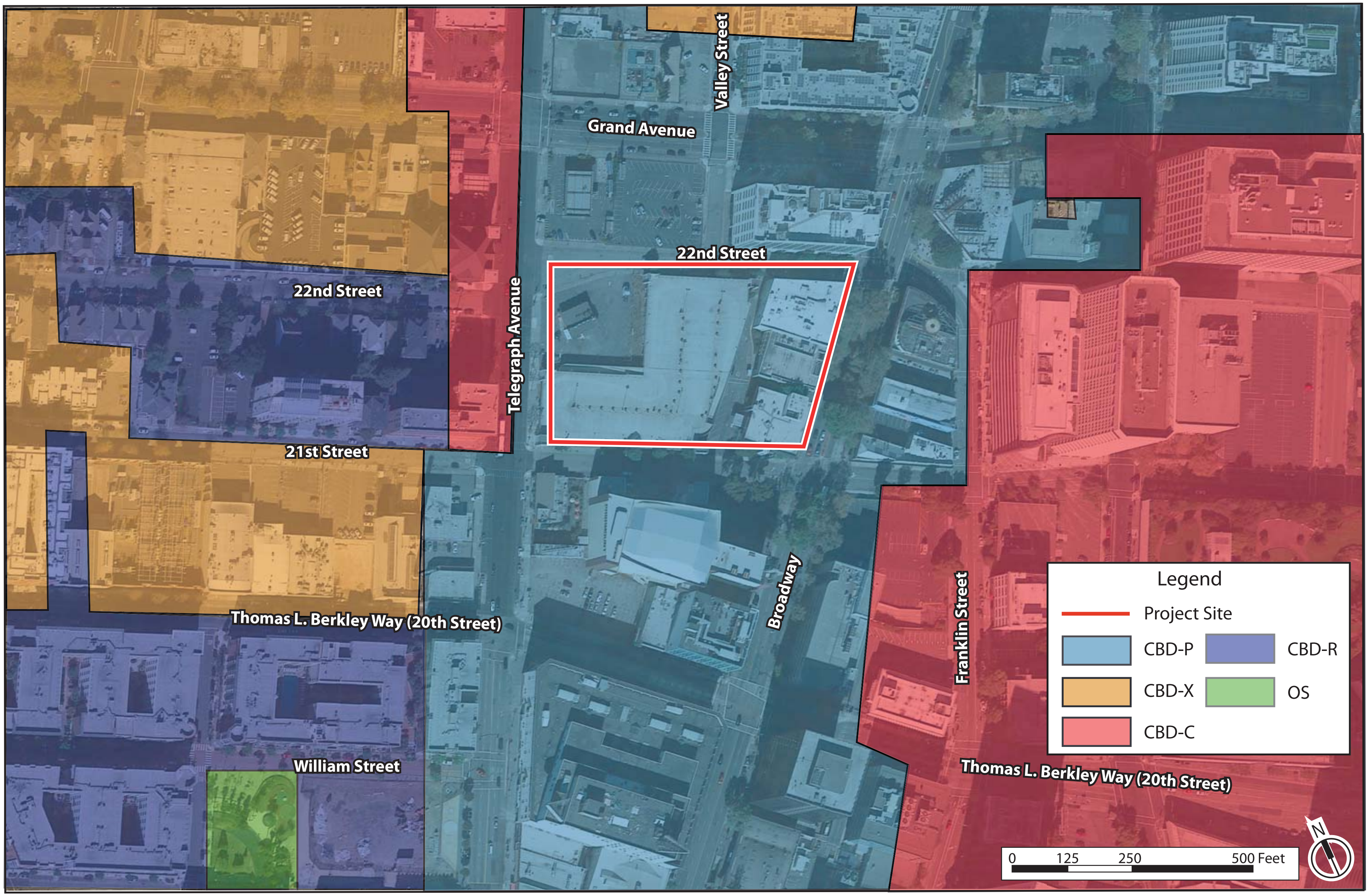
The City of Oakland Planning Code (Planning Code) implements the policies of the General Plan and other City plans, policies, and ordinances. The Planning Code divides the city into zones, each of which is assigned different land use and development regulations. These regulations direct the construction, nature, and extent of building use.

The project site is within the Central Business District Pedestrian Retail Commercial Zone (CBD-P). Figure IV-2, Project Site and Vicinity Zoning, shows the existing Planning Code zoning designations within and around the project site. Zoning within the project's surrounding vicinity includes Central Business District Mixed Commercial Zone (CBD-X), Central Business District General Commercial Zone (CBD-C), Central Business District Residential Zone (CBD-R), and Open Space (OS). The project's alignment with existing zoning and land uses is analyzed in *Section V.A, Land Use*.

The intent of the CBD-P is to create, maintain, and enhance areas of the CBD for ground-level, pedestrian-oriented, active storefront uses. Upper-story spaces are intended to be available for a wide range of office and residential activities.

(1) Consistency

The project is consistent with CBD-P goals and objectives as it would introduce additional ground-floor commercial retail to the Uptown District, as well as upper-story office uses and potentially residential uses. The project would improve and encourage the area's existing pedestrian-oriented activities by providing additional employment and/or housing opportunities. Additional retail along Broadway would facilitate the neighborhood's mixed-use character while supporting surrounding land uses. The project's use of PUD is allowed under the City's planning code.



Source: Urban Planning Partners, Google Earth, 2017

Eastline Project - 2100 Telegraph EIR

Figure IV-2
Project Site and Vicinity Zoning

3. Central District Urban Renewal Plan

(1) Overview

The Central District Urban Renewal Plan (Renewal Plan) is a redevelopment plan implemented by the Oakland Redevelopment Agency in accordance with California Community Redevelopment Law. The City adopted the Renewal Plan on June 12, 1969, as the primary policy document to guide development in the Central District along with the LUTE. The Renewal Plan was amended through April 2023 to be consistent with the General Plan. The Renewal Plan contains land use controls, including restrictions on uses and parking and loading requirements.

The Renewal Plan designates the site as "Retail Center Project and Rehabilitation Area." This designation is intended to include multiple interrelated projects, which, when combined, meet the following objectives set forth in the Renewal Plan and adopted by the City Council:

1. Revitalization and strengthening of the Oakland Central District's historical role as a major retail center.
2. Establishment of the activity area as an important cultural entertainment center.
3. Provision of employment opportunities and other economic benefits to persons living within or near the activity area, as well as for merchants and businesses operating within the area.
4. Rehabilitation and restoration of historic structures within the activity area, as well as development of new buildings that complement the area's historic structures, utilizing incentives such as historic preservation tax credits when feasible.
5. Improved physical design within the activity area, including creation of a definite sense of place, clear gateways, emphatic focal points, and building design that further distinguishes the unique nature of each sub-area within the activity area.
6. Elimination of existing blighted structures and conditions within the activity area.
7. Improved security and safety of patrons and merchants in the area, and the perception thereof.
8. Increased residential opportunities in and/or near the activity area both to address the need for additional housing and allow the area to benefit from more "eyes on the street."

(2) Consistency

The project is consistent with the Renewal Plan as it would serve to support the objectives described above by providing additional commercial, retail and employment opportunities, and activate and revitalize an entire city block with a high-density mixed-use project. The project would serve to improve the site's current condition by defining a clearer sense of place through building design that provides additional character to the Uptown District, and provide a stronger connection between Broadway and Telegraph Avenue. With additional office, retail, housing, community space and/or employment opportunities, the project would encourage a center of activity and increased pedestrian presence in the Uptown District to improve safety.

TABLE IV-1 GENERAL PLAN POLICIES

Policy #	Policy	Relationship to Development Scenarios	Scenarios to which Policy is Applicable: Maximum Residential	Residential/ Office Mix	All Office	Maximum Office
Land Use and Transportation Element Policies						
Industry and Commerce Policies						
Policy I/C1.1	**Attracting New Business.** The City will strive to attract new business to Oakland which has potential economic benefits in terms of jobs and/or revenue generation. This effort will be coordinated through a citywide economic base, the assets and constraints for future growth, target industries or activities for future attraction, and geographic area appropriate for future use and development	The project would redevelop an underutilized site within the Renewal Plan area and provide opportunity for the City to attract a large-scale retail and/or commercial office tenant. The large-floor plate office design is intended to attract a tech-office tenant. The project could accommodate approximately 80,000 to 99,220 square feet of retail and between 880,550 and 2,689,000 square feet of office space.	X	X	X	X
Policy I/C1.3	**Supporting Economic Development Expansion Through Public Investment. T**he public investment strategy of the City should support economic development expansion efforts through such means as identifying target "catalyst projects" for investment which will support the employment or revenue base of the city and providing infrastructure improvements to serve key development locations or projects which are consistent with the goals and objectives of this Plan.	The project would redevelop a city-owned underutilized site located on two major commercial corridors within one block of the 19th Street BART Station with ground-floor commercial retail and a significant amount of office, residential, or combination thereof. The project is anticipated to generate significant revenue for the City through taxes and impact fees, and create a substantial number of jobs.	X	X	X	X
Policy I/C1.5	**Using City-Owned Property to Stimulate Economic Growth Development.** City-owned properties should, where feasible, be utilized to	The project would take City-owned and operated land, currently serving as a parking facility, and create additional office and retail	X	X	X	X

TABLE IV-1 GENERAL PLAN POLICIES

			Scenarios to which Policy is Applicable			
Policy #	Policy	Relationship to Development Scenarios	Maximum Residential	Residential/ Office Mix	All Office	Maximum Office
	stimulate economic development activities or serve as catalysts to such efforts.	opportunities on site.				
Policy I/C1.6	**Promoting Downtown as a Regional "Hub".** Downtown Oakland should be promoted as a regional "hub" for government, services, high technology, and institutional uses.	The scale of the proposed project is of a regional scale that will provide opportunity for the City to attract a large-scale commercial office tenant. The large-floor plate office design is intended to attract a tech-office tenant. The project is designed to accommodate office space and retail, and would promote Downtown Oakland as a regional hub.	X	X	X	X
Policy I/C1.8	**Providing Support Amenities Near Employment Centers.** Adequate cultural, social, and support amenities designed to serve the needs of workers in Oakland should be provided within close proximity of employment centers.	The project would achieve this policy by providing community space and retail space as a supportive amenity to the Uptown District.	X	X	X	
Policy I/C1.9	**Locating Industrial and Commercial Area Infrastructure.** Adequate public infrastructure should be ensured within existing and proposed industrial and commercial areas to retain viable existing uses, improve the marketability of existing vacant or underutilized sites, and encourage future use and development of these areas with activities consistent with the goals of this Plan.	The project would avoid disturbance of the below ground BART tunnels under the project site, however, infrastructure improvements would occur surrounding the tunnels. This would retain the area's viable existing uses, while improving the underutilized portions of the site.	X	X	X	X
Policy I/C 3.1	**Locating Commercial Business.** Commercial uses, which serve long term retail needs of regional consumers and which primarily offer durable goods,	The project would provide commercial retail. The project site is between Telegraph Avenue and Broadway (major arterial streets),	X	X	X	X

TABLE IV-1 GENERAL PLAN POLICIES

Policy #	Policy	Relationship to Development Scenarios	Scenarios to which Policy is Applicable: Maximum Residential	Residential/ Office Mix	All Office	Maximum Office
	should be located in area adjacent to the I-880 freeway or at locations visible or amenable to high volumes of vehicular traffic, and accessible by multiple modes of transportation.	is served by multiple bus lines, is within one block of the 19th Street BART Station, and would include public parking.				
Policy I/C3.2	**Enhancing Business Districts.** Retain and enhance clusters of similar types of commercial enterprises as the nucleus of distinctive business districts, such as the existing new and used automobile sales and related uses through urban design and business retention efforts.	The primary land uses for the Uptown District include commercial retail and office space. The project would contribute to the CBD by providing commercial office and retail space that would help activate and enhance commercial uses.	X	X	X	X
Policy I/C3.3	**Clustering Activity in "Nodes".** Retail uses should be focused in "nodes" of activity, characterized by geographic clusters of concentrated activity, along corridors that can be accessed through many modes of transportation.	Due to surrounding office, commercial retail, and social support services in the area, the project site is positioned to support surrounding activity. The project would connect existing activity corridors along Telegraph Avenue and Broadway by contributing additional commercial retail, office, and/or residential space.	X	X	X	X
Policy I/C3.4	**Strengthening Vitality.** The vitality of existing neighborhood mixed use and community commercial areas should be strengthened and preserved.	The project would strengthen the vitality of the existing Uptown District by contributing to its mixed-use land uses. Through additional commercial retail, office space, and/or residential units, the project would contribute to the area.	X	X	X	X
Policy I/C3.5	**Promoting Culture, Recreation, and Entertainment.** Cultural, recreational, and entertainment uses should be	With community space and additional public open space at street level, the project would	X	X	X	X

TABLE IV-1 GENERAL PLAN POLICIES

			Scenarios to which Policy is Applicable			
Policy #	**Policy**	**Relationship to Development Scenarios**	**Maximum Residential**	**Residential/ Office Mix**	**All Office**	**Maximum Office**
	promoted within the Downtown, particularly in the vicinity of the Fox and Paramount Theaters, and within Jack London Square area.	promote public uses to be enjoyed near the Fox and Paramount Theaters, as well as provide parking to be utilized by patrons of those theaters.				
Transportation and Transit-Oriented Development Policies						
Policy T2.1	**Encouraging Transit-Oriented Development.** Transit-oriented development should be encouraged at existing or proposed transit nodes, defined by the convergence of two or more modes of public transit such as BASRT, bus, shuttle service, light rail or electric Trolley, ferry, and inter-city or commuter rail.	The project is a TOD, and would include a mix of uses at a site within one block of the 19th Street BART Station, and adjacent to multiple bus lines along Telegraph Avenue and Broadway.	X	X	X	X
Policy T2.2	**Guiding Transit-Oriented Development.** Transit-oriented developments should be pedestrian oriented, encourage night and day time use, provide the neighborhood with needed goods and services, contain a mix of land uses, and be designed to be compatible with the character of surrounding neighborhoods.	The project would include a mix of commercial and residential uses. Sidewalks and street lighting would be incorporated into the project design, and retail uses would be neighborhood serving.	X	X	X	X
Policy T2.3	**Promoting Neighborhood Services.** Promote neighborhood-serving commercial development within one-quarter to one-half mile of established transit routes and nodes.	The project would include retail space, community space, and additional public open space at street level. Multiple bus lines run adjacent to the project site along Telegraph Avenue and Broadway, and the 19th Street BART Station is within one block of the site.	X	X	X	X
Policy T3.10	**Balancing Parking Demands and Economic Development Activity.** The	The project would replace parking to support nearby entertainment	X	X	X	X

TABLE IV-1 GENERAL PLAN POLICIES

Policy #	Policy	Relationship to Development Scenarios	Scenarios to which Policy is Applicable: Maximum Residential	Residential/ Office Mix	All Office	Maximum Office
	City should balance the parking demands and parking charges in City-owned facilities with the need to promote economic activity in certain areas (such as Downtown and Neighborhood commercial areas).	and retail uses.				
Policy T4.1	**Incorporating Design Features for Alternative Travel.** The City will require new development, rebuilding, or retrofit to incorporate design features in their projects that encourages use of alternative modes of transportation such as transit, bicycling, and walking.	The project incorporates design features such as sidewalks, bike paths, and bike racks that encourage walking and biking as a form of transit to and from the site.	X	X	X	X
Policy T6.2	**Improving Streetscapes.** The city should make major efforts to improve the visual quality of streetscapes. Design of the streetscape, particularly in neighborhoods and commercial centers, should be pedestrian-oriented and include lighting, directional signs, trees, benches, and other support facilities.	The project would include pedestrian amenities, including lighting, trees, public seating, art installations, and other improvements.	X	X	X	X
Downtown Policies						
Policy D1.1	**Defining Characteristics of Downtown.** The characteristics that make downtown Oakland unique, including its strong core area; proximity to destinations such as the Jack London waterfront, Lake Merritt, historic areas, cultural, arts, and entertainment activities; and housing stock, should be enhanced and used to strengthen the downtown as a local and regional asset.	The project is designed to complement the characteristics of Downtown Oakland with a robust mix of uses that would bring thousands of people to the area and would contribute to its current activities by providing accessible open space, housing, and community-supporting opportunities.	X	X	X	X
Policy D2.1	**Enhancing the Downtown.** Downtown development should be visually	The project is designed to strengthen the existing character	X	X	X	X

TABLE IV-1 GENERAL PLAN POLICIES

Policy #	Policy	Relationship to Development Scenarios	Scenarios to which Policy is Applicable: Maximum Residential	Residential/ Office Mix	All Office	Maximum Office
	interesting, harmonize with its surrounding respecting and enhance important views in and of the downtown, respect the character, history, and pedestrian-orientation of the downtown, and contribute to an attractive skyline.	of the Downtown by considering its surrounding developments. The project would facilitate pedestrian-oriented activities while adding attractive design elements to the skyline of Downtown Oakland.				
Policy D3.1	**Promoting Pedestrians.** Pedestrian-friendly commercial areas should be promoted.	The project would have ground-floor commercial retail that would be accessible from Telegraph Avenue and Broadway and improves sidewalks to the benefit of pedestrians.	X	X	X	X
Policy D3.2	**Incorporating Parking Facilities.** New parking facilities for cars and bicycles should be incorporated into the design of any project in a manner that encourages and promotes safe pedestrian activity.	The project would have multiple levels of parking and street-level bicycle parking. New curb cuts for parking and loading would be located on 21st Street and 22nd Street. Short-term bicycle parking would be located throughout the project site near building entrances.	X	X	X	X
Policy D4.1	**Supporting Development.** Development activities should be supported through infrastructure improvements in downtown.	The project would provide various sidewalk improvements along Telegraph Avenue, 22nd Street, Broadway, as well as new curb cuts on 21st Street and 22nd Street.	X	X	X	X
Policy D4.2	**Fostering a Positive Business Climate.** A positive business climate which encourages attraction of new businesses and retentions and expansion of existing businesses in downtown Oakland should be fostered, promoting Oakland's locational (transportation) advantages and other	The project would revitalize and activate an entire city block and provide a mix of retail, office, and/or residential uses that would contribute to and enhance a positive business climate in the Downtown area within one block of the 19th Street BART Station.	X	X	X	X

TABLE IV-1 GENERAL PLAN POLICIES

Policy #	Policy	Relationship to Development Scenarios	Scenarios to which Policy is Applicable: Maximum Residential	Residential/ Office Mix	All Office	Maximum Office
	amenities.					
Policy D4.3	**Attracting Employment to the Downtown.** Economic sectors that promote employment, are likely to grow, or will diversify the economic base should be attracted to the downtown.	The project is anticipated to accommodate a substantial number of jobs by providing retail and office space that would grow and diversify the economic base of Downtown.	X	X	X	X
Policy D5.1	**Encouraging Twenty-Four Activity.** Activities and amenities that encourage pedestrian traffic during the work week, as well as evenings and weekends should be promoted.	The project would provide opportunities for more evening activities than what currently exists at the site through new retail, community, and/or residential space. With improved pedestrian connections between Telegraph Avenue and Broadway, street lighting, and attractive landscaping, the project would support the Uptown District's growing night life.	X	X	X	X
Policy D8.1	**Locating Office Development.** New large scale office development should be primarily located along the Broadway corridor south of Grand Avenue, with concentrations at the 12th Street and 19th Street BART stations. The height of office development should respect the Lake Merritt edge. Small scale offices should be allowed throughout the downtown, including in the downtown neighborhoods, when compatible with the character of surrounding development.	The project would provide opportunity to attract a significant office tenant with the potential to develop office space along the Broadway corridor south of Grand Avenue, and would be within one block of the 19th Street BART Station.		X	X	X
Policy D8.3	**Attracting Private Office Development.** Private office	The project would provide opportunity to attract a significant		X	X	X

TABLE IV-1 GENERAL PLAN POLICIES

			Scenarios to which Policy is Applicable			
Policy #	Policy	Relationship to Development Scenarios	Maximum Residential	Residential/ Office Mix	All Office	Maximum Office
	development should be aggressively attracted to the downtown.	office tenant with the potential to develop office space.				
Policy D10.1	**Encouraging Housing.** Housing in the downtown should be encouraged as a vital component of a 24-hour community presence.	The project includes the opportunity to develop residential uses depending on the market and feasibility.	X	X		
Policy D10.2	**Locating Housing.** Housing in the downtown should be encouraged in identifiable districts, within walking distance of the 12th Street, 19th Street, City Center, Lake Merritt Bart stations to encourage transit use, and in other locations where compatible with surrounding uses.	The project includes the opportunity to develop residential uses depending on the market and feasibility. Multiple bus lines run adjacent to the project site along Telegraph Avenue and Broadway, and the 19th Street BART Station is within one block of the site.	X	X		
Policy D10.3	**Framework for Housing Densities.** Downtown residential areas should generally be within the Urban Density Residential and Central Business District density range where not otherwise specified. The height and bulk should reflect existing and desired district character, the overall city skyline, and the existence of historic structures or areas.	The project's possible residential component is within the density range considered for the CBD, and the height complies with the policies of Height Areas 6 and 7.	X	X		
Policy D10.5	**Designing Housing.** Housing in the downtown should be safe and attractive, of high quality design, and respect the downtown's distinct neighborhood and its history.	The PUD/PDP includes design guidelines to ensure the final design of a residential project would be safe, attractive, and respectful to the existing character of the Uptown District, including its history.	X	X		
Policy D10.6	**Creating Infill Housing.** Infill Housing that respects surrounding development and the streetscape should be encouraged in the downtown to	The project includes the opportunity to develop residential uses, depending on the market and feasibility, on a site that	X	X		

TABLE IV-1 GENERAL PLAN POLICIES

Policy #	Policy	Relationship to Development Scenarios	Scenarios to which Policy is Applicable: Maximum Residential	Residential/ Office Mix	All Office	Maximum Office
	strengthen or create distinct districts.	previously possessed no housing in a massing similar to other approved residential projects on Broadway.				
Policy D11.1	**Promoting Mixed-Use Development.** Mixed use development should be encouraged in the downtown for such purposed as to promote its diverse character, provide for needed goods and services, support local art and culture, and give incentive to reuse existing vacant or underutilized structures.	The project is a mixed-use project combining retail with office and/or residential uses depending on the market and feasibility. The retail component of the project would aim to support the local need for goods and services.	X	X	X	X
Policy D11.2	**Locating Mixed-Use Development.** Mixed use development should be allowed in commercial areas, where the residential component is compatible with the desired commercial function of the area.	The project site is within the CBD, and all scenarios would provide ground-floor commercial retail space.	X	X	X	X
Policy D13.2	**Providing Parking.** An adequate quantity of car, bicycle, and truck parking, which has been designed to enhance the pedestrian environment, should be provided to encourage housing development and the economic vitality of commercial, office, entertainment, and mixed-use areas.	The project would have multiple levels of parking, loading berths, and bike parking.	X	X	X	X
Pedestrian Master Plan (PMP)						
PMP Policy 1.1	**Crossing Safety**. Improve pedestrian crossings in areas of high pedestrian activity where safety is an issue.	The project would consider installing high-visibility crosswalks for 22nd Street, in addition to new traffic signals at 21st Street and Telegraph Avenue.	X	X	X	X
PMP Policy 1.3	**Sidewalk Safety.** Strive to maintain a	The project would provide	X	X	X	X

TABLE IV-1 GENERAL PLAN POLICIES

			Scenarios to which Policy is Applicable			
Policy #	**Policy**	**Relationship to Development Scenarios**	**Maximum Residential**	**Residential/ Office Mix**	**All Office**	**Maximum Office**
	complete sidewalk network free of broken or missing sidewalks or curb ramps.	adequate sidewalks along Telegraph Avenue, Broadway, 21st Street, and 22nd Street.				
PMP Policy 2.1.	**Route Network.** Create and maintain a pedestrian route network that provides direct connections between activity centers.	The project would provide street-level public open space that would encourage pedestrians to walk between Telegraph Avenue and Broadway.	X	X	X	X
PMP Policy 3.1	**Streetscaping.** Encourage the inclusion of street furniture, landscaping, and art in pedestrian improvement projects.	The project would include pedestrian amenities, including lighting, street trees, public seating, art installations, and other streetscape improvements.	X	X	X	X
PMP Policy 3.2	**Land Use.** Promote land uses and site designs that make walking convenient and enjoyable.	The project would include pedestrian amenities, including lighting, street trees, public seating, art installations, and other improvements.	X	X	X	X
Bicycle Master Plan (BMP)						
BMP Policy 1D	**Parking and Support Facilities.** Promote secure and conveniently located bicycle parking at destinations throughout Oakland.	The project site would offer both private and public bicycle parking.	X	X	X	X
2015-2023 Housing Element						
Policy 2.1	**Affordable Housing Development Programs.** Provide financing for the development of affordable housing for low- and moderate-income households. The City's financing programs will promote a mix of housing types, including homeownership, multifamily rental housing, and housing for seniors and persons with special needs.	The project would be required to pay the City's jobs-housing for all development scenarios with office and the affordable housing impact fee for all development scenarios with residential.	X	X	X	X

TABLE IV-1 GENERAL PLAN POLICIES

			Scenarios to which Policy is Applicable			
Policy #	**Policy**	**Relationship to Development Scenarios**	**Maximum Residential**	**Residential/ Office Mix**	**All Office**	**Maximum Office**
Policy 7.1	**Sustainable Residential Development Programs.** In conjunction with the City's adopted Energy and Climate Action Plan (ECAP), develop and promote programs to foster the incorporation of sustainable design principles, energy efficiency and smart growth principles into residential developments. Offer education and technical assistance regarding sustainable development to project applicants.	The project would be designed and built with sustainable design principles and energy efficient features. The project would also be considered a TOD, resulting in a higher rate of use of alternative forms of transportation, thus reducing energy consumption associated with single-occupancy vehicles.	X	X	X	X
Policy 7.2	**Energy Consumption.** Encourage the incorporation of energy conservation design features in existing and future residential development beyond minimum standards required by State building code.	The project is required to earn LEED Silver and aims to achieve LEED Gold or Platinum certification, through energy efficient features as described in *Chapter III, Project Description*.	X	X	X	X
Policy 7.3	**Encourage Development that Reduces Carbon Emissions.** Continue to direct development toward existing communities and encourage infill development at densities that are higher than—but compatible with-- the surrounding communities. Encourage development in close proximity to transit, and with a mix of land uses in the same zoning district, or on the same site, so as to reduce the number and frequency of trips made by automobile.	The project site is served by multiple bus lines, and is within one block of the 19th Street BART Station.	X	X	X	X
Policy 7.4	**Minimize Environmental Impacts from New Housing.** Work with developers to encourage construction of new housing that, where feasible, reduces the footprint of the building and landscaping, preserves green spaces,	The project includes open space such as community gathering space, and a pocket park with plantings and a variety of trees.	X	X	X	X

TABLE IV-1 GENERAL PLAN POLICIES

Policy #	Policy	Relationship to Development Scenarios	Scenarios to which Policy is Applicable: Maximum Residential	Residential/ Office Mix	All Office	Maximum Office
	and supports ecological systems.					
Open Space, Conservation, and Recreation Element						
Policy OS-4.1	**Provision of Useable Open Space.** Continue to require new multifamily development to provide useable outdoor open space for its residents.	The project would incorporate private space within the development, as well as an open public space accessible from the street level.	X	X	X	X
Policy OS-11.1	**Access to Downtown Open Space.**	As a neighborhood of Downtown Oakland, the project would provide a ground-level lobby as a community gathering area, street trees, planting areas, and seating and a pocket park on the corner of Telegraph Avenue.	X	X	X	X
Policy OS-11.3	**Public Art Requirements.**	The project would incorporate art installations within its public open space.	X	X	X	X
Policy OS-12.1	**Street Tree Selection.** Incorporate a broad and varied range of tree species which is reflected on a city-maintained list of approved trees. Street tree selection should respond to the general environmental conditions at the planting site, including climate and micro-climate, soil types, topography, existing tree planting, maintenance of adequate distance between street trees and other features, the character of existing development, and the size and context of the tree planting area.	The trees planted in association with development of the project would be on the City's list of approved trees.	X	X	X	X
Policy CO-12.1	**Land Use Patterns Which Promote Air Quality.** Promote land use patterns and densities which help improve regional air quality conditions by: (a) minimizing	The project is a TOD and would be developed within one block of the 19th Street BART Station and would encourage alternative modes of	X	X	X	X

TABLE IV-1 GENERAL PLAN POLICIES

Policy #	Policy	Relationship to Development Scenarios	Scenarios to which Policy is Applicable: Maximum Residential	Residential/ Office Mix	All Office	Maximum Office
	dependence on single passenger autos; (b) promoting projects which minimize quick auto starts and stops, such as live-work development, mixed-use floor retail space; (c) separating land uses which are sensitive to pollution from the sources of air pollution; and (d) supporting telecommuting, flexible work hours, and behavioral changes which reduce the percentage of people in Oakland who must drive to work on a daily basis.	transportation other than single-occupancy vehicle. The project would include a mix of uses that would be neighborhood serving, thus reducing potential auto trips to other locations.				
Policy CO-12.4	**Design of Development to Minimize Air Quality Impacts.** Require that development projects be designed in a manner which reduces potential adverse air quality impacts. This may include: (a) the use of vegetation and landscaping to absorb carbon monoxide and to buffer sensitive receptors; (b) the use of low-polluting energy sources and energy conservation measures; (c) designs which encourage transit use and facilitate bicycle and pedestrian travel.	The project applicant would implement the SCAs related to construction and grading to minimize air quality impacts. The project would be immediately adjacent to the 19th Street BART Station, which would facilitate the use of transit, bicycle, and pedestrian travel.	X	X	X	X
Policy CO-12.6	**Control of Dust Emissions.** Require construction, demolition and grading practices which minimize dust emissions.	The project applicant would implement the SCAs related to construction and grading to minimize air quality impacts.	X	X	X	X
Policy CO-13.3	**Construction Methods and Materials.** Encourage the use of energy efficient construction and building materials. Encourage site plans for new development which maximize energy efficiency.	The project would incorporate energy efficient and green building components into the design and construction.	X	X	X	X

TABLE IV-1 GENERAL PLAN POLICIES

Policy #	Policy	Relationship to Development Scenarios	Scenarios to which Policy is Applicable: Maximum Residential	Residential/ Office Mix	All Office	Maximum Office
Historic Preservation Element						
Policy 3.1	**Avoid or Minimize Adverse Historic Preservation Impacts Related to Discretionary City Actions.** The City will make all reasonable efforts to avoid or minimize effects on the Character-Defining Elements of existing or Potential Designated Historic Properties which could result from private or public projects requiring discretionary City actions.	The project would make a reasonable effort to relocate the Googie-style cubes and Googie-style awning present at 2150 Telegraph Avenue/495 22nd Street.	X	X	X	X
Policy 3.7	**Property Relocation Rather Than Demolition as Part of Discretionary Projects.** As a condition of approval for all discretionary projects involving demolition of existing or Potential Designated Historic Properties, the City will normally require that reasonable efforts be made to relocate the properties to an acceptable site.	The project would make a reasonable effort to relocate the building at 2150 Telegraph Avenue/495 22nd Street to an acceptable site. Relocation of the historical resource would result in the salvage and preservation of significant Googie-style features and materials of the building.	X	X	X	X
Policy 3.8	**Definition of "Local Register of Historical Resources" and Historic Preservation "significant effects" for environmental review purposes.** For purposes of environmental review under the California Environmental Quality Act, the following properties will constitute the City of Oakland's Local Register of Historical Resources: 1) All Designated Historic Properties, and 2) Those Potential Designated Historic Properties that have an existing rating of "A" or "B" or are located within an	CEQA environmental review will comply with this policy by producing an EIR that evaluates impacts to CRHR-eligible buildings, properties listed on Oakland's Local Register, buildings given an "A" or "B" rating by OCHS, or buildings located within an API and includes mitigation measures to reduce potential significant impacts to these historical resources.	X	X	X	X

TABLE IV-1 GENERAL PLAN POLICIES

Policy #	Policy	Relationship to Development Scenarios	Scenarios to which Policy is Applicable: Maximum Residential	Residential/ Office Mix	All Office	Maximum Office
	Area of Primary Importance.					
Policy 4.1	**Archeological Resource.** To protect significant archeological resources, the City will take special measures for discretionary projects involving ground disturbances located in archeologically sensitive areas.	Archaeological Resources including archaeological resource-specific SCA's, such as surface reconnaissance will be monitored by a qualified archaeologist.	X	X	X	X
Noise Element						
Policy 1	Ensure the compatibility of existing and, especially, of proposed development projects not only with neighboring land uses but also with their surrounding noise environment.	As discussed in detail in *Section V.I, Noise and Vibration*, the project would not create a significant increase in noise in the project area given implementation of the SCAs.	X	X	X	X
Policy 2	Protect the noise environment by controlling the generation of noise by both stationary and mobile noise sources.	As discussed in detail in *Section V.I, Noise and Vibration*, the project would not create a significant increase in noise in the project area given implementation of the SCAs.	X	X	X	X
Policy 3	Reduce the community's exposure to noise by minimizing the noise levels that are received by Oakland residents and others in the City. (This policy addresses the reception of noise whereas Policy 2 addresses the generation of noise.)	The SCAs and mitigation measures included in *Section V.I, Noise* and Vibration would minimize the exposure to noise levels that are received by residents of the project (i.e., noise from vehicles on adjacent street and State Route 24, and the BART Station). The SCAs and mitigation measures would also minimize project construction-related noise.	X	X	X	X

TABLE IV-1 GENERAL PLAN POLICIES

Policy #	Policy	Relationship to Development Scenarios	Scenarios to which Policy is Applicable: Maximum Residential	Residential/ Office Mix	All Office	Maximum Office
Safety Element						
Policy FI-1	Maintain and enhance the City's capacity for emergency response, fire prevention and fire fighting. Action FI-1.2: Strive to meet a goal of responding to fires and other emergencies within seven minutes of notification 90 percent of the time.	The first and second responders to the project site (Fire Stations 1 and 15, respectively) are less than ½-mile from the site, which the Oakland Fire Department considers an acceptable distance to maintain the standard response time.	X	X	X	X
Policy GE-1	Develop and continue to enforce and carry out regulations and programs to reduce seismic hazards and hazards from seismically triggered phenomena.	The project would comply with all applicable building codes and all recommendations in the site-specific geotechnical investigations discussed in *Section V.F, Soils, Geology, and Seismicity*.	X	X	X	X
Policy GE-2	Continue to enforce ordinances and implement programs that seek specifically to reduce the landslide and erosion hazards.	The potential for erosion as a result of project demolition and construction is addressed in *Section V.H, Hydrology and Water Quality*. Compliance with the SCAs and grading permit requirements would reduce erosion impacts.	X	X	X	X
Policy HM-1	Minimize the potential risks to human and environmental health and safety associated with past and present use, handling, storage and disposal of hazardous materials.	The project is a TOD and would be within one block of the 19th Street BART station, which would facilitate the use of transit, bicycle, and pedestrian travel, and thus reduce public exposure to toxic air contaminants. The project applicant would implement the SCAs related to construction and grading to minimize air quality impacts.	X	X	X	X
Policy HM-2	Reduce the public's exposure to toxic	The project would be within one	X	X	X	X

TABLE IV-1 GENERAL PLAN POLICIES

			Scenarios to which Policy is Applicable			
Policy #	Policy	Relationship to Development Scenarios	Maximum Residential	Residential/ Office Mix	All Office	Maximum Office
	air contaminants through appropriate land use and transportation strategies.	block of the 19th Street BART Station, which would facilitate the use of transit, bicycle, and pedestrian travel, and thus reduce public exposure to toxic air contaminants. The project applicant would implement the SCAs related to construction and grading to minimize air quality impacts.				

V. SETTING, IMPACTS, STANDARD CONDITIONS OF APPROVAL, AND MITIGATION MEASURES

This chapter provides the analysis for each environmental topic determined to be potentially significant with regard to the proposed Eastline Project – 2100 Telegraph (the Eastline project or project) during the scoping period. Sections V.A through V.K of this chapter describe the existing setting, the potential impacts that could result from implementation and buildout of the proposed project, the Standard Conditions of Approval (SCAs), and the mitigation measures designed to reduce the significant impacts of the project to a less-than-significant level.

The following provides an overview of the scope of the analysis included in this chapter, the organization of the sections, and the methods for determining which impacts are significant.

ENVIRONMENTAL TOPICS

The following environmental topics are considered in this chapter:

A. Land Use
B. Cultural and Historic Resources
C. Traffic and Transportation
D. Air Quality
E. Greenhouse Gas Emissions
F. Soils, Geology, and Seismicity
G. Hazards and Hazardous Materials
H. Hydrology and Water Quality
I. Noise and Vibration
J. Aesthetics, Shade and Shadow, and Wind
K. Public Services, Utilities, and Recreation

Chapter VI, Effects Found Not to Be Significant or Less Than Significant with Standard Conditions of Approval, includes a brief analysis of each environmental topic for which effects from the project were found to be either not significant or less than significant through the scoping process and preliminary review. These topics include: Agriculture and Forest Resources; Biological Resources; Mineral Resources; and Population and Housing.

FORMAT OF TOPIC SECTIONS

Each environmental topic section generally includes two main subsections: (1) Setting; (2) Regulatory Setting; and (3) Impacts (construction, project, and cumulative), Standard Conditions of Approval, and Mitigation Measures. Identified significant impacts are numbered and shown in **bold** type, and the corresponding mitigation measures are numbered and indented. Significant impacts and mitigation measures are numbered consecutively within each topic and begin with a shorthand abbreviation for the impact section (e.g., AIR for Air Quality). The following abbreviations are used for individual topics:

LU:	Land Use
CULT:	Cultural and Historical Resources
TRANS:	Traffic and Transportation
AIR:	Air Quality
GHG:	Greenhouse Gas Emissions
GEO:	Geology, Soils, and Seismicity
HAZ:	Hazards and Hazardous Materials
HYD:	Hydrology and Water Quality
NOISE:	Noise and Vibration
AES:	Aesthetics, Shade and Shadow, and Wind
UTIL:	Public Services, Utilities, and Recreation

The following notations are provided after each identified significant impact and mitigation measure:

SU	= Significant and Unavoidable
S	= Significant
LTS	= Less than Significant

These notations indicate the significance of the impact with and without mitigation.

ANALYSIS APPROACH

To allow flexibility for the Eastline project to be responsive to changes in market demands and opportunities, a Planned Unit Development (PUD) approval is proposed and considered in this EIR. A PUD includes two tiers of approval, which are both considered in this EIR:

- **Planned Unit Development/Preliminary Development Plan (PUD/PDP).** A development framework to guide and regulate redevelopment of the site into an urban mixed-use development with up to 2.8 million square feet, consistent with the site's maximum floor area ratio (FAR) of 20. Four illustrative development scenarios are programmed in the PUD/PDP: a maximum residential scenario, a maximum office scenario, an office and residential scenario, and an all office scenario.

- **Final Development Plan(s) (FDP).** Approval of a FDP is required subsequent to approval of the PUD/PDP. The FDP shall conform in all major respects with the approved PDP and provide sufficient detail to indicate fully the ultimate operation and appearance of the development. The FDP that will be built is not yet known, but to ready the site for redevelopment as soon as possible, the development team has submitted two FDPs that are currently under review by the City. The first was submitted in conjunction with the PUD/PDP and is specifically considered throughout this EIR.
  - Residential/Office Mix FDP: Up to 880,550 square feet of large floor-plate office, a 365,000-square-foot residential tower (395 units), 85,000 square feet of ground floor retail, 18,500 square feet of community space, and six levels of parking.

  Another FDP, the All Office FDP, was developed and submitted subsequent to the Residential/Office Mix FDP in response to more current downtown market conditions. The All Office FDP is within the "book-ends" established in the PUD/PDP.
  - All Office FDP: Up to 1,450,000 square feet of large floor-plate office, 80,000 square feet of ground floor retail, 22,790 square feet of community space, and six levels of parking.

The All Office FDP falls within the scope of the PUD/PDP EIR analysis and in any cases where potentially unique findings may be associated with this development scenario, such cases are described.

The project sponsor anticipates that full buildout of the Eastline project will be less intense than what is allowed under the site's FAR and the proposed PUD/PDP. However, this EIR analyzes a maximum buildout under the proposed PUD/PDP as the project for CEQA purposes to provide a comprehensive and conservative analysis that will cover subsequent FDP proposals that conform in all major respects with the proposed PUD/PDP. The proposed FDPs fall within the "book-ends" of the two maximum development scenarios and are consistent with the blended development program included in the PUD/PDP.

In most cases, the Maximum Office Scenario is the most environmentally impactful under CEQA. As such, the analysis in this EIR focuses on the Maximum Office Scenario for all topics where it represents a worst-case analysis. In a few circumstances (e.g., water supply), the impacts associated with the Maximum Residential Scenario would be greater or just different (e.g., shade and shadow) than those associated with the Maximum Office Scenario. In these unique situations, supplemental analysis is provided. Supplemental analysis is also provided when different mitigation measures or level of mitigation may be warranted depending on the development scenario. As an example a shade and shadow analysis is provided for all development scenarios to ensure the range of potential impacts is fully understood and disclosed and mitigation measures specific to the impact are recommended. In contrast, for topics such as soils, geology, and seismicity and hydrology and water quality, there is no substantial variation in the level of impact or required mitigation measures. As a result, an analysis or mitigation measures unique to the different development scenarios is not warranted. Whenever the analysis, an impact, or mitigation measure is unique to a specific development scenario, it is clearly specified.

DETERMINATION OF SIGNIFICANCE

Under the California Environmental Quality Act (CEQA), a significant effect is defined as a substantial or potentially substantial, adverse change in the environment.[1] Each impact evaluation in this chapter is prefaced by criteria of significance, which are the thresholds for determining whether an impact is significant.

The criteria of significance utilized in this EIR are from the City of Oakland Thresholds/Criteria of Significance Guidelines,[2] which help clarify and standardize analysis and decision making in the environmental review process and which are used as a guidance in preparing environmental review documents for projects in Oakland. The City requires the use of these thresholds unless the location of the project or other unique factors warrants the use of different thresholds. The thresholds are intended to implement and supplement provisions in the CEQA Guidelines for determining the significance of environmental effects, including Sections 15064, 15064.5, 15065, 15382 and Appendix G, and to form the basis of the City's Initial Study and Environmental Review Checklist.

The City thresholds are intended to be used in conjunction with the SCAs (see discussion below), which are incorporated into projects regardless of the determination regarding a project's environmental impacts.

CEQA requires the analysis of potential adverse effects of the project on the environment. However, CEQA does not require that potential effects of the environment on the project be analyzed or mitigated. Nevertheless, this document includes an analysis of potential effects of the environment on the project in order to provide information to the public and decision-makers. Where a potential significant effect of the environment on the project is

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[1] Public Resources Code Section 21068.

[2] City of Oakland, 2002. Thresholds/Criteria of Significance Guidelines. Updated 2008. Supplemental SCAs introduced in 2011, modified in 2013.

identified, the document, as appropriate, identifies City SCAs and/or project-specific non-CEQA recommendations to address these issues.

CUMULATIVE ANALYSIS CONTEXT

CEQA defines cumulative as "two or more individual effects which, when considered together, are considerable, or which can compound or increase other environmental impacts." Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential environmental impacts when the project's incremental effect is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. These impacts can result from a combination of the proposed project together with other projects causing related impacts. "The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects."[3]

The methodology used for assessing cumulative impacts typically varies depending on the specific topic being analyzed. For example, the geographic and temporal (time-related) parameters related to a cumulative analysis of air quality impacts are not necessarily the same as those for a cumulative analysis of noise or aesthetic impacts. This is because the geographic area that relates to air quality is much larger and regional in character than the geographic area that could be impacted by potential noise or aesthetic impacts from a proposed project and other cumulative projects/growth. The noise and aesthetic cumulative impacts are more localized than air quality and transportation impacts, which are more regional in nature. Accordingly, the parameters of the respective cumulative analyses in this document are determined by the degree to which impacts from this project are likely to occur in combination with other development projects.

UNIFORMLY APPLIED DEVELOPMENT STANDARDS AND CONDITIONS OF APPROVAL

As stated previously, the SCAs are incorporated into projects regardless of the environmental determination. As applicable, the SCAs are adopted as requirements of an individual project when approved by the City, and they are designed to (and do) substantially mitigate environmental effects. For the proposed project, all relevant SCAs have been incorporated as part of the project.

[3] CEQA Guidelines Section 15355(b).

In reviewing project applications, the City determines which SCAs are applied, based on zoning district, community plan, and the type(s) of permit(s)/approvals(s) required. Depending on the specific characteristics of the project type and/or project site, the City determines which SCAs apply to a specific project; for example, SCAs related to creek protection permits are only applied to projects on creekside properties.

Because these SCAs are mandatory City requirements, the impact analysis assumes that they will be imposed and implemented by the project. If a SCA would reduce a potentially significant impact to less than significant, the impact is determined to be less than significant and no mitigation is imposed.

The SCAs incorporate development policies and standards from various adopted plans, policies, and ordinances (e.g., the Oakland Planning and Municipal Codes, Stormwater Water Management and Discharge Control Ordinance, Oakland Tree Protection Ordinance, Oakland Grading Regulations, National Pollutant Discharge Elimination System permit requirements, California Building Code, and Uniform Fire Code), which have been found to substantially mitigate environmental effects. Where peculiar circumstances associated with a project or project site would result in significant environmental impacts despite implementation of the SCAs, the City determines whether feasible mitigation measures exist to reduce the impact to less-than-significant levels.

A. LAND USE

This section describes the existing land use setting in the vicinity of the project site; discusses the State and local regulations and policies pertinent to land use; assesses the project's potentially significant land use impacts that could result from implementation of the Eastline project; and provides, where appropriate, mitigation measures and SCAs to address those impacts.

A discussion of the project's consistency with relevant land use policies is provided in *Chapter IV, Planning Policy*.

1. Setting

The approximately 3.21-acre project site is composed of one square block within the Uptown District, approximately one block from the 19th Street Oakland BART Station in the greater downtown Oakland area and central to several landmarks. Lake Merritt, the Fox Theater, and the Paramount Theater are all less than ⅓-mile from the site. The project site is also about ⅓ mile from Interstate (I-) 980 and 1 mile from both I-580 and I-880. Figure III-1 in *Chapter III, Project Description*, shows the location of the project site in its regional and local context.

Two of the city's major thoroughfares border the site. Telegraph Avenue, a major commercial street that runs north/south through the cities of Oakland and Berkeley borders the western side of the project site, and the eastern side is bordered by Broadway, which runs north/south through Oakland until reaching State Route 24, then curving east and ending at the Caldecott Tunnel.

The General Plan land use classification is Central Business District (CBD), and the zoning designation is Central Business District Pedestrian Retail Commercial (CBD-P). These classifications are discussed in *Chapter IV, Planning Policy.*

The following sections describe existing land uses within the project site and vicinity as well as planned development in the surrounding area.

a. Existing Land Uses Within the Project Site

The project site is bounded by Telegraph Avenue to the west, 22nd Street to the north, Broadway to the east, and 21st Street to the south. The site is composed of five parcels with the following Alameda County Assessor's Parcel Numbers (APNs): 008-0648-011-03, 008-0648-016-03, 008-0648-018-0, 008-0648-017-00, and 008-0648-001-00.

Major land uses within the project site include office space, parking, and commercial retail. The two parcels fronting Telegraph Avenue contain a two-level public parking

Office buildings at 2101 and 2127 Broadway

Former Kwik Way / Space Burger restaurant building at 2150 Telegraph

Sherman Clay Building

structure (Telegraph Plaza Parking Garage), which is owned by the City of Oakland (City) and a vacant, one-story fast food restaurant building (most recently occupied by Space Burger and formerly Kwik Way). The remaining three parcels, which front Broadway, contain three two-story buildings: 2101 Broadway (vacant, previously Bank of America); 2127 Broadway (Bank of the West); and 2131–2147 Broadway (Sherman Clay Building with a mix of tenants). The current tenants in the Sherman Clay Building include a hair products store, a nurse training center, a health beverages company, a psychic, Pan Theater, The Sound Room (music venue), a healing arts business, an executive protection/training company, and the Bay Area Jazz and Arts Network. Figure V.A-1 illustrates existing land uses.

Existing buildings are oriented in a way that does not allow west-east pedestrian access through the project site from Telegraph Avenue to Broadway. There is, however, an alley connecting 21st and 22nd streets located along the west side of the three parcels fronting Broadway.

b. Existing Land Uses in the Project Site Vicinity

The Uptown District is a hub for entertainment and retail within downtown Oakland. Existing uses in the vicinity are primarily commercial (including retail, restaurant, entertainment, and office). Community services and multi-family residential uses exist nearby, as shown in Figure V.A-1.

Directly north of the project site, fronting 22nd Street, is a gas station (A & A Gas & Food Mart), a privately-owned surface parking lot, and the Breuner Building, which now serves as an office building. Existing uses to the south include the Paramount Theater, a small surface parking lot (immediately adjacent to the Paramount Theater and owned by BART), several small restaurants, and a 4-story office building (I. Magnin Building). To the east of the project site, along Broadway, there is a mix of restaurants (Old Brooklyn Café & Bakery, Plum Bar, LocoL, Ike's Place, La Bonita Taqueria, Agave Uptown, and Luka's Taproom and Lounge Bar). In addition, east of the project site are community services centers (the Kapor Center for Social Impact and Building Opportunities for Self Sufficiency). Uses to the west include the First Baptist Church of Oakland and an affordable housing project (Mercy Housing's Hamilton Apartments) in the old YMCA Building.

Old YMCA building on Telegraph

The project site is immediately adjacent to several historic resources—including the YMCA Building and the First Baptist Church of Oakland along Telegraph Avenue, and the Paramount Theater, Breuner Building, and I. Magnin Building along Broadway. Several other historic resources are within a one- to two-block radius, including the Emporium-Capwell building on Telegraph Avenue, which is being renovated for reuse as a mixed-use project that will include approximately 330,000 square feet of office space and 50,000 square feet of ground-floor retail for unknown office tenants.

Additionally, two historic districts that are designated Areas of Primary Importance[1]—the Cathedral District and the Uptown Shopping/Entertainment District—front on streets that border the project site.

c. Planned Projects Within the Area

A significant amount of new office and residential development is approved or under construction in downtown Oakland, several of which are in the immediate vicinity. Most of all of these infill projects would result in some land use changes on individual parcels and

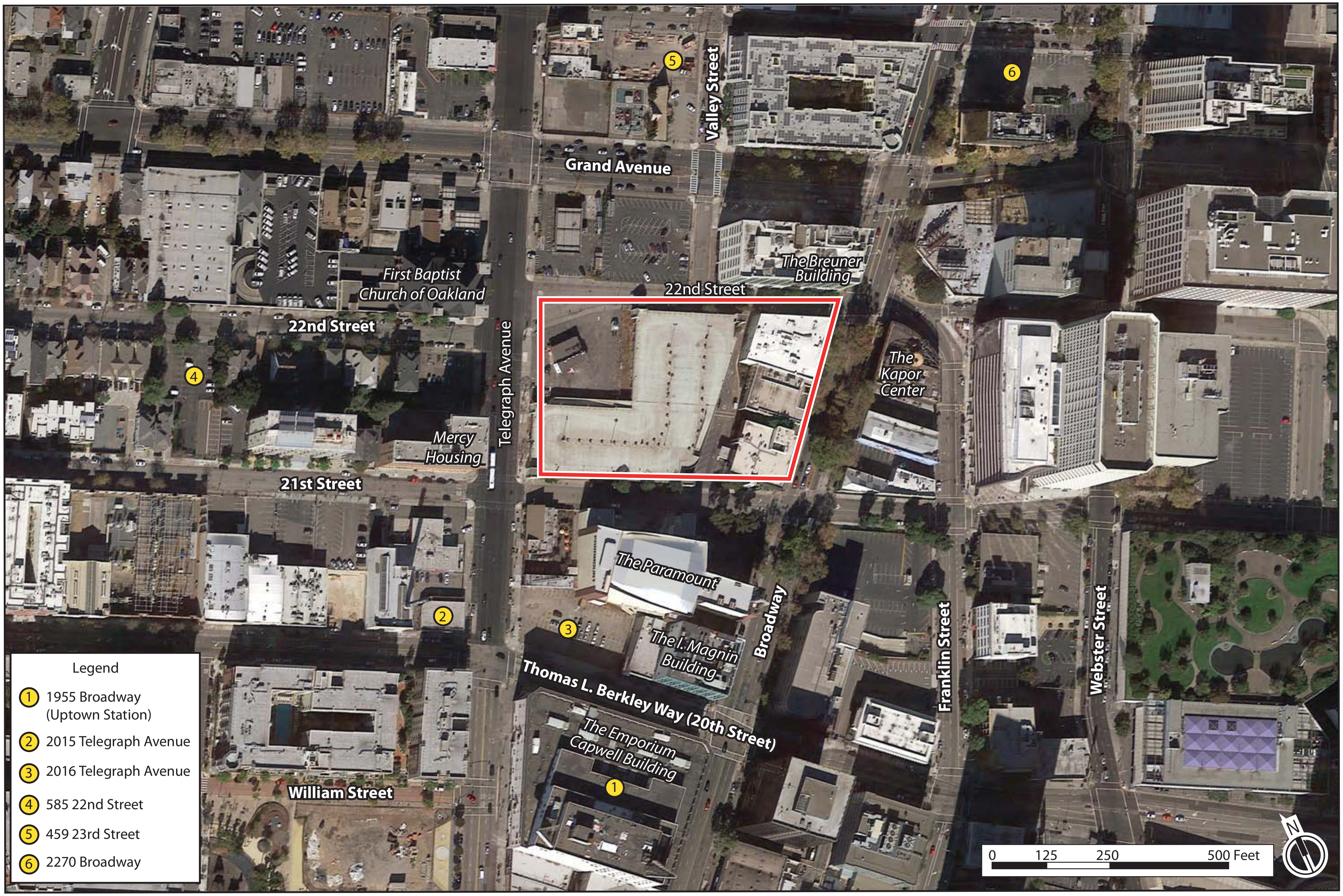
[1] City of Oakland Planning and Building. Historic Preservation. Available at: http://www2.oaklandnet.com/government/o/PBN/OurServices/GeneralPlan/DOWD009018, accessed January 20, 2017.

Source: Urban Planning Partners, Google Earth, 2017

Figure V.A-1
Existing Land Uses

increase intensity for development downtown. The projects are described below and their locations are shown in Figure V.A-2.

- **Uptown Station (under construction).** The Emporium-Capwell building at 1955 Broadway (located one block south of the project site) is currently being renovated for reuse as a mixed-use project that will include ground-floor retail and upper-floor offices.
- **459 23rd Street (under construction).** This project includes construction of a six-story mixed-use residential retail building, including 3,700 square feet of commercial space and up to 65 residential units.
- **Kaiser Center (approved).** This project at 300 Lakeside Drive will result in 2 new towers. One tower will be 42 stories and will contain 780,000 square feet of office space. The other will be mixed use, with 565,000 square feet of office space and 22,000 square feet of retail.
- **1900 Broadway (approved).** This project includes construction of 451 residential units and 40,000 square feet of commercial space.
- **2015 Telegraph (approved).** This planned project includes construction of a 14-story mixed-use residential and retail building, including a parking garage on the northwest corner of Telegraph Avenue and Thomas L. Berkley Way. The proposed tower includes approximately 2,446 square feet of commercial space and up to 114 residential units.
- **2016 Telegraph (approved).** This planned project includes construction of an 18-story mixed-use residential and retail building, including a parking garage on the northeast corner of Telegraph Avenue and Thomas L. Berkley Way. The proposed tower includes approximately 5,304 square feet of commercial space and up to 230 residential units.
- **585 22nd Street (approved).** This planned project includes construction of a five-story mixed-use residential retail building, including 1,600 square feet of commercial space and up to 76 residential units.
- **2270 Broadway (approved).** This planned project includes construction of a 24-story mixed-use residential retail building, including 6,000 square feet of commercial space and up to 223 residential units.
- **2 Kaiser Plaza (under review).** This planned project includes construction of a high-rise office building with 800,000 square feet of commercial and retail space.



Source: Urban Planning Partners, Google Earth, 2017

Eastline Project - 2100 Telegraph EIR

Figure V.A-2
Planned Projects in Vicinity

- **2044 Franklin St (under review).** This planned project includes construction of a 29-story mixed-use building with 184 residential units, 57,000 square feet of office space, and 5,000 square feet of retail.
- **2305 Webster (approved).** This planned project includes 130 residential units and 3,000 square feet of retail.

This new development would significantly increase the number of residential and ground–floor retail uses in the site's immediate vicinity, Uptown District, and the greater downtown. It would result in an incremental increase in the density and intensity of residential and commercial development in the area.

2. Regulatory Setting

The Eastline project's compatibility with the Oakland General Plan and other relevant planning policies is discussed in *Chapter IV, Planning Policy.* The project's relationship with relevant policies of the General Plan and other land use planning policies is described in detail within Table IV-1, General Plan Policies.

3. Impacts, Standard Conditions of Approval, and Mitigation Measures

This section describes environmental impacts related to land use that could result from implementation of the Eastline project. The section begins with the criteria of significance, which establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the project and identifies SCAs and/or mitigation measures to address these impacts as needed.

a. Significance Criteria

Implementation of the Eastline project would result in a significant land use impact if it would:

1. Physically divide an established community.
2. Result in a fundamental conflict between adjacent or nearby land uses.
3. Fundamentally conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect and result in a physical change in the environment.
4. Fundamentally conflict with any applicable habitat conservation plan or natural community conservation plan.

The fourth criterion is not applicable to the project, as there are no habitat conservation plans or natural community conservation plans in place in the project vicinity.

b. Less-than-Significant Land Use Impacts

Implementation of the Eastline project would result in the less-than-significant impacts described below. Because implementation of the Eastline project would not exceed the significance criteria described above, the project's impacts would not be considered significant and no mitigation measures are needed.

(1) Community Integrity

The physical division of an established community typically refers to the construction of a major physical feature (such as an interstate highway or railroad tracks) or removal of a means of access (such as a local road or bridge) that would impair mobility within an existing community or between a community and outlying areas. For instance, the construction of an interstate highway through an existing community may constrain travel from one side of the community to another; similarly, such construction may also impair travel to areas outside of the community.

The project site is currently developed with a large two-level parking garage, a small fast-food restaurant, and vacant or underutilized commercial buildings. The project would result in the demolition of all on-site buildings and the associated uses/businesses would relocate, likely to another part of Oakland. The project sponsor is currently working with each tenant to assist with relocation.

The Eastline project would include retail, community space, parking, and either residential and/or office space. As described in *Chapter III, Project Description*, the ground floor project site plan illustrates a landscaped plaza with pedestrian accessibility from Telegraph Avenue, 21st Street, 22nd Street, and Broadway. As shown in Figure III-8 the project would increase walkability through the site while strengthening the connectivity between the Telegraph Avenue and Broadway corridors. Streetscape improvements and ground-floor retail would enhance the pedestrian environment and encourage the movement of people into and through the project site. Implementation of the project would not result in the division of a community but would rather improve the site's current accessibility and pedestrian circulation.

Introducing a substantial population (610 to 2,390 residents and/or 370 to 12,100 employees, depending on the development scenario) and additional commercial retail uses would increase round-the-clock activity within the project site, and is thus anticipated to result in increased safety. In addition, the development of higher-density land uses within the project site would create a stronger connection between the project site and surrounding higher-density neighborhoods. With an increase in population and land uses, the project's intensity would encourage and facilitate the movement of people throughout the Uptown District.

The project would redevelop multiple underutilized parcels with pedestrian-oriented activities and concentrated development of a mix of residential, office, commercial, and community activities near transit. Implementation of the project would not result in the physical division of the adjacent surrounding areas or any other established community. Therefore, this impact would be less than significant.

(2) Conflict with Adjacent Land Uses

Implementation of the project would not result in the development of uses that would be intrinsically incompatible with surrounding land uses (e.g., a power plant, factory, or other noise, air pollution, or hazard-generating land use). The mixed-use development would not permanently (or temporarily) interfere with the daily operations of surrounding land uses, including commercial, office, and residential. On the contrary, it is evident that the project, with its potential mix of residential, office, and commercial retail uses, would be compatible with surrounding land uses.

The project ranges from a Maximum Residential Scenario to a Maximum Office Scenario, and the Residential/Office Mix and All Office Scenarios fall within this range; however, all development scenarios include ground-floor retail areas and between three-to-six levels of above-ground parking with one subterranean level of parking. The retail areas would be occupied with uses prescribed by the CBD-P zone as pedestrian-oriented, active storefront uses, and the upper-story spaces would encourage a wide range of office and/or residential activities. It is anticipated that the mix of land uses would serve current residents in the neighborhood and future employees and/or residents of the project.

(3) Conflict with Land Use Policy

Potential land use policy conflicts are described in detail in *Chapter IV, Planning Policy*. Conflicts with a general plan do not inherently result in a significant effect on the environment within the context of the California Environmental Quality Act (CEQA). As stated in Section 15358(b) of the CEQA Guidelines, "Effects analyzed under CEQA must be related to a physical change." Section 15125(d) of the CEQA Guidelines states that Environmental Impacts Reports (EIRs) shall discuss any inconsistencies between the project and applicable general plans in the Setting section of the document (not under Impacts). Further, Appendix G of the CEQA Guidelines (Environmental Checklist Form) explicitly focuses on environmental policies and plans, asking if the project would "conflict with any applicable land use plan, policy, or regulation ...adopted for the purpose of avoiding or mitigating an environmental effect". Even a response in the affirmative, however, does not necessarily indicate the project would have a significant effect, unless a physical change would occur. To the extent that physical impacts may result from such conflicts, such physical impacts are analyzed in this EIR.

The project would not conflict with any land use policies adopted for the purpose of avoiding or mitigating an environmental effect. As a result, no significant land use impacts related to the project's consistency with land use policies would occur.

Please see *Chapter IV, Planning Policy*, for a discussion of the project's relationship with land use policy documents.

c. Significant Land Use Impacts

Implementation of the project would not result in any significant land use impacts.

d. Cumulative Land Use Impacts

As described throughout this section, the project would not result in a significant land use impact by potentially physically dividing an established community; or conflicting with adjacent or nearby land uses; or conflicting with applicable land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect. The project is consistent with the City of Oakland General Plan's land use designation for the site. Thus, the project would not be combined with or add to any potential adverse land use impacts that may be associated with other cumulative development. A review of cumulative development in the area, including past, present, existing, pending, and reasonably foreseeable future development, does not reveal any significant adverse cumulative impacts in the area. Cumulative development in the area consists of residential, commercial, office, and other typical urban uses.

Cumulative development, in combination with the project, has and would continue to result in the development and redevelopment of infill and underutilized sites throughout the area. Infill projects in urban areas allow for the capitalization of existing transit system and infrastructure and minimize impacts to sensitive resources that would likely be degraded in a development on a greenfield site. Additionally, by locating residential development near transit and employment centers and by incorporating a mix of uses, urban mixed-use projects reduce vehicle miles traveled. The project would contribute to a higher density in the area, which is anticipated by the City of Oakland General Plan. The project is generally consistent with adopted plans and the overall vision for the area. Based on the information in this Land Use section and for the reasons summarized above, the project would not contribute to any significant adverse cumulative land use impacts when considered together with past, present, and reasonably foreseeable future development.

B. CULTURAL AND HISTORICAL RESOURCES

This section describes the existing cultural and historical resources setting at the project site; discusses the relevant State and local regulatory considerations; evaluates the potentially significant impacts to cultural and historical resources as a result of Eastline project implementation; and provides, where appropriate, mitigation measures and SCAs to address those impacts.

Cultural resources are sites, buildings, structures, objects, and districts that may have traditional or cultural value based on their historical significance. Cultural resources include, for example, archaeological sites, historic roadways, landscapes, buildings of architectural significance, and can be divided into the following subsets pursuant to CEQA: historical, archaeological, and paleontological resources.

For a cultural resource to be considered a historical resource under CEQA, it must be listed, or determined eligible for listing, in the California Register of Historical Resources (CRHR); included in a local register of historical resources as defined by the Public Resources Code (PRC); or determined by the lead agency to be historically significant.[1] Unique archeological resources are also defined by the PRC and can include archaeological sites (an archeological site can also be identified as a historical resource).

Under CEQA, paleontological resources are a subset of cultural resources. They include fossilized plants and animals, as well as other evidence of past life such as trace fossils and tracks. Ancient marine sediments may contain invertebrate fossils from snails, clam and oyster shells, sponges, and protozoa, and vertebrate fossils such as fish, whale, and sea lion bones. Terrestrial sediments may contain fossils from vertebrate land mammals such as mammoth, camel, saber tooth cat, horse, and bison.

1. Setting

This section discusses the historical context of the region and describes the cultural resources identified at the project site and their significance under CEQA. Information in this subsection was taken from: (1) background research conducted by cultural resources staff at LSA Associates and architectural historian Bridget Maley of architecture + history; and (2) a preliminary evaluation of the building at 2150 Telegraph Avenue/495 22nd

[1] California Office of Historic Preservation (OHP). 2016. Public Resources Code. Available at: http://leginfo.legislature.ca.gov/faces/codesTOCSelected.xhtml?tocCode=PRC&tocTitle=+Public+Resources+Code+-+PRC, accessed November 22, 2016.

Street.[2] A full report prepared by architecture + history can be found in Appendix B of this document.

The following subsections provide: (a) methods of the analysis; (b) an overview of the area's historical setting; (c) regulatory context; and (d) a description of the existing conditions of project area cultural resources.

a. Methods

Background research for this analysis included a records search, literature review, and consultation with the Native American Heritage Commission (NAHC) and historical organizations. This research was conducted to identify previously conducted cultural resource studies and previously recorded cultural resources within or adjacent to the project site.

(1) Records Search

LSA Associates conducted a records search of the project site and the area within a ¼-mile radius of the project site at the Northwest Information Center (NWIC) (File #15-1472), Sonoma State University, Rohnert Park, on April 11, 2016. The NWIC is an affiliate of the State of California Office of Historic Preservation (OHP), and is the official state repository of cultural resource studies and records for Alameda County.

LSA Associates reviewed the following State and local inventories for cultural resources in and adjacent to the project area:

- California Inventory of Historic Resources (California Department of Parks and Recreation 1976);
- Five Views: An Ethnic Historic Site Survey for California (California OHP 1988);
- California Points of Historical Interest (California OHP 1992);
- Historic Context: Unreinforced Masonry Buildings in Oakland, 1850-1948 (Oakland Cultural Heritage Survey 1995);
- California Historical Landmarks (California OHP 1996);
- Directory of Properties in the Historic Property Data File: Alameda County (California OHP, April 5, 2012). The directory includes NRHP, CRHR listings, California Historical Landmarks, and California Points of Historical Interest; and

[2] Conducted on November 17, 2003 by former LSA architectural historian Sara E. Palmer.

- List of Designated Landmarks, Heritage Properties and Preservation Districts (City of Oakland 2016).

On April 25, 2016, architectural historian Shayne Watson conducted archival research for the project site and adjacent buildings at the Oakland Cultural Heritage Survey (OCHS). OCHS has completed Historic Resources Inventory and DPR 523 series forms for buildings throughout Oakland since the 1980s.

On April 15, 2016, LSA Associates requested a Sacred Lands File search of the project site from the NAHC in Sacramento. LSA Associates requested a review of their sacred land file for any Native American cultural resources that might be affected by the project. The NAHC is the official state repository of Native American sacred site location records.

(2) Literature Review

Architectural historians Bridget Maley and Shayne Watson reviewed Sanborn maps from 1889, 1902, 1912, 1935, 1950, 1970; historical building permits; and city directories for information about the project site and vicinity.

(3) Site Visit

On March 31, 2016, architectural historians Bridget Maley and Shayne Watson conducted a site visit of the project site and immediate neighborhood for photographic, analysis, and evaluation purposes.

b. Historical Context

(1) Pre-European Contact

The Archaic-Emergent cultural sequence is commonly used to interpret the pre-European contact occupation of the San Francisco Bay Area (Bay Area).[3,4] This sequence would serve as the general baseline for significance evaluations and interpretation of pre-contact archaeological deposits that may occur in the project site. The sequence is broken into two broad periods: (1) Archaic Period, consisting of Early Holocene Lower Archaic (8000–3500 cal B.C.), Middle Archaic (3500–500 cal B.C.), Initial Upper Archaic (500 cal B.C. to cal A.D. 430), and Late Upper Archaic (cal A.D. 430–1050); and (2) Emergent Period,

[3] Fredrickson, David A. 1974 Cultural Diversity in Early Central California: A View from the North Coast Ranges. Journal of California Anthropology 1(1):41–53.

[4] Milliken, Randall, et al. 2007. Punctuated Culture Change in the San Francisco Bay Area. In California Prehistory, edited by Terry L. Jones and Kathryn A Klar, pp. 99–124. Rowman and Littlefield Publishers, Inc, Lanham, Maryland.

consisting of Lower Emergent Period (cal A.D. 1050–1550) and Terminal Late (or Upper Emergent) Period (cal A.D. 1550–historic).

The Early Holocene is characterized by "a generalized mobile forager pattern," as indicated by assemblages containing milling slabs and hand stones and large wide-stemmed and leaf-shaped projectile points. Archaeological sites from the Early Holocene are rare, although this may in part be an issue of visibility, with these ancient deposits likely underlying several feet of soil. Although local variations occur, the Middle Archaic Period is generally marked by increased sedentism, regional trade, and symbolic integration. Olivella and Haliotis shell ornaments and the mortar and pestle first appear in the local archaeological record during this period.

An evolution in symbolic integration systems and technology occurred in the Initial Upper Archaic Period, with the introduction of new shell bead styles and bone tools, including split-beveled and small saucer Olivella beads, barbless fish spears, elk femur spatula, bone tubes and whistles, and basketry awls. Culturally distinct traits appear during the Late Upper Archaic Period, suggesting migration of a new population. This new population, referred to as the Meganos Aspect, appears to have spread from the San Joaquin Delta to the East Bay during the Late Upper Archaic Period; it is primarily characterized by its mortuary complex, which typically includes extended burial posture. The Emergent Periods represent the ethnographically documented cultures present at the time of European contact. This period is marked in part by increased sedentism; status ascription and social stratification observed in burial practices; and the emergence of the Kuksu Cult, a ceremonial system that unified several language groups in Central California at the time of European contact. New technology was also introduced during this period, notably the bow and arrow, which is evidenced in the archaeological record by small dart-sized projectile points.

Modern Oakland is within territory once occupied by Costanoan (also commonly referred to as Ohlone) groups during the Emergent Period. Eight Ohlone languages were spoken in the area from the southern edge of the Carquinez Strait to portions of the Big Sur and Salinas rivers south of Monterey Bay, to approximately 50 miles inland from the coast.[5] The project site is within the ancestral territory of the Chochenyo language group of Ohlone. Ohlone territories comprised one or more land holding groups that anthropologists refer to as "tribelets." The tribelet, a nearly universal characteristic throughout native California, consists of a principal village occupied year round and a series of smaller hamlets and resource gathering and processing locations occupied

[5] Shipley, William F. 1978. Native Languages of California. In California, edited by Robert F. Heizer, pp. 80–90. Handbook of the North American Indians, Vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

intermittently or seasonally. Populations of tribelets ranged from 50 to 500, largely determined by the carrying capacity of the tribelet's territory. The closest known tribelet to the project site was Huchiun, with a territory extending from Temescal Creek north to lower San Pablo and Wildcat Creek drainages.[6] Members of the Huchiun are noted on Mission San Francisco de Asís (a.k.a. Mission Dolores) baptismal registers beginning in 1794.

(2) Post-European Contact and Oakland Development

This section describes the settlement of modern Oakland following the de Anza Expedition of the late 18th century, which expanded European exploration of Alta California. In 1820, the Spanish government granted Luís María Peralta a 44,800-acre tract of land, known as Rancho San Antonio. This tract, which included much of the East Bay, was divided among Luís' four sons; the area that now contains central and north Oakland, Emeryville, and Piedmont was bequeathed to son Vicente Peralta. In 1836, Vicente Peralta built an adobe house on a parcel now bounded by Telegraph Avenue, 55th Street, Vicente Way, and State Route 24. The Gold Rush brought opportunistic settlers to the East Bay. Soon overwhelmed by squatters and attorneys' fees, Vicente Peralta sold or surrendered most of his land by 1853 (see Appendix B).

Oakland's size and population rapidly expanded starting in 1869, when it became the terminus of the Central Pacific Railroad, prompting the construction of civic and commercial buildings and infrastructure improvements; with a central harbor and easy accessibility from inland farms, Oakland was strategically located for export trade. In the early 20th century, Oakland attracted businesses and residents from San Francisco, with the 1906 Earthquake and Fire prompting an economic and demographic shift from San Francisco to Oakland and other East Bay communities. This rapid change in development defined the physical landscape of Downtown Oakland; several landmark buildings still extant today were constructed during this era, although the project site does not include any landmark buildings.

In 1907, the Key Route Inn was constructed at what is now the west side of the intersection of West Grand Avenue and Broadway. It was constructed to serve as a significant destination on the Key Route electric railroad system, and included a train shed, hotel, dining room, and various shops along Broadway. The inn was designed to promote downtown Oakland as a commuter destination. By 1910, Oakland's population had grown to 150,000. The East Bay Electric Lines, a subsidiary of Southern Pacific Railroad, completed an electric interurban rail line through downtown Oakland along

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[6] Milliken, Randall. 1995. A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area, 1769–1810. Ballena Press, Menlo Park, California.

modern 22nd Street by 1911. The Key Route Inn was damaged in a fire in 1930 and demolished in 1932.

Oakland's population continued to increase throughout the early 20th century. Several hotels were constructed in Downtown Oakland between 1910 and 1915 to accommodate visitors to the Panama Pacific International Expedition in San Francisco, and Oakland's older neighborhoods became more densely populated as new apartment buildings and hotels were constructed and shopping districts expanded. Industrial development in Oakland also increased during World War I, and residential suburbs expanded outward from Downtown due to increased automobile ownership. Development in Downtown Oakland in the 1920s included many buildings on the blocks surrounding the project site.

Oakland fell into a period of financial instability following the Great Depression of the 1930s, with little construction taking place in Downtown. The Downtown Property Owners Association of Oakland, formed in the early-20th century, stepped in to promote Downtown and ensure that when prosperity returned, commercial activity did not relocate a half-mile north to Uptown. The Association held "Downtown Day" with parades, fashion shows, and other festive activities to keep Downtown the focus of shoppers.[7] Following the outset of World War II, Oakland's population increased by over 30 percent to 385,000 by 1950. The Port of Oakland became a major staging area for the Pacific Theater of Operations and a center for the wartime production of goods and materials. The economic impact of World War II on Oakland was significant, with effects felt in almost every sector by its increasingly diverse population. Post-World War II commercial development in Downtown Oakland was fairly steady from the late 1940s into the early 1960s.

During the 1950s and 1960s, much of Oakland's historical built environment was threatened by urban redevelopment. As suburbs grew outward during the 1950s, the inner core of the City began to decline as residents left for the outlying areas made accessible via new freeways. Between 1960 and 1966, over 10,000 jobs relocated to outlying areas in southern Alameda County.[8] The loss of jobs reduced the tax base while simultaneously creating more demands for city services for those who did not or could not leave for the suburbs. Oakland, along with many large American, industrial-based cities during the 1960s and 1970s, became a city with a neglected urban core, high unemployment, cyclical racial and ethnic tension, and reduced economic opportunity.[9] Although much of Downtown Oakland's historical built environment was spared

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[7] Foelson, Robert. 2001. Downtown: Its Rise and Fall, 1880-1950. Yale University Press, New Haven, Connecticut.

[8] Self, Robert O. 2005. American Babylon, Race and the Struggle for Postwar Oakland. Princeton University Press, Princeton, New Jersey.

[9] Bagwell, Beth. 1982. Oakland: the Story of a City. Oakland Heritage Alliance, Oakland, California.

demolition, the Downtown still struggled through urban disinvestment in the 1960s and 1970s. By and large, efforts by the Downtown Property Owners Association of Oakland to retain Downtown's importance were not able to prevent businesses from moving out of the Downtown. Several large-scale redevelopment projects proposed for Downtown Oakland in the 1980s failed to make it past the planning stages. And several projects to revive Downtown activity and commerce that included constructing government buildings and the BART system did not "deliver what it had promised."[10] Downtown vacancy rates in the 1980s remained around 15 percent. Shifts in the economy and the movement of manufacturing jobs overseas left many factories, warehouses, and office buildings empty throughout the city of Oakland. In the late 1990s and early 2000s, many of these buildings were repurposed for office and residential uses as companies began to relocate from San Francisco to Oakland in search of more affordable real estate.

The current phase of Downtown development began during the administration of Oakland Mayor Elihu Harris. Under Mayor Harris, the City approved numerous projects in Downtown that created slightly over 1,000 housing units.[11] The development trend continued and quickened under the Mayor's Harris' successor, then former (and now current) California Governor Mayor Edmund "Jerry" Brown. After taking office in 1999, Mayor Brown's "10K program" promoted policies to bring 10,000 residents into Downtown.[12] The program would rely on private investment capital to build market-rate housing and "get more people that live in Oakland working there and more money that is generated in Oakland [is] recycled in that city, through department stores, enterprises, and other commercial activates."[13] Mayor Brown emphasized the several "empty blocks" in Downtown creating "plenty of room for in-fill development" to generate a "vibrant urban life."[14] By 2007, Downtown development under mayors Harris and Brown brought 9,317 housing units and a "more vibrant and populous Downtown Oakland," and "laying the plans for thousands of units not yet built."[15] An economic downturn beginning in 2006-2007, however, slowed the pace of investment and construction in Downtown Oakland and across the Bay Area.

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[10] Gurwutt, Rob. 2000. "Mayor Brown & Mr. Bobb," Governing Magazine. On file at Oakland History Room, Main Library, Oakland Public Library, Oakland, California.

[11] Thompson, Chris. 2007. "Grading Jerry," East Bay Express, Vol. 29l No., 13. On file at Oakland History Room, Main Library, Oakland Public Library, Oakland, California.

[12] Thompson, Chris. 2007. "Grading Jerry," East Bay Express, Vol. 29l No., 13. On file at Oakland History Room, Main Library, Oakland Public Library, Oakland, California.

[13] Suarez, Ray. 1998. "Jerry Brown," Talk of the Nation, National Public Radio, June 8, 1998. Transcript on file at Oakland History Room, Main Library, Oakland Public Library, Oakland, California.

[14] Suarez, Ray. 1998. "Jerry Brown," Talk of the Nation, National Public Radio, June 8, 1998. Transcript on file at Oakland History Room, Main Library, Oakland Public Library, Oakland, California.

Thompson, Chris. 2007. "Grading Jerry," East Bay Express, Vol. 29l No., 13. On file at Oakland History Room, Main Library, Oakland Public Library, Oakland, California.

(3) Project Vicinity

A Sanborn Fire Insurance Map review was conducted to characterize the historical development of the project site and vicinity. That review is summarized below. Aerial photographs taken from the 1930s and through 1970 depict the project site and surrounding area filled with low-rise buildings and parking lots. Most multi-story buildings are shown south of and across Broadway from City Hall.[16]

Telegraph Avenue near the project site contained a mix of residential, commercial, and industrial properties when the first Sanborn Fire Insurance Company map was produced for the area in 1889. The 1889 Sanborn Map of the project site depicts four single-family residences, three outbuildings, and a large vacant lot.

By 1902, several street names adjacent to the project site had changed: the 1902 Sanborn Map depicts modern 21st Street as "Hobart" and modern 22nd Street was then named 21st Street (Sanborn-Perris Map Co., Ltd. 1902, Vol. 1; Sheet 29). Growth in the area continued, as vacant lots were developed with residences and commercial buildings. Single-family residences still existed at the corner of Telegraph Avenue and 22nd Street (part of the project site), and the surrounding blocks continued to be a mix of predominantly residential with scattered commercial and industrial properties.

By 1912, many of the buildings previously depicted in the project site vicinity were replaced with new buildings. The Southern Pacific Railroad laid tracks for its new electric streetcar lines in 1911. Three single-family residences depicted in the project site in 1902 were demolished. The 1912 Sanborn Map of the project site depicts the current street names that border the project site: "Hobart" is renamed as 21st Street, and "21st Street" is renamed 22nd Street (Sanborn-Perris Map Co., Ltd. 1912, Vol. 1; Sheet 54). In 1935, the project site and the vicinity had transitioned from primarily residential to a mix of commercial and industrial development. This area of Telegraph Avenue and Broadway experienced significant change between 1912 and 1935. The creation of West Grand Avenue through the site of the former Key Route Inn between Broadway and Telegraph resulted in the demolition of a half-block of buildings bounded by Valley Street, 22nd Street, West Grand Avenue and Broadway. A gas station was depicted at the corner of Telegraph Avenue and 21st Street (Sanborn-Perris Map Co., Ltd. 1935, Vol 1; Sheet 54). Sixteen years later, the western half of the project site was cleared of all buildings and given over to automobile parking (Sanborn-Perris Map Co., Ltd. 1951, Vol. 1; Sheet 54).

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[16] This section is based on a April 7, 2017 review and analysis by an LSA architectural historian of historical images contained in files labeled "Oakland Buildings – Commercial, A-E" and "Oakland Buildings – Commercial, F-N," and Oakland Buildings – Theaters and Halls, Paramount Theater, on file at Oakland History Room, Main Library, Oakland Public Library, Oakland, California.

Lavoie, Steven. 2009. Historic Photos of Oakland. Turner Publishing Company, Nashville, Tennessee.

In 1962, the Bay Area Rapid Transit District (BART) hired the Parsons Brinckerhoff-Tudor-Bechtel engineering group to design a proposed rapid transit system linking San Francisco and East Bay communities. Construction was carried out to complete the system between 1962 and 1974 at a total cost of $1.6 billion.[17] In Oakland, construction began in January 1966.

A warehouse located at 465 22nd Street and a commercial building located at 467-471 22nd Street on the project site was demolished in the mid-1960s to facilitate the construction of three underground BART tunnels (Sanborn-Perris Map Co., Ltd. 1951, Vol. 1; Sheet 54; Sanborn-Perris Map Co., Ltd. 1970, Vol. 1; Sheet 54. The BART tunnels were constructed directly under the project site.[18] The three BART tunnel segments crossing through and underneath the project site, approximately 470 feet long, were installed using a cut-and-cover technique. The total width of excavation is approximately 100 feet (assuming the walls of the excavation were shored and not slope cut). The approximate total depth of excavation of the deepest tunnel is 60 feet below the surface. The material from the top of the tunnel to the surface is composed of approximately 30 feet of fill. At a minimum, approximately 2.8 million square feet of soil was removed from the project site to construct the BART tunnels.[19]

c. Regulatory Context

This section discusses the State and local regulatory context with regard to cultural resources at the project site and vicinity.

(1) State Criteria

Section 5024.1 of the PRC established the CRHR. Generally, a resource is considered by the lead agency to be "historically significant" if it meets the criteria for listing on the CRHR (CEQA Guidelines Section 15064.5(a)(3)). For a cultural resource to qualify for listing in the CRHR it must be significant under one or more of the following criteria:

Criterion 1: Associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

Criterion 2: Associated with the lives of persons important in our past.

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[17] Hall, Peter. 1980. Great Planning Disasters. University of California Press, Berkeley.

[18] Bay Area Rapid Transit (BART). 2016. A History of BART: The Project Begins. Available at: http://www.bart.gov/about/history/history, accessed December 29, 2016.

[19] Rodgers, Richard. 2016. Preliminary Geotechnical Recommendations – 2100 Telegraph Avenue, Oakland, California, Langan Project No.: 750630601. Langan Treadwell Rollo, Oakland, California.

Criterion 3: Embodying the distinctive characteristics of a type, period, region, or method of construction, or representing the work of an important creative individual, or possessing high artistic values.

Criterion 4: Has yielded, or may be likely to yield, information important in prehistory or history.

In addition to being significant under one or more of these criteria, a resource must retain enough of its historic character and appearance to be recognizable as a historical resource and be able to convey the reasons for its significance (CCR Title 14 Section 4852(c)). Under California Code of Regulations (CCR) Section 4852(d)(2), the CRHR requires that sufficient time must have passed to allow a "scholarly perspective on the events or individuals associated with the resource." The general estimate of the time needed for this perspective is 50 years.

(2) California Historical Resource Status Codes

The California Historical Resource Status Codes are assigned by the California OHP to designate the historic status of cultural resources included in the Historic Properties Database.[20] Resources are assigned to one of the following seven categories:

1. Properties listed in the National Register of Historic Places (NRHP) or CRHR.
2. Properties determined eligible for listing in the NRHP or CRHR.
3. Appears eligible for the NRHP or CRHR through survey evaluation.
4. Appears eligible for NRHP or CRHR through other evaluation.
5. Properties recognized as historically significant by local government.
6. Not eligible for listing or designation.
7. Not evaluated for NRHP or CRHR, or need reevaluation.

(3) Health and Safety Code: Human Remains

The California Health and Safety Code Section 7050.5 states that, in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the Alameda

[20] California Office of Historic Preservation (OHP). 2012. Directory of Properties in the Historic Property Data File for Alameda County. California Department of Parks and Recreation, Sacramento.

County Coroner must notify the NAHC within 24 hours of this identification. The NAHC will identify a Native American Most Likely Descendant to inspect the site and provide recommendations for the proper treatment of the remains and associated grave goods.

(4) Public Resources Code: Cultural and Paleontological Resources

California PRC Section 5097.5 provides for the protection of cultural and paleontological resources. This PRC section prohibits the removal, destruction, injury, or defacement of archaeological and paleontological features on any lands under the jurisdiction of State or local authorities.

(5) City of Oakland

Per the City of Oakland's Thresholds of Significance Guidelines, an historical resource under CEQA is a resource that meets *any* of the following criteria:

1) A resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources;

2) A resource included in Oakland's Local Register of historical resources, unless the preponderance of evidence demonstrates that it is not historically or culturally significant;

3) A resource identified as significant (e.g., rated 1---5) in a historical resource survey recorded on Department of Parks and Recreation Form 523, unless the preponderance of evidence demonstrates that it is not historically or culturally significant;

4) Meets the criteria for listing on the California Register of Historical Resources; or

5) A resource that is determined by the Oakland City Council to be historically or culturally significant even though it does not meet the other four criteria listed above.[21]

A historical resource consists of:

"Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military,

[21] City of Oakland, 2013, CEQA Thresholds of Significance Guidelines. October 28.

> or cultural annals of California…. Generally, a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the CRHR (CEQA Guidelines Section 15064.5(a)(3)."

In accordance with the CEQA Guidelines, a substantial adverse change in the significance of a historical resource is considered a significant impact on the environment. A substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired. CEQA requires preparation of an EIR if a proposed project includes elements that may cause a change in a historical resource's significance (CEQA Guidelines Section 15064.5 (b)).

(6) Oakland Cultural Heritage Survey

The OCHS is intended to provide an ongoing survey and inventory of Oakland's historical resources. Based on a citywide preliminary architectural inventory by the OCHS, pre-1945 properties in Oakland have been assigned a significance rating of A, B, C, D, E, or F (aka *) and assigned a number (1, 2, or 3), which indicates a building's district status. The ranking system indicates a property's status as a historical resource and identifies those properties warranting special consideration in the planning process (see Table V.B-1). The individual property rating of a building is based on the following criteria:

- Visual Quality/Design: Evaluation of exterior design, interior design, materials and construction, style or type, supporting elements, feelings of association, and importance of designer.
- History/Association: Association of person or organization, importance of any event, association with patterns, and age of the building.
- Context: Continuity and familiarity of the building within the district.
- Integrity and Reversibility: Evaluation of the building's condition, its exterior and interior alterations, and any structural removals.

(7) Historic Preservation Element Policies

The Oakland City Council enacted the Historic Preservation Element (HPE) in 1994.[22] The HPE presents goals, policies, and objectives that guide historic preservation efforts in Oakland. HPE policies define the criteria for legal significance that must be met by a

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[22] City of Oakland, 1994. Historic Preservation Element of the Oakland General Plan. Adopted March 8. Available at: http://ohp.parks.ca.gov/pages/1072/files/Oakland .pdf,http://ohp.parks.ca.gov/pages/1072/files/Oakland.pdf, accessed November 22, 2016.

TABLE V.B-1 OAKLAND CULTURAL HERITAGE SURVEY SIGNIFICANCE RATINGS

Rating Level	Description
A: Properties of Highest Importance	Properties considered clearly eligible for individual NRHP and Oakland Landmark designation. Such properties consist of outstanding examples of an important style, type, or convention, or are intimately associated with a person, organization, event, or historical pattern of extreme importance at the local level or of major importance at the state or national level.
B: Properties of Major Importance	Properties of major historical or architectural value but not sufficiently important to be rated "A." Most are considered individually eligible for the NRHP, but some may be marginal candidates. All are considered eligible for City Landmark designation and consist of especially fine examples of an important type, style, or convention, or are intimately associated with a person, organization, event, or historical pattern of major importance at the local level or of moderate importance at the state or national level.
C: Properties of Secondary Importance	Properties that have sufficient visual/architectural or historical value to warrant recognition but do not appear individually eligible for the NRHP. Some may be eligible as City Landmarks and are superior or visually important examples of a particular type, style, or convention, and include most pre-1906 properties.
D: Properties of Minor Importance	Properties that are not individually distinctive, but are typical or representative examples of an important type, style, convention, or historical pattern. The great majority of pre-1946 properties are in this category.
E: Properties of No Particular Interest	Properties which are not representative of any important style, type, convention, or historical pattern and are visually undistinguished.
* or F: Post-1945 Buildings	Properties that are less than 45 years old or modernized. Buildings built after 1945 in general were not eligible for survey evaluation and were not rated.

District Status	Description
1	Property in an API or NRHP-quality district. An API is a historically or visually cohesive area or property group identified by the OCHS that usually contains a high proportion of individual properties with ratings of "C" or higher.
2	Property in an ASI or a district of local significance. An ASI is similar to an API except that an ASI does not appear eligible for the NRHP.
3	Property not within a historic district.

Notes:
API = Area of Primary Importance; ASI = Area of Secondary Importance
Properties with ratings of "C" or higher or that are contributors to or potential contributors to an API or ASI are considered Potential Designated Historic Properties that may warrant consideration for preservation by the City.
The OCHS has assigned some properties a contingency rating, indicated by a lower-case letter. A contingency rating is a potential rating under some condition, such as "if restored" or "when older" or "with more information."
Source: paraphrased from City of Oakland, 1994. Historic Preservation Element (p.3-2).

resource before it is listed in Oakland's local register of historical resources, and would therefore be considered a historical resource under CEQA.

Historical Resources

The HPE establishes the following objective, policies, and action with respect to historical resources under CEQA:

> **Objective 3: Historic Preservation and Ongoing City Activities.** Objective 3 establishes the administrative procedures necessary to preserve historical resources during the completion of Oakland projects.
>
> **Policy 3.1:** Avoid or Minimize Adverse Historic Preservation Impacts Related to Discretionary City Actions. The City will make all reasonable efforts to avoid or minimize adverse effects on the Character-Defining Elements of existing or Potential Designated Historic Properties which could result from private or public projects requiring discretionary actions.
>
> **Policy 3.4:** City Acquisition of Historic Preservation Where Necessary. Where all other means of preservation have been exhausted, the City will consider acquiring, by eminent domain if necessary, existing or Potential Designated Historic Properties.
>
> **Policy 3.5:** Historic Preservation and Discretionary Permit Approvals. For any project involving the complete demolition of Heritage Properties or Potential Designated Historic Properties requiring discretionary City permits, the City will make a finding that: 1) the design quality of the proposed project is at least equal to that of the original structure and is compatible with the character of the neighborhood; or 2) the public benefits of the proposed project outweigh the benefit of retaining the original structure; or 3) the existing design is undistinguished and does not warrant retention and the proposed design is compatible with the character of the neighborhood.
>
> **Policy 3.7:** Property Relocation Rather than Demolition. As a condition of approval for all discretionary projects involving demolition of existing or Potential Designated Historic Properties, the City will normally require that reasonable efforts be made to relocate the properties to an acceptable site.
>
> **Policy 3.8:** Definition of "Local Register of Historical Resources" and "Historic Preservation "Significant Effects" for Environmental Review Purposes.
>
> For purposes of environmental review under the California Environmental Quality Act, the following properties will constitute the City of Oakland's Local Register of Historical Resources.[23]

[23] Any property listed on the California Register of Historical Resources or officially determined to be eligible for listing on the California Register of Historical Resources is also considered a "Historical Resource" pursuant to Section 21084.1 of the California Environmental Quality Act.

1) All Designated Historic Properties, and

2) Those Potential Designated Historic Properties that have an existing rating of "A" or "B" or are located within an Area of Primary Importance.

The Local Register of Historical Resources will also include the following designated properties: Oakland Landmarks, S-7 Preservation Combining Zone properties, and Preservation Study List properties. Complete demolition of a Historical Resource will normally be considered a significant effect that cannot be mitigated to a level less than significant and will, in most cases, require preparation of an Environmental Impact Report. A proposed addition or alteration to a Historical Resource that has the potential to disqualify a property from Landmark or Preservation District eligibility or may have substantial adverse effects on the property's Character-Defining Elements will normally, unless adequately mitigated, be considered to have a significant effect. Possible mitigation measures are suggested in Action 3.8.1.

Action 3.8.1: Include Historic Preservation Impacts in City's Environmental Review Regulations

Include Policy 3.8's definitions of "Local Register of Historical Resources" and historic preservation "significant effect" in the City's Environmental Review Regulations.

Amend the Regulations to include specific measures that may be considered to mitigate significant effects to a Historical Resource. Measures appropriate to mitigate significant effects to a Historical Resource may include one or more of the following measures depending on the extent of the proposed addition or alteration.[24]

1) Modification of the project design to avoid adversely affecting the character defining elements of the property.

2) Relocation of the affected Historical Resource to a location consistent with its historical or architectural character.

If the above measures are not feasible, then other measures may be considered including, but not limited to the following:

3) Modification of the project design to include restoration of the remaining historic character of the property.

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[24] 2.Per the provisions of the California Environmental Quality Act, determination of whether mitigations are adequate to reduce a significant effect to a Historical Resource to a level less than significant will be determined by the lead agency on a case by case basis.

4) Modification of the project design to incorporate or replicate elements of the building's original architectural design.

5) Salvage and preservation of significant features and materials of the structure in a local museum or within the new project.

6) Measures to protect the Historical Resource from effects of on-site or other construction activities.

7) Documentation in a Historic American Buildings Survey report or other appropriate format: photographs, oral history, video, etc.

8) Placement of a plaque, commemorative, marker, or artistic or interpretive display on the site providing information on the historical significance of the resource.

9) Contribution to a Facade Improvement Fund, the Historic Preservation Revolving Loan Fund, the Oakland Cultural Heritage Survey, or other program appropriate to the character or the resource.

Archaeological Resources

The HPE includes other policies that seek to encourage the preservation of Oakland's significant historical resources within the context of balanced development and growth. Although the HPE focuses primarily on built environment resources, prehistoric and historical archaeological resources are considered under the following policy:

Policy 4.1: Archaeological Resources. To protect significant archeological resources, the City will take special measures for discretionary projects involving ground disturbances located in archeologically sensitive areas.

Construction and other ground disturbance activities can damage or destroy archeological sites. Oakland and most other communities have generally relied on environmental review to protect them. If it is believed that a project or activity could damage significant archeological resources, mitigation measures are typically incorporated into the project as part of the environmental review process. Archeological resources can be either "prehistoric" or "historic". Prehistoric archeological resources in Oakland are sites and artifacts associated with Oakland's original aboriginal inhabitants, while historic archeological resources relate to the early and mid-nineteenth century Spanish-Mexican period, the subsequent early phases of pioneer settlement, and development of early ethnic and social groups and industry.

Policy 4.1 seeks to protect both known and undiscovered archeological sites by requiring archeological protection procedures for discretionary ground disturbance activities located in archeologically sensitive areas. These procedures will include:

1) Mapping areas possessing high prehistoric or historic archeological potential.

2) Archival studies for new development or other activities involving ground disturbance within areas of high archeological potential. The archival studies and later site-specific investigations listed in steps (c)-(e) would be performed only for ground disturbance activities. If an archival study determines that resources may still exist, step (c) would be taken.

3) Determination of whether the ground disturbance activity could damage archeological materials.

4) Surface reconnaissance by archeologist. This step would only be necessary if, as determined by step (c), the proposed development involves ground disturbance to the depth of any possible remaining archeological materials.

5) Subsequent actions. If the results of the surface reconnaissance were positive, several options would be available. One option would be to have an archeologist observe the project excavation with authority to stop work for the conduct of further investigations if archeological materials appear. Another option would be to perform limited archeological excavations prior to construction to determine more conclusively whether archeological materials are present.

(8) Oakland Standard Conditions of Approval

The Standard Conditions of Approval (SCAs) relevant to this impact topic are listed below for reference. The SCAs will be adopted as requirements of the project if approved by the City.

SCA-CULT-1: Archaeological and Paleontological Resources – Discovery During Construction (#29)
Requirement: Pursuant to CEQA Guidelines section 15064.5(f), in the event that any historic or prehistoric subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources shall be halted and the project applicant shall notify the City and consult with a qualified archaeologist or paleontologist, as applicable, to assess the significance of the find. In the case of discovery of paleontological resources, the assessment shall be done in accordance with the Society of Vertebrate Paleontology standards. If any find is determined to be significant, appropriate avoidance measures recommended by the consultant and approved by the City must be followed unless avoidance is determined unnecessary or infeasible by the City. Feasibility of avoidance shall be determined with consideration of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures

(e.g., data recovery, excavation) shall be instituted. Work may proceed on other parts of the project site while measures for the cultural resources are implemented.

In the event of data recovery of archaeological resources, the project applicant shall submit an Archaeological Research Design and Treatment Plan (ARDTP) prepared by a qualified archaeologist for review and approval by the City. The ARDTP is required to identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. The ARDTP shall identify the scientific/historic research questions applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. The ARDTP shall include the analysis and specify the curation and storage methods. Data recovery, in general, shall be limited to the portions of the archaeological resource that could be impacted by the project. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods are practicable. Because the intent of the ARDTP is to save as much of the archaeological resource as possible, including moving the resource, if feasible, preparation and implementation of the ARDTP would reduce the potential adverse impact to less than significant. The project applicant shall implement the ARDTP at his/her expense.

In the event of excavation of paleontological resources, the project applicant shall submit an excavation plan prepared by a qualified paleontologist to the City for review and approval. All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and/or a report prepared by a qualified paleontologist, as appropriate, according to current professional standards and at the expense of the project applicant.
When Required: During construction.
Initial Approval: N/A
Monitoring/Inspection: Bureau of Building

SCA-CULT-2: Archaeologically Sensitive Areas – Pre-Construction Measures. (#30)
Requirement: The project applicant shall implement either Provision A (Intensive Pre-Construction Study) or Provision B (Construction ALERT Sheet) concerning archaeological resources.

Provision A: Intensive Pre-Construction Study.
The project applicant shall retain a qualified archaeologist to conduct a site-specific, intensive archaeological resources study for review and approval by the City prior to soil-disturbing activities occurring on the project site. The purpose of the site-specific, intensive archaeological resources study is to identify early the potential presence of history-period archaeological resources on the project site. At a minimum, the study shall include:

a. Subsurface presence/absence studies of the project site. Field studies may include, but are not limited to, auguring and other common methods used to identify the presence of archaeological resources.

b. A report disseminating the results of this research.

c. Recommendations for any additional measures that could be necessary to mitigate any adverse impacts to recorded and/or inadvertently discovered cultural resources.

If the results of the study indicate a high potential presence of historic-period archaeological resources on the project site, or a potential resource is discovered, the project applicant shall hire a qualified archaeologist to monitor any ground disturbing activities on the project site during construction and prepare an ALERT sheet pursuant to Provision B below that details what could potentially be found at the project site. Archaeological monitoring would include briefing construction personnel about the type of artifacts that may be present (as referenced in the ALERT sheet, required per Provision B below) and the procedures to follow if any artifacts are encountered, field recording and sampling in accordance with the Secretary of Interior's Standards and Guidelines for Archaeological Documentation, notifying the appropriate officials if human remains or cultural resources are discovered, and preparing a report to document negative findings after construction is completed if no archaeological resources are discovered during construction.

Provision B: Construction ALERT Sheet.
The project applicant shall prepare a construction "ALERT" sheet developed by a qualified archaeologist for review and approval by the City prior to soil-disturbing activities occurring on the project site. The ALERT sheet shall contain, at a minimum, visuals that depict each type of artifact that could be encountered on the project site. Training by the qualified archaeologist shall be provided to the project's prime contractor, any project subcontractor firms (including demolition, excavation, grading, foundation, and pile driving), and utility firms involved in soil-disturbing activities within the project site.

The ALERT sheet shall state, in addition to the basic archaeological resource protection measures contained in other standard conditions of approval, all work must stop and the City's Environmental Review Officer contacted in the event of discovery of the following cultural materials: concentrations of shellfish remains; evidence of fire (ashes, charcoal, burnt earth, fire-cracked rocks); concentrations of bones; recognizable Native American artifacts (arrowheads, shell beads, stone mortars [bowls], humanly shaped rock); building foundation remains; trash pits, privies (outhouse holes); floor remains; wells; concentrations of bottles, broken dishes, shoes, buttons, cut animal bones, hardware, household items, barrels, etc.; thick layers of burned building debris (charcoal, nails, fused glass, burned plaster, burned

dishes); wood structural remains (building, ship, wharf); clay roof/floor tiles; stone walls or footings; or gravestones. Prior to any soil-disturbing activities, each contractor shall be responsible for ensuring that the ALERT sheet is circulated to all field personnel, including machine operators, field crew, pile drivers, and supervisory personnel. The ALERT sheet shall also be posted in a visible location at the project site.
When Required: Prior to approval of construction-related permit; during construction
Initial Approval: Bureau of Building
Monitoring/Inspection: Bureau of Building

SCA-CULT-3: Human Remains – Discovery During Construction. (#31)
Requirement: Pursuant to CEQA Guidelines section 15064.5(e)(1), in the event that human skeletal remains are uncovered at the project site during construction activities, all work shall immediately halt and the project applicant shall notify the City and the Alameda County Coroner. If the County Coroner determines that an investigation of the cause of death is required or that the remains are Native American, all work shall cease within 50 feet of the remains until appropriate arrangements are made. In the event that the remains are Native American, the City shall contact the California Native American Heritage Commission (NAHC), pursuant to subdivision (c) of section 7050.5 of the California Health and Safety Code. If the agencies determine that avoidance is not feasible, then an alternative plan shall be prepared with specific steps and timeframe required to resume construction activities. Monitoring, data recovery, determination of significance, and avoidance measures (if applicable) shall be completed expeditiously and at the expense of the project applicant.
When Required: During construction
Initial Approval: N/A
Monitoring/Inspection: Bureau of Building

SCA-CULT-4: Property Relocation. (#32)
Requirement: Pursuant to Policy 3.7 of the Historic Preservation Element of the Oakland General Plan, the project applicant shall make a good faith effort to relocate the historic resource to a site acceptable to the City. A good faith effort includes, at a minimum, all of the following:

a. Advertising the availability of the building by: (1) posting of large visible signs (such as banners, at a minimum of 3' x 6' size or larger) at the site; (2) placement of advertisements in Bay Area news media acceptable to the City; and (3) contacting neighborhood associations and for-profit and not-for-profit housing and preservation organizations;
b. Maintaining a log of all the good faith efforts and submitting that along with photos of the subject building showing the large signs (banners) to the City;

c. Maintaining the signs and advertising in place for a minimum of 90 days; and

d. Making the building available at no or nominal cost (the amount to be reviewed by the Oakland Cultural Heritage Survey) until removal is necessary for construction of a replacement project, but in no case for less than a period of 90 days after such advertisement.

When Required: Prior to approval of construction-related permit
Initial Approval: Bureau of Planning (including Oakland Cultural Resource Survey)
Monitoring/Inspection: N/A

d. Existing Conditions

(1) Built Environment

The buildings within the project site are described below and shown in Figure V.B-1.

- **2150 Telegraph Avenue/495 22nd Street (Assessor's Parcel Number [APN] 008-0648-011-03).** This irregularly shaped parcel at 2150 Telegraph Avenue/495 22nd Street is developed with a one-story drive-up fast-food style restaurant and its associated parking lot, formerly occupied by a Kwik Way restaurant. The building was most recently occupied by Space Burger, but it is now vacant. This one-story building was constructed in 1953 by San Francisco-based James A. Hutzler Construction Company. It rests on a concrete slab foundation. It is covered by a cantilevered roof that projects forward over a food service area, and is clad in cinder block and Perma-Stone simulated masonry. Fenestration on the building's north-, east-, and west-facing façades consists of fixed-pane, partial-height, aluminum-framed windows. The building is in good to fair condition and has not been extensively modified.
- **2100 Telegraph Avenue (APN 008-0648-016-03).** This L-shaped parcel at 2100 Telegraph Avenue contains a two-level City-owned parking garage of concrete construction. The parking garage was designed and constructed circa 1970 by architects Van Bourg-Nakamura (known as VBNA, Inc.).
- **2101–2115 Broadway (APN 008-0648-018-00).** This irregularly shaped parcel at 2101-2115 Broadway includes a two-story marble-clad building designed by architect William Pereira and built by E.W Hahn Construction Company in 1974. The building formerly housed a branch of the Security Pacific National Bank.
- **2121–2127 Broadway (APN 008-0648-017-00).** This rectangular-shaped parcel at 2121-2127 Broadway contains a two-story Bank of the West building and a small surface parking lot. The building was constructed circa 1975 by architect Shigenori Iyama.
- **2135–2147 Broadway (APN 008-0648-001-00).** This irregularly -shaped parcel at 2135-2147 Broadway contains the two-story Sherman Clay Building. The building was designed by architect William H. Weeks and built by the Carnahan & Mulford

Company in 1917. According to the OCHS, the building was not built specifically for the Sherman Clay Company and it was not occupied by Sherman Clay until the mid-1960s.

(2) On-Site Historical Resources

Background research for this cultural resources analysis included a records search, literature review, field survey, and historic context study as shown in Appendix B. This research was conducted to identify cultural resources within or adjacent to the project site. The background research and field survey identified five buildings within the project site, as shown in Figure V.B-1, that were evaluated for their status as "historical resources," consistent with CEQA requirements. See Figure V.B-2 and Figure V.B-3 for a depiction of the project site and its relation to all Oakland City Historic Districts and Landmarks Building descriptions and the results of the evaluations are summarized below:

- **2150 Telegraph Avenue/495 22nd Street (APN 008-0648-011-03)**. The OCHS has two different previous ratings on file for this property. First, on the Parcel Information Sheet on the City's website, the former Kwik Way Restaurant building (most recently occupied by Space Burger) has a "*3" OCHS rating, indicating that it is (or was) constructed after 1945 and therefore (at the time of OCHS's Central District survey) not eligible for survey evaluation. The Public Review Draft *Uptown Mixed Use Project EIR*, completed by LSA Associates in September 2003 (14 years ago), State Clearinghouse No. 200052070, noted that the OCHS rating was *c3. However, even though the building had reached 50 years in age it was not reevaluated during the Draft EIR process for that earlier project. The building is not located in an officially recognized historic district or API as shown in Table V.B-I and Figure V.B-2.

  According to the Historic Resource Analysis prepared by architecture + history in October 2017 (see Appendix B) the building is a good example of a mid-20th century Googie-style drive-in restaurant and appears to be individually eligible for the CRHR under Criterion 3. The building is associated with the mid-20th century expansion of automobile culture and an expanded interest in quick-service food. The building is one of several originally constructed for the Kwik Way restaurant chain throughout the Bay Area. A second Kwik Way is currently located at 500 Lake Park, Oakland. Redevelopment of that site is also being considered. The Telegraph Kwik Way building possesses significance within the context of mid-20th century architecture and design, and it conveys this significance through its intact building elements with a high level of integrity of location, design, materials, workmanship, feeling, and association. The integrity of setting has changed somewhat over time due to ongoing increased large-scale mixed-use development in this area of Central Oakland (see Appendix B). This area of Oakland has changed overall since the building's construction in 1953.

Source: Urban Planning Partners, Google Earth, 2017

Figure V.B-1
Built Environment Historic Setting

Source: City of Oakland, Planning and Building Department, Urban Planning Partners, 2016.

Figure V.B-2
City of Oakland - Historic Districts

Source: City of Oakland, Planning and Building Department, Urban Planning Partners, 2016.

Figure V.B-3
City of Oakland - Historic Landmarks

- **2100 Telegraph Avenue (APN 008-0648-016-03).** The two-story City-owned parking garage was constructed circa 1970, does not have an OCHS rating, and is not located in a historic district or API. The building is not eligible for the CRHR under any criteria (see Appendix B).
- **2101–2115 Broadway (APN 008-0648-018-00).** According to property-specific information provided online by the City of Oakland, this commercial building has a "*3" OCHS rating, indicating that it was constructed post-1945 and therefore is (or was) not eligible for survey evaluation. This building is 43 years old as of this writing.[25] The building is not located in an officially recognized historic district or API. The building formerly housed a branch of Security Pacific National Bank. A Historic Resources Analysis prepared by architecture + history in October 2017 found that this building is less than 50 years old and is not eligible for the CRHR under any criteria (see Appendix B). According to the Historic Resource Analysis, after review of William Pereira's banking work over the course of his career, and the other banking-related structures in this area of Oakland, this building does not stand out *individually* as an exceptional or outstanding design within Pereira's body of work or within the building type as exampled in Oakland.
- **2121–2127 Broadway (APN 008-0648-017-00).** The commercial building has an "*3" OCHS rating, indicating that it was constructed post-1945 and therefore not eligible for survey evaluation. The building is not located in an officially recognized historic district or API. A Historic Resource Analysis prepared by architecture + history in October 2017 found that this building is less than 50 years old and is not eligible for the CRHR under any criteria (see Appendix B).
- **2135–2147 Broadway (APN 008-0648-001-00).** The two-story Sherman Clay building was designed by architect William H. Weeks and built by the Carnahan & Mulford Company in 1917. The building was not built specifically for the Sherman Clay Company, which did not occupy the building until the mid-1960s. The building's north- and east-facing façades have been significantly altered since construction, which has decreased its materials, workmanship, feeling, and association integrity. The mosaic on the building's east-facing façade was included in 2002 by Matthew Fox for the Institute of Creation Spirituality (Institute). The Institute is no longer located within the Sherman Clay building. The mosaic is not a character-defining feature of this building. The building is not located in an

[25] Although commonly used in preservation practice, there is no bright line "50-year rule" for considering resources for eligibility in California. "In order to understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than fifty (50) years old may be considered for listing in the California Register if it can be demonstrated that sufficient time has passed to understand its historical importance." (Title 14, California Code of regulations Section 4852 (d)(2)).

officially recognized historic district or API. The building has an "Dc3" OCHS rating, indicating that it is not significant and does not appear eligible for the CRHR under any significance criteria (see Appendix B).

(3) Archaeological Resources and Human Remains

Background research for this topic included a NWIC records search, literature review, and consultation with Native American organizations. This research was conducted to identify recorded cultural resources or cultural resource studies within or adjacent to the project site. No archaeological resources or associated Native American human remains are recorded in the project site. The closest recorded archaeological site containing human remains is P-01-000042/CA-ALA-000022, a prehistoric burial including a 50-pound mortar, approximately ½ mile from the project site. Three other archaeological sites have been recorded within a ½-mile radius: P-01-010529, consisting of historic-period railroad ties; P-01-010532, consisting of historic-period non-diagnostic habitation debris; and P-01-010534, consisting of an abandoned historic-period masonry manhole.

(4) Paleontological Resources

LSA Associates conducted a review of technical literature to determine the geological and paleontological history of the project site. The surface geology of the project site consists of Holocene (11,500 year B.P. to present) alluvial fan and fluvial deposits. Holocene alluvial gravels, sand, and clay eroded from the East Bay Hills and, transported by creeks, formed the plains along eastern San Francisco Bay. These Holocene deposits are too recent to contain significant paleontological resources (fossils). Underlying these Holocene deposits at an unknown depth are older Quaternary (i.e., Pleistocene) deposits, which have a potential to contain significant fossils. Locally, these sediments contain invertebrate and extinct vertebrate fossils, many of which are representative of the Rancholabrean land mammal age. Fossils found in alluvium of this age include but are not limited to bison, mammoths, ground sloths, saber-toothed cats, dire wolves, cave bears, rodents, birds, reptiles, and amphibians. No paleontological resources (fossils) are recorded in the project site. The subsurface geology was also significantly compromised by the 1966 excavation and construction of the BART tunnels under the project site.

2. Impacts, Standard Conditions of Approval, and Mitigation Measures

This section analyzes impacts related to cultural and historical resources that could result from implementation of the Eastline project. This section begins with the criteria of significance, which establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the project and identifies SCAs and/or mitigation measures to address these impacts as needed.

As described in *Chapter III, Project Description*, the proposed PUD/PDP would allow for a range of development on the site with approximately 85,000 square feet of commercial retail; three to six parking levels above the retail space and one subterranean parking level; and a maximum of up to 2.6 million square feet of office space or 1,556 residential units distributed among three towers, ranging from 37 to 63 stories in height; or a combination of office and residential. The Residential/Office Mix and All Office Scenarios are both within the range of development that the PUD/PDP would permit. The Residential/Office Mix Scenario includes a mixed-use development with up to 880,550 square feet of large-floor-plate office, 395 residential units in a 41-story residential tower at 22nd Street and Broadway, approximately 85,000 square feet of ground-floor retail space, 18,500 square feet of second-floor community space, and one level of subterranean parking. The All Office Scenario includes up to 1,450,000 square feet of large floor-plate office, 80,000 square feet of ground floor retail, 22,790 square feet of community space, and one level of subterranean parking.

Demolition of the current built environment within the project site is anticipated under any of the development scenarios; therefore, the impacts to the project site are mostly equivalent amongst the development scenarios and are evaluated collectively.

This subsection first lists the criteria by which significance is determined, followed by a discussion of impacts.

a. Significance Criteria

Implementation of the Eastline project would result in a significant impact on cultural and historical resources if it would:

1. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5. Specifically, substantial adverse changes include physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be "materially impaired." The significance of a historical resource is "materially impaired" when a project demolishes or materially alters, in an adverse manner, those physical characteristics of the resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in the California Register of Historical Resources or local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code; demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for

inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA[26]. In the City of Oakland, a historical resource is a property that is listed in or determined eligible for listing in the CRHR; a resource listed in Oakland's Local Register of Historical Resources, unless the preponderance of evidence demonstrates that it is not historically or culturally significant; a resource identified as significant (e.g., rated 1–5) in a historical resource survey recorded on Department of Parks and Recreation 523 Series forms, unless the preponderance of evidence demonstrates that it is not historically or culturally significant; or a resource that is determined by the Oakland City Council to be historically or culturally significant.

2. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5.
3. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.
4. Disturb any human remains, including those interred outside of formal cemeteries.

b. Less-Than-Significant Cultural and Historical Resources Impacts

Four development scenarios are presented in the PUD/PDP to illustrate the range of development scenarios that could occur. With respect to demolition, each of the development scenarios would involve similar impacts to cultural resources. With respect to shade, the four development scenarios would differ in their impact to cultural resources.

Implementation of the Eastline project would result in the less-than-significant impacts described below.

(1) Historical Resources in the Project Vicinity (Criterion 1)

Redevelopment of the site under the PUD/PDP includes plans for multiple high-rise towers. The proposed towers are anticipated to range in height between 37 and 63 stories/397 to 940 feet tall, respectively, depending on what is ultimately developed under the PUD/PDP, and would be taller than most buildings in Oakland. While the PUD/PDP's height maximum is 940 feet, the All Office Scenario is 28 stories/420 feet and the Residential/Office Mix Scenario is 41 stories/397 feet, which is a similar height to the 37 story/400 foot tall Ordway Building at 1 Kaiser Plaza (built in 1970) and the 36 story/390 foot tall Kaiser Center at 300 Lakeside Drive (built in 1960). There are two historic districts in the vicinity of the project site that were identified in the early 1980s by OCHS:

[26] CEQA Guidelines. 2016. American Council of Engineering Compaies, Sacramento, California.

The Cathedral District (located northwest and across Telegraph Avenue from the project site) and the Uptown Commercial District (located south of and across 21st Street from the project site). The buildings 45 years of age or older within a two-block radius vary in height from one to eight stories. There is a variety of building heights throughout the neighborhood including the Paramount Theater, the I. Magnin building, the Breuner building, the old YMCA building, the former Emporium Capwell building (now Uptown Station), and 2101 Webster. The buildings within a two-block radius of the project site range in date of construction from circa 1899 to 1987 (see Table V.B-2). The general character-defining features of the buildings in the project vicinity include boxy, rectangular massing; Art Deco, Romanesque Revival, Vernacular, Georgian Revival, and Modern architectural styles; masonry, terra cotta, and granite cladding, and repetitive, uniform fenestration.

The project would generally be built to the property lines with rectangular footprints. Given the central location of the project site within Downtown Oakland, the height of the buildings would cause a change to the integrity of setting of the area. Design, materials and workmanship integrity throughout Central Oakland have been diminished to varying degrees due to subsequent alterations. Integrity of setting, feeling, and association, has been diminished by decades of development and construction in the area, which has resulted in a variety of building types, styles, and land uses. The historical architectural resources in the project vicinity generally have retained their integrity of location.

Material impairment is defined as any project that may cause a “substantial change in the significance of a historical resource through physical demolition, destruction, relocation, or alteration of the resources or its immediate surroundings.” The significance of a historical resource is materially impaired if a project demolishes or materially alters the character-defining features of the building that account for the building’s inclusion on the CRHR, local register of historic resources, or historical resources survey.

Although the Eastline project would impact integrity of setting and, to a lesser degree, integrity of feeling in the vicinity of the project area, the degree of impact would not result in a significant impact to the integrity of location, design, materials, or workmanship of the individual resources in the project vicinity. The historical resources adjacent to the project site would not be demolished, physically altered, or materially changed.

The project would alter the setting of the neighborhood, but would represent a less-than-significant level of impact due to previous construction projects throughout Central Oakland. Recent construction projects in the area follow a pattern of recent architectural design using modern construction methods found elsewhere in Oakland and throughout California. The Eastline project would not introduce a type of design or method of construction not already found in Central Oakland.

TABLE V.B-2 SUMMARY OF BUILDINGS 45 YEARS OF AGE OR OLDER WITHIN A TWO-BLOCK RADIUS

Description	Date(s) of Construction	CEQA Historical Resource?
517–523 22nd Street (2 stories)	1901	Yes
524 22nd Street/2201 Telegraph Avenue (First Baptist Church) (3 stories)	1903	Yes
2025 Broadway (Paramount Theater) (3 stories/approximately 125 feet)	1930	Yes
2150 Telegraph Avenue/495 22nd Street (former Kwik Way Restaurant [Space Burger]) (1 story)	1953	Yes
2121–2127 Broadway (2 stories)	1975	No
2135–2147 Broadway (2 stories)	1917	No
2201 Broadway/ 450–466 22nd Street (Breuner Company Building) (8 stories)	1931	Yes
2211–2221 Broadway/407–417 West Grand Avenue (Hofbrau Building) (1 story)	1933	No
2001 Broadway (I. Magnin Building) (5 stories)	1931	Yes
2003–2009 Telegraph Avenue (Santa Fe/Continental Building) (1 story)	1948	No
2022 Telegraph Avenue (1 story)	1948	No
2025–2035 Telegraph Avenue (1 story)	1968	No
2040 Telegraph Avenue (1 story)	1960	No
2100 Telegraph Avenue (2 stories)	Circa 1970s	No
2101–2115 Telegraph Avenue (old YMCA Building) (6 stories)	1910	Yes
2200 Telegraph (1 story)	1987	No
2225 Telegraph Avenue (1 story)	1963	No

Source: Appendix B.

The Eastline project would not result in a significant impact to the integrity of setting of the resources in the project vicinity. Systematic urbanization during the mid-to-late 20th century changed the setting of Central Oakland. A review of historical aerial photographs as well as street-level images of Central Oakland from the 1930s to 1970 show that the dominant building type on the project site and in the surrounding area are low-rise buildings, less than 5 stories tall. Most multi-story buildings are shown south of and across Broadway from City Hall.[27] As stated above in Section B.1.b.3, recent residential growth and commercial development that includes (but not limited to) the 20-story office tower built in 1986 at 2101 Webster Street (APN 008-0717-002), in the Downtown and Uptown areas began in the late 1990s and continued until an economic downturn that began around 2006-2007.[28]

The project would not materially impair historical resources in the vicinity. The general character-defining features of the buildings in the project vicinity include boxy, rectangular massing; Art Deco, Romanesque Revival, Vernacular, Georgian Revival, and Modern architectural styles; masonry, terra cotta, and granite cladding, and repetitive, uniform fenestration. The significance of a historical resource is materially impaired when a project either demolishes or adversely alters some or all of its character-defining features to such a degree that it would diminish the ability of a historical resource to convey its significance. Such an alteration would constitute a material impairment (CEQA Guidelines Section 15064.5(b)(2). As stated above, the project does not include the demolition or material alteration of the character-defining features any buildings in the vicinity. As demonstrated through historical image analysis of the area mentioned above, the massing of the Eastline project is in line with ongoing and older large-scale mixed-use development throughout Central Oakland. The Paramount Theater, at approximately 125 feet in height, is an existing large-scale historical resource in the vicinity of the project. For these reasons, the project will not diminish the ability of historical resources in the vicinity of the project to convey their individual historical significance.

(2) Archaeological Resources (Criterion 2)

The project would have a significant impact on the environment if it would cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5. Background research indicated that there are no prehistoric or historical archaeological deposits recorded within the project site. Historical maps depict residential development within the project site and vicinity by 1889, however, and the potential for associated intact deposits to be present beneath landscaping, buildings, paved surfaces, and fill material cannot be entirely ruled out. Subsurface archaeological deposits that may be affected by project activities include black-gray soils containing marine shell and bone artifacts and subsistence debris, culturally flaked stone artifacts and debris (i.e., obsidian and chert), heat/fire-affected rock, grinding implements

[27] This section is based on a April 7, 2017 review and analysis by an LSA architectural historian of historical images contained in files labeled "Oakland Buildings – Commercial, A-E" and "Oakland Buildings – Commercial, F-N," and Oakland Buildings – Theaters and Halls, Paramount Theater, on file at Oakland History Room, Main Library, Oakland Public Library, Oakland, California.

[28] Lavoie, Steven. 2009. Historic Photos of Oakland. Turner Publishing Company, Nashville, Tennessee.

(e.g., mortars and pestles), and human remains. Subsurface geology has been significantly compromised, however, by the excavation and construction of three BART tunnels below and through the project site. The excavation removed approximately 2.8 million square feet of soil from the project site. Although this excavation would have significantly impacted the integrity of any subsoil resources that may have previously existed in the tunnel alignments through the project site, the remainder of the project site remains relatively intact. Therefore, the potential to encounter other, previously undisturbed archaeological resources in the unexcavated areas of the project site cannot be discounted.

The Eastline project includes one level of subterranean parking. Construction activities, including post-demolition site preparation, have the potential to cause a substantial adverse change in the significance of archaeological resources. Subsurface historic-period deposits that may be affected by project activities include those associated with the residential development present in the project site by 1889 until circa 1935 when the residences were demolished to accommodate commercial uses. The northwest corner of the project site contained an automobile parking lot until the construction of the Kwik Way restaurant in the mid-20th century, indicating that early-20th century archaeological deposits are unlikely. The deposits may include historical trash scatters dating from the late-19th and early-20th centuries and hollow-fill features such as foundations or wells containing historical glass and ceramics.

SCA-CULT-1: Archaeological and Paleontological Resources – Discovery During Construction (#29), would reduce any potential impacts to a less-than-significant level. SCA-CULT-2: Archaeologically Sensitive Areas – Pre-Construction Measures (#30) is required to further implement SCA-CULT-1, to decrease the potential for adverse material change archaeological resources, paleontological resources, and human remains during construction. In compliance with SCA-CULT-2, potential impacts would be reduced through training of on-site construction personnel in the appropriate procedures if archaeological deposits are encountered. These procedures would include work stoppage and appropriate agency notification. Important information associated with significant archaeological deposits identified through construction would be retrieved and the documentation and study of such deposits completed by a qualified archaeologist. To implement the SCA-CULT-2, a project applicant may choose to implement either Provision A (Intensive Pre-Construction Study) or Provision B (Construction ALERT Sheet).

Implementation of SCA-CULT-1: Archaeological and Paleontological Resources – Discovery During Construction (#29) in combination with SCA-CULT-2: Archaeologically Sensitive Areas – Pre-Construction Measures (#30) would be adequate to decrease the potential for adverse material change of archaeological resources, paleontological resources, and human remains during construction.

(3) Paleontological Resources (Criterion 3)

The project would have a significant effect on the environment if it destroys a unique paleontological resource or site or unique geological feature. There are no recorded paleontological resources (fossils) within the project site, nor does the project site contain a unique geological feature. The site is underlain by Holocene-age landforms, which are too recent to contain significant fossils. Underlying these Holocene deposits at an unknown depth are older Quaternary (i.e., Pleistocene) deposits, which have a potential to contain significant fossils, including bison, mammoths, ground sloths, saber-toothed cats, dire wolves, cave bears, rodents, birds, reptiles, and amphibians.

All four development scenarios include one level of subterranean parking. Construction activities, including post-demolition site preparation, have the potential to cause a substantial adverse change in the significance of paleontological resources. Subsurface conditions have been significantly compromised, however, by the 1966 excavation and construction of BART tunnels directly below and through the project site.

If paleontological resources are encountered during construction, potential impacts would be reduced through documentation, evaluation, and assessment of the significance of the finding under CEQA Guidelines Section 15064.5 by a qualified paleontologist. If the finding is determined to be significant and avoidance is not feasible, the qualified paleontologist will prepare and implement an excavation plan for the resource. Resources that would otherwise be destroyed or lost would be recovered and their scientific value assessed by a qualified paleontologist. The implementation of SCA-CULT-1: Archaeological and Paleontological Resources – Discovery During Construction (#29) would reduce any potential impacts to a less-than-significant level.

(4) Human Remains (Criterion 4)

The project would have a significant impact on the environment if it results in the disturbance of human remains, including those interred outside of formal cemeteries. There are no human remains recorded in the project site; however, the potential for human remains to be present beneath landscaping, buildings, paved surfaces, and fill material cannot be ruled out. Subsurface conditions have been significantly compromised, however, by the excavation and construction of BART tunnels directly below the project site. Although this excavation would have significantly impacted the integrity of subsurface conditions in the tunnel alignments segments within the project site (if any), the majority of the project site remains relatively intact. Therefore, the potential to encounter other, previously undisturbed human remains in the unexcavated areas of the project site cannot be discounted.

All four development scenarios include one level of subterranean parking. Construction activities, including post-demolition site preparation, have the potential to cause a substantial adverse change in the significance of human remains. As described above, subsurface conditions have been significantly compromised, however, by the excavation and construction of BART tunnels directly below and through the project site.

Potential impacts would be reduced through training of on-site construction personnel in the appropriate procedures to be enacted if human remains are encountered (SCA-CULT-2), including work stoppage and agency notification. Implementation of SCA-CULT-3 would further reduce any potential impacts to a less-than-significant level through the notification of the Alameda County coroner if remains are encountered. If the coroner determines the remains to be Native American, the NAHC will be informed within 24 hours of discovery. Implementation of SCA-CULT-2: Archaeologically Sensitive Areas – Pre-Construction Measures (#30) and SCA-CULT-3: Human Remains – Discovery During Construction (#31) would reduce any potential impacts to a less-than-significant level.

(5) Shade and Shadow Impacts

The new buildings proposed by all four development scenarios would be taller than surrounding buildings. Oakland's Uptown District currently includes buildings within a wide range of heights; however, the historical setting was systematically diminished by decades of subsequent development. Shadow pattern simulations were prepared by Prevision Design for the area surrounding the project site year-round from 9:00 a.m. to 3:00 p.m. for each of the four development scenarios included in the PUD/PDP. Periods of analysis were broken down by the summer solstice (June 21), the vernal and autumnal equinoxes (March 20 and September 22), and winter solstice (December 21). The simulations assume sunny conditions and do not take into account fog or overcast conditions.[29] Based on the City's significance thresholds, new construction would cause a significant impact if it were to cast a shadow on a historical resource in a manner such that (or for a duration enough that) it materially alters a character-defining feature that contributes to the resource's historical significance.

Existing shadows in the vicinity of the project site are cast from the medium high-rise office buildings to the east and west of the project site and by the large residential development tower northeast of the project site at Webster and 23rd Streets (as depicted in Appendix E). The following is a description of the specific shadow patterns created by each development scenario:

- The proposed Residential/Office Mix Scenario creates the smallest shadow fan of the four proposed scenarios. Shadows cast by this scenario extend east to 24th and

[29] Phillips, Adam. 2017. 2100 Telegraph: Shade and Shadow. Prepared for PreVision Design, San Francisco, California.

Valdez Streets, west to Northgate and 24th Streets, south to 21st Street, and north to the 2300 block of Telegraph Avenue.

- The All Office Scenario creates shadows larger than the Residential/Office Mix Scenario but smaller than both the Maximum Office Scenario and Maximum Residential Scenario. Shadows cast by this scenario extend northward close to 24th Street, westward across Northgate Avenue, eastward across Webster Street and southwest across 21st Street.
- The Maximum Residential Scenario creates a shadow fan larger than the Residential/Office Mix Scenario and larger than the All Office Scenario. Shadows cast by this scenario extend west to Interstate 980, north to 21st Street, east to Valdez Street, and north to the 2300 block of Telegraph Avenue.
- The Maximum Office Scenario creates the largest shadow fan of the four proposed development scenarios. Shadows cast by this scenario extend east to Valdez Street and 21st Street, westward just beyond San Pablo Avenue, and cover the blocks bounded by Interstate 980, Broadway, 21st Street, and Sycamore Street.

The project would generate shadows that would fall across the façades of the buildings at 524 22nd Street/2201 Telegraph Avenue (First Baptist Church) and 517-522 22nd Street (a 1901-02 flats building in the Cathedral District). The major architectural feature of the building at 517–522 22nd Street is its minimal Georgian Revival design elements. However, this feature would not be compromised by shade cast on the building by the project development scenarios.

The facades of the First Baptist Church would be impacted by the shadows cast by all four development scenarios. The building's stained-glass windows along the Telegraph Avenue and 22nd Street façades are character-defining features, and would eliminate some direct light but ambient light would remain to the Julia Morgan-designed interior spaces during the following times:

- Under the Residential/Office Mix Scenario, new shadows would be cast on the building from 9:00 a.m. to 11:00 a.m. during the vernal equinox (March 20) and autumnal equinox (September 22), and from 9:00 a.m. to 11:45 a.m. during the summer solstice (June 21) and winter solstice (December 21).
- Under the All Office Scenario, new shadows would be cast on the building from 9:00 a.m. to 11:00 a.m. during the vernal equinox (March 20) and autumnal equinox (September 22), and from 9:00 a.m. to 11:45 a.m. during the summer solstice (June 21) and winter solstice (December 21).
- Under the Maximum Residential Scenario, new shadows would be cast on the building from 9:00 a.m. to 12:10 p.m. during the vernal equinox (March 20) and autumnal equinox (September 22), from 9:30 a.m. to 12:15 p.m. during the

summer solstice (June 21), and from 9:00 a.m. to 11:00 a.m. during the winter solstice (December 21).

- Under the Maximum Office Scenario, new shadows would be cast on the building from 9:00 a.m. to 12:50 p.m. during the vernal equinox (March 20) and autumnal equinox (September 22), from 9:30 a.m. to 11:30 a.m. during the summer solstice (June 21), and 9:00 a.m. to 11:50 a.m. during the winter solstice (December 21).

Although new project shading under all four development scenarios would be cast on the stained-glass windows facing Telegraph Avenue, this would only diminish direct lighting in the church during the morning hours year-round. Natural lighting would still come through the stained-glass windows located on 21st Street and adjacent to West Grand Avenue year-round. Therefore, new project shading would not affect the historic-defining character element of this resource.

Other CEQA historical resources in the area include the Paramount Theater, Breuner Building, and old YMCA Building. The major architectural features of the Paramount Theater at 2025 Broadway include two 20-foot by 120-foot murals of glazed, terra cotta tiles, separated by an electrified neon blade signage on the main street-facing façade, and interior Art Deco elements. The major architectural elements of the Breuner Building at 2201 Broadway/450–466 22nd Street include an Art Deco tile frieze on the parapet and green-glazed terra cotta tile cladding. The major architectural features of the old YMCA Building at 2101–2115 Telegraph Avenue include its International Style cornice and parapet details and Doric-styled pilasters on the building's main façade. The major architectural features that make these buildings eligible as historical resources under CEQA would not be compromised by shade cast on the building by the project development scenarios (as shown in Appendix E).

Many of these physical characteristics are already subject to shadows cast by existing high-rise buildings, and contribute to the integrity of the building independent of direct light effect. In the case of the Paramount Theater at 2025 Broadway, many of the major architectural features are located within the building's interior and are not subject to exterior setting conditions. New construction would cast shadows on a small portion of the north-facing façade of the Paramount at 2025 Broadway from early May through early August for approximately 35 minutes. The portion of the affected façade serves as the building's stage door and is not a significant character-defining feature. Many buildings in Uptown that would be affected by new project-related shadows are already subject to shadows cast by existing high-rise buildings.

The small plaza (Franklin Plaza) located within the public right-of-way at the northeast corner of Broadway and 22nd Street is along the former route of the Southern Pacific's East Bay Electric Lines[30]; it included a modern water feature through the 1980s.[31] Background research indicates that it was not associated with the former Key Route Inn (1907–1932) located at what is now West Grand Avenue and Broadway. The park is not a historical resource for purposes of CEQA; therefore, additional shadows cast on the park by any of the development scenarios would not result in a significant impact to a cultural resource.

c. Significant Cultural and Historical Resource Impacts

The project's significant impacts to historical resources are discussed below.

(1) Historical Resources on the Project Site (Criterion 1)

As discussed above, four out of the five buildings on the project site are not considered historic resources.

The demolition of the former Kwik Way Restaurant (Space Burger) at 2150 Telegraph Avenue/495 22nd Street, built by James Hutzler in 1953, would result in a significant adverse change in the significance of a historical resource. Although this building has a "*3" OCHS rating (indicating that it was constructed post-1945) and although the building is not located in an officially recognized historic district or API, a survey of this building prepared in September 2016 and October 2017 by architecture + history indicates that it appears eligible for the CRHR under Criterion 3 as a representative example of a mid-20th century Googie-style drive-in restaurant.

The building is one of several originally constructed for the Kwik Way restaurant chain throughout the Bay Area. The building retains integrity of location, design, materials, workmanship, feeling, and association. Due to increased large-scale mixed-use development in Central Oakland, the building no longer possesses integrity of setting.

Impact HIST-1: The project proposes demolition of all buildings in the project site, including a building that could be eligible for the California Register of Historical Resources: 2150 Telegraph Avenue/495 22nd Street. (S)

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[30] Sanborn-Perris Map Co. Ltd. 1911. Volume 2:54. Sanborn Map and Publishing Company, Pelham, New York.

[31] Oakland Cultural Heritage Survey. 2216 Broadway Evaluation Form. On file with the Oakland Cultural Heritage Survey, Oakland, California.

The following measures to reduce this impact reference the Historic American Building Survey (HABS).[32] Collectively, the following measures would document and reincorporate the history, physical properties, and relative significance of the building at 2150 Telegraph Avenue/495 22nd Street. However, construction of the project would result in demolition of the former Kwik Way Restaurant (Space Burger) at 2150 Telegraph Avenue/495 22nd Street. This demolition would adversely impact the integrity of design, setting, feeling, and materials of this building, resulting in a substantial adverse change to these historical resources.

Mitigation Measure HIST-1: The following measures shall be incorporated to diminish this impact:

HIST-1a: HABS Documentation. Prior to demolition of the building at 2150 Telegraph Avenue/495 22nd Street, the project applicant shall undertake HABS-Level III documentation of the subject building. The documentation, which shall be submitted to the Oakland History Room of the Oakland Public Library and OCHS, will include the following:

- **Drawings**: Sketch floor plan of the building and a site plan.
- **Photographs**: Photographs taken with large-format negatives of exterior and interior views.
- **Written History**: A historical report summarizing the history of the building, property description, and historical significance.

A qualified architectural historian meeting the qualifications in the Secretary of the Interior's *Professional Qualifications Standards* for architectural history shall oversee the preparation of drawings, photographs, and written history. The documentation will be printed on archival paper.

HIST-1b: Commemoration and Public Interpretation. The project applicant shall prepare a permanent exhibit/display, in coordination with an experienced museum professional, of the history of the building, including but not limited to historic and current condition photographs, interpretive text, drawings, video, and interactive

[32] The HABS program was created by Congress in 1933 to create an archive of measured drawings, historical reports, and large-format black-and-white photographs of "structures of historic interest." In essence, HABS is the first national preservation program in the United States. Documentation to HABS standards is a recognized means of reducing the severity of an impact resulting from the demolition of historical resources. In particular, as discussed below, HABS-Level III documentation consists of a written history, plans, drawings, and photographs of the buildings (National Park Service. 2016a. HABS Historical Reports: General Guidelines. 2000. Available at: https://www.nps.gov/history/hdp/standards/HABS/graphics/HABS-historian-guidelines.PDF, accessed November 11, 2016.)

media. The interpretive display will be placed in a suitable public space at the project site.

HIST-1c: City of Oakland Façade Improvement Program. The project proponent shall contribute to the City of Oakland's Façade Improvement Program. The amount of contribution to the program is based on the following formula:

- $10,000 for the first 25 feet of two façades of a building and $2,500 per each 10 additional linear feet of those two same façades beyond 25 feet.
- There shall be a 20 percent increase for the buildings designated as Historical Resources under CEQA.
- For the purposes of this mitigation, the two façades along 22nd Street and Telegraph Avenue are approximately 50 feet and 25 feet long, respectively. The building appears eligible as a historical resource under CEQA as noted in Appendix B, but is not located in an API. The following calculation results in a total contribution of $26,500:

  22nd Street façade: $10,000 + $2,500 x 25/10 feet = $16,250

  Telegraph Avenue façade: $10,000

  Total for both façades: $16,250 + $10,000 = $26,250

  CEQA Historical Resource – Increase by 20 percent: $26,250 x 1.20 = $31,500.

The total Façade Improvement Program contribution for the demolition of the building at 2150 Telegraph Avenue/495 22nd Street is $31,500.

HIST-1d: Relocation. The project applicant shall first make funds available for relocating the building. Contingent on plans for relocation, the façade improvement fee as well as demolition cost estimate would be made available by the applicant. If relocation is not feasible, the project applicant shall use commercially reasonable efforts to salvage the Googie-style cubes located above the former Kwik Way (Space Burger) building and the Googie-style awning across the building's main, street-facing façade. The applicant must make available a portion of the total $31,500 façade improvement fee required under Mitigation Measure HIST-1c as a contribution to an individual or group willing to take custody and/or to utilize these Googie–styled architectural elements.

Although implementation of Mitigation Measures HIST-1a, HIST-1b, HIST-1c, and HIST-1d would diminish the level of impact to this historical resource as a result of the project, this impact cannot be mitigated to a less-than-significant level, and the impact after mitigation would be significant and unavoidable.[33] (SU)

d. Cumulative Impacts

The construction of any of the four development scenarios would result in less-than-significant impacts to 517–523 22nd Street, 524 22nd Street/2201 Telegraph Avenue (First Baptist Church), 2025 Broadway (Paramount Theater), and 2201 Broadway/450–466 22nd Street (Breuner Building). In addition to the project, there are several reasonably foreseeable projects in Central Oakland, some of which could combine with the project to result in a significant cumulative impact to historical resources. When future development proposals are received by the City, they will undergo environmental review pursuant to CEQA and, when necessary, mitigation measures will be adopted as appropriate.

In most cases, environmental review and compliance with both the City's HPE and the relevant objectives and policies of the General Plan will ensure that significant impacts to historical resources are avoided or otherwise mitigated to a less-than-significant level. Therefore, it is not anticipated that the project would make a significant contribution to cumulative impacts to historical resources. Taken collectively, the reasonably foreseeable projects, such as the developments at 595 22nd Street and 14th and Harrison Streets, contribute to the ongoing demolition and alteration of historical resources within the project vicinity. These projects could affect individual historical resources through demolition or alteration of historical setting; however, these projects' affected resources include a broad range of building types and would, therefore, not have a clear, cumulatively considerable impact on an individual type of historical building.

(1) Cathedral District

The proposed project is southeast of and adjacent to the Cathedral District, an Area of Primary Importance (API). The Cathedral District includes buildings located in the Tuttle Homestead Tract and the Jones Tract. The District developed slowly and was sparsely populated by 1882. The Cathedral District extends east to Telegraph Avenue between 21st and 22nd Streets (where the 1903 First Baptist Church provides the eastern boundary) and along part of West Grand Avenue. The Cathedral District is so-named for the Cathedral of St. Francis de Sales (2100 Grove Street / Martin Luther King Jr. Way). The cathedral was the western "anchor" of the District but sustained heavy damage during the 1989 Loma Prieta

[33] From *League for the Protection of Oakland's Archtiectural and Historic Resources v. City of Oakland*: "…a large historical structure, once demolished, normally cannot be adequately replaced by reports and commemorative markers." 55 Cal.App.4th 896; 60 Cal.Rptr.2nd 821 (1991), cert denied.

Earthquake and was demolished in 1993. The former St. Francis Rectory (634 21st Street) remains from the Cathedral complex and was converted to apartments around 2009.

The Cathedral of St. Francis De Sales was built in 1893, and nearby residential development within the Cathedral District quickly followed. The District contains 31 remaining contributors, mostly one and two-story buildings of Queen Anne, Stick, and Colonial architectural styles dating from 1872-1916. Following the 1906 earthquake, several homes in the District were altered with additional floors or internally partitioned and converted to multifamily housing. The District is notable for its representation of architectural styles of the era as adapted for narrow lots.

Table V.B-3 contains the Cathedral District's contributing elements as identified by OCHS survey teams in 1985, excluding buildings that have since been demolished.

On March 27, 2017, an LSA architectural historian conducted a pedestrian survey of the District to identify any subsequent changes to the District since 1985. The survey found that five contributing resources have been demolished since 1985. These resources are:

- Cathedral of St. Francis de Sales (2100 Martin Luther King Jr. Way)
- 606-612 21st Street (William M. Gifford Residence and Flats)
- 562 21st Street (Maclise House)
- 593 West Grand Avenue (Kuss House)
- 597-599 West Grand Avenue (Steffanoni House)

The proposed project site is outside the boundaries of the Cathedral District. The construction of any of the four development scenarios would result in less-than-significant impacts to the Cathedral District. None of the four proposed scenarios include the demolition of any buildings within the district, either contributing or noncontributing. Therefore, the proposed project will not contribute to the loss of the district's integrity or to the direct loss of historic resources within the district. Several similar large-scale mixed-used projects, including the Uptown Place Homes (630 20th Street), 522 20th Street, and the Uptown Apartments Project (500 William Street), have already been completed in the vicinity of the Cathedral District.

Like the proposed project, future projects would also be subject to the City of Oakland's SCAs designed to protect cultural resources which reduce impacts because the conditions are implemented and monitoring is ensured to minimize potential adverse effects that

TABLE V.B-3 CATHEDRAL DISTRICT

Address (Historic Name(s))	Year Built	CEQA Historical Resource (Yes/No)
589 West Grand Avenue (Barker - Gaudin House)	1872-1873	Yes
619-621 West Grand Avenue	1886-1887	Yes
625-627 West Grand Avenue (Becht House)	1889-1890	Yes
631 West Grand Avenue	1889-1890	Yes
641 West Grand Avenue (Hotel Holland)	1906-1907	Yes
645-640 West Grand Avenue/ 2232-2236 Grove Street (Enterprise Hall (I.O.O.F)	1892-1893	Yes
2201-2211 Telegraph Avenue/500 22nd Street (First Baptist Church of Oakland)	1903	Yes
634 21 st Street (St. Francis de Sales Rectory)	1916	Yes
570-572 21st Street	1888	Yes
600-602 21st Street (Stone House)	1887-1888	Yes
517-523 22nd Street	1901-1902	Yes
525-527 22nd Street	1908	Yes
529-531 22nd Street	1905-1906	Yes
533-535 22nd Street	1888-1889	Yes
537-539 22nd Street	1906-1907	Yes
551 22nd Street (Tuohy House)	1895	Yes
561 22nd Street (Adam Rudolph House)	1888-1889	Yes
565-567 22nd Street (Dewitt House)	1889-1890	Yes
588-590 22nd Street (Richard H. Moore House)	1890	Yes
589-599 22nd Street	1905-1906	Yes
592-594 22nd Street (H.G. Osburn House)	1889-1890	Yes
601-605 22nd Street (E. Oscar Achs House)	1906-1907	Yes
602-608 22nd Street (Bert L. Charles Quayle Residence and Flats)	1904-1905	Yes
609-611 22nd Street	1891	Yes
613 22nd Street	1889-1890	Yes
614 22nd Street (Mary H. Simpson House)	1884-1885	Yes
618-620 22nd Street (Abbie F. Aldrich Residence and Flat)	1889-1890	Yes

TABLE V.B-3 CATHEDRAL DISTRICT

Address (Historic Name(s))	Year Built	CEQA Historical Resource (Yes/No)
619 22nd Street	1889-1890	Yes
622-624 22nd Street (William and Abbie Aldrich House)	1876-1877	Yes
625-627 22nd Street	1889-1890	Yes
632-634 22nd Street (Anna McCann and Charles N. Wood House)	1889-1890	Yes
636-640 22nd Street (George W. Elmore House and Flat)	1889-1890	Yes

Source: Cathedral District – Historic Resources Inventory. 1985a. On file at Oakland Cultural Heritage Survey, Oakland, California.

could result from implementation of the project. Therefore, the proposed project, together with the impacts of previous and future mixed-use development in the vicinity, would have a less-than-significant impact to the Cathedral District.

(2) Uptown Commercial District

The proposed project is adjacent to the Uptown Commercial District (Uptown District), an Area of Primary Importance (API). The Uptown District is located north of Downtown Oakland, and is largely characterized as a 1920s-1930s era Deco-era shopping and entertainment district. The Uptown District contains 20 buildings contained on fully-developed parcels roughly bounded on the north by 21st Street, on the east by Broadway, on the south by 17th Street, and on the west by Telegraph Avenue. The core of the Uptown District is the intersection of 19th Street and Broadway, and the district includes the Fox and Paramount Theaters, among other similarly distinguished historic buildings.

The Uptown District contains 20 buildings, 13 of which are contributing elements that collectively represent a distinct phase of expansion of Oakland's central business district with luxury shopping anchored by the Capwell store. The District contains mostly multi-story commercial buildings of Classical Revival, Beaux Arts, Art Deco commercial architectural styles from circa 1910 to 1932, including both brownstone and terra cotta loft buildings and decorative Art Deco terra cotta wall cladding.

Table V.B-4 contains the Uptown District's contributing elements as identified by OCHS survey teams in 1985.

TABLE V.B-4 UPTOWN DISTRICT

Address(es) (Historic Name(s))	Year Built	CEQA Historical Resource (Yes/No)
1713-21 Broadway/1712-20 Telegraph Avenue (Bowles Building)	1931	Yes
1737-41 Broadway/1736-8 Telegraph Avenue (F. W. Woolworth & Co., Store)	1930	Yes
1749-53 Broadway/1800 Telegraph Avenue (Smith Brothers Building)	1923-24	Yes
1759 Broadway/1802-04 Telegraph Avenue (Guaranty Building & Loan Association)	1928	Yes
1762-76 Broadway/435-49 19th Street (Bauer Apartments)	1911	Yes
1900-16 Broadway/434-44 19th Street (Mills Building)	1922-23	Yes
1901 Broadway/450-64 19th Street (Lyon Building)	1923-24	Yes
1921-33 Broadway (Hassler Building) and (Sweet's Ballroom Building)	1923-24	Yes
1935-75 Broadway/451-99 20th Street/1934-66 Telegraph Avenue (H.C. Capwell Co., Department Store)	1928-29	Yes
2001-15 Broadway/450 20th Street (I. Magnin & Company Store)	1930-31	Yes
2025 Broadway/475-85 21st Street (Paramount Theater)	1930-31	Yes
1807-29 Telegraph Avenue/504-30 18th Street/505-41 19th Street (Fox Oakland Theater)	1927-28	Yes
1900-32 Telegraph Avenue/468-98 19th Street (Oakland Floral Depot)	1931	Yes

Source: Uptown Shopping/Entertainment District – Historic Resources Inventory, 1985b. On file at Oakland Cultural Heritage Survey, Oakland, California.

On April 2, 2017, an LSA architectural historian conducted a pedestrian survey of the District to identify any subsequent changes to the District since 1985. The survey found that one contributing resource located at 1918-28 Broadway had been demolished. The survey also found that much of the area west and north of the Uptown District is redeveloped with several five- and six-story mixed use buildings built circa 2008-9. These new buildings are clearly modern in design and reference the height and massing of the Fox Theater. Southwest of the Fox Theater is the Oakland Ice Center at 540 17th Street. This sports facility was built in 1995 and sits on a 1.6-acre parcel.

North of and across the Fox Theater is a vacant 1-acre parcel owned by the City of Oakland (APN 008-0716-058-00). Northeast of and across Telegraph Avenue from the Fox Theater is the Uptown Station located at 1935-75 Broadway/451-99 20th Street/1934-66 Telegraph Avenue in the former H.C. Capwell Co. Department Store building.

The proposed project site is north of and adjacent to the Uptown District boundary along 21st Street. The closest contributing element to the project site is the Paramount Theater, an Oakland City Landmark designed in 1930 by architect Timothy Pflueger. As analyzed above, the physical character-defining features are already subject to shadows cast by existing high-rise buildings, and contribute to the integrity of the building independent of direct light effect. In the case of the Paramount Theater at 2025 Broadway, many of the major architectural features are located within the building's interior and are not subject to exterior setting conditions.

The construction of any of the four development scenarios would result in less-than-significant impacts to the Uptown District. None of the four proposed scenarios include the demolition of any buildings within the District, either contributing or noncontributing. Therefore, the proposed project would not contribute to the loss of the District's integrity or to the direct loss of historic resources within the District. Several similar large-scale mixed-used projects, including The Uptown (1951 Telegraph Avenue), the Uptown Place Homes (630 20th Street), 522 20th Street, and the Uptown Apartments Project (500 Williams Street), have already been completed in the vicinity of the Central District. Since the designation of the Uptown District in 1985, one contributing element, located at 1918-1928 Broadway (Henry J. Kaiser Building) was demolished circa 1990.

Like the proposed project, future projects would also be subject to the City of Oakland's SCAs designed to protect cultural resources. These SCAs reduce impacts because the conditions are implemented and monitoring is ensured to minimize potential adverse effects that could result from implementation of the project. Therefore, the proposed project, together with the impacts of previous and future mixed-use development in the vicinity, would have a less-than-significant impact to the Uptown District.

C. TRAFFIC AND TRANSPORTATION

This section describes the transportation, circulation, and parking conditions, including transit services and pedestrian and bicycle facilities in the vicinity of the project; discusses the State and local regulations and policies pertinent to transportation and circulation; assesses the potentially significant transportation and circulation impacts that could result from implementation of the Eastline project; and provides, where appropriate, mitigation measures and SCAs to address those impacts.

The analysis evaluates the transportation-related impacts of the project. The analysis was conducted in compliance with City of Oakland guidelines at the time of the Notice of Preparation (NOP).

1. Setting

The existing transportation-related context in which the project would be constructed is described below, beginning with a description of the study area and the street network that serves the project site. Existing transit service, bicycle network, pedestrian facilities, and parking, in the vicinity of the project are also described. Intersection levels of service are then defined and current conditions for roadways and intersections in the project vicinity are summarized. This subsection also discusses planned transportation changes in the project vicinity as well as the applicable planning policies.

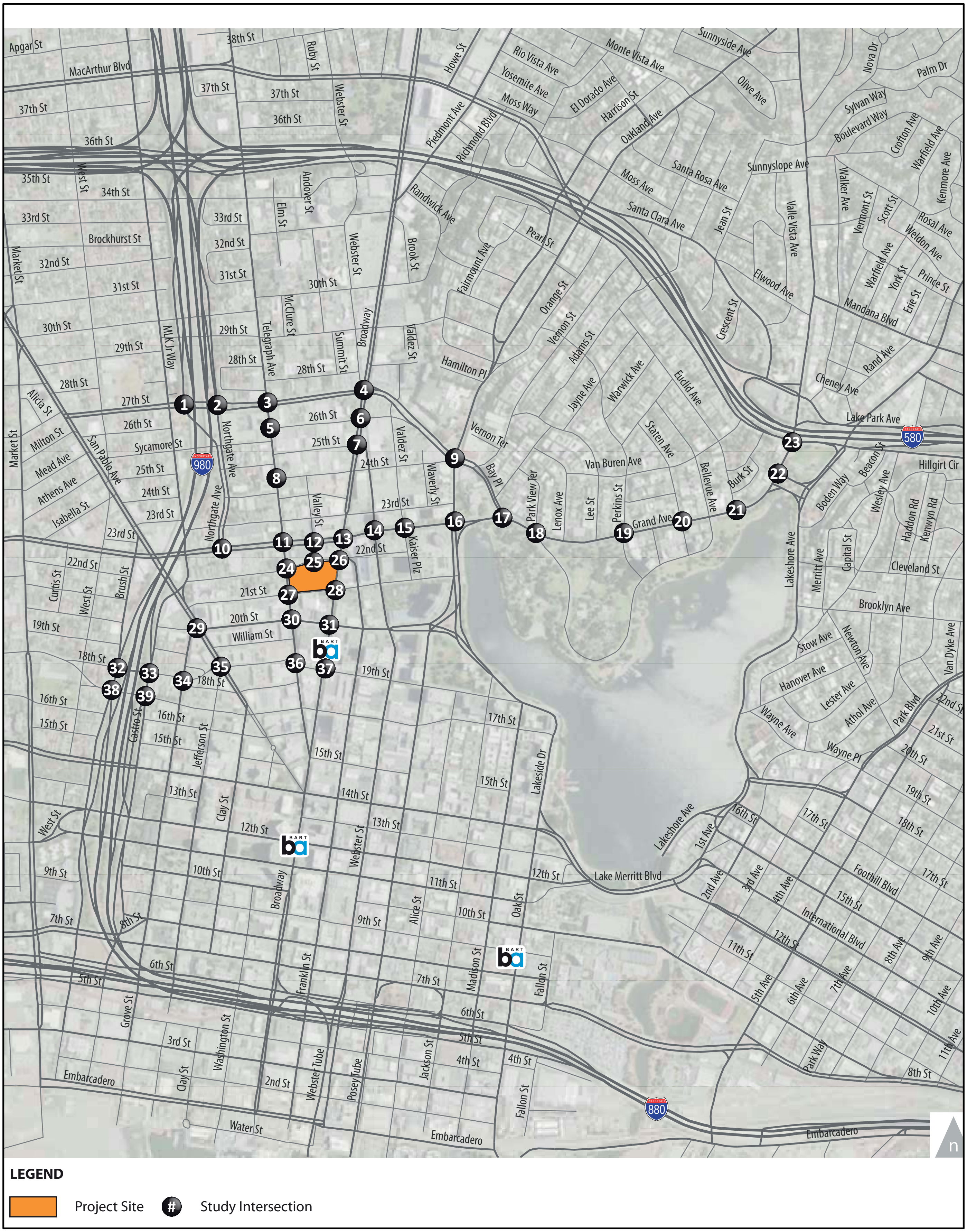
a. Existing Road Network

Regional and local roadways serving the project site at the time of the NOP are described below. Figure V.C-1 presents the project study area.

(1) Regional Access

A brief description of the regional roadway network serving the project site is provided below. Average daily traffic volumes were obtained from Caltrans' Traffic Volumes on the State Highway System (2015).

- *Interstate 980 (I-980)* is an eight-lane north-south freeway west of the project site that connects State Route 24 (SR 24) and Interstate 580 (I-580) to Interstate 880 (I-880). Ramps at 17th and 18th Streets are the nearest freeway ramps to the project site. I-980 has an AADT of 130,000 vehicles near the project site.
- *SR 24* is an eight-lane east-west freeway between I-580 in Oakland and Walnut Creek in the east. East of I-580, SR 24 continues as I-980. SR 24 has an average annual daily traffic volume (AADT) of approximately 142,000 vehicles east of I-980.



Source: Fehr & Peers, 2017

Figure V.C-1
Project Study Area

- *I-580* is an eight-lane east-west freeway between US 101, in Marin County, and I-5 south of Tracy. I-980 provides access between the project site and I-580, and I-580 has an AADT of approximately 241,000 vehicles per day near the SR 24 interchange with I-980.
- *I-880* is an eight-lane north-south freeway between I-80 in Oakland and I-280 in San Jose. I-980 provides access between the project site and I-880, and I-880 has an AADT of approximately 207,000 vehicles per day near the I-980 interchange.
- *Interstate 80 (I-80)* is an eight- to ten-lane national freeway extending west to San Francisco, and east through Berkeley and Sacramento, into Nevada and further east. I-980 via I-580 provides access between the project site and I-80, and I-80 has an AADT of approximately 270,000 vehicles per day just north of I-580 in Emeryville.

(2) Local Access

A brief description of the local and arterial streets serving the project site is provided below:

- *Telegraph Avenue* is a major north-south street along the western boundary of the project site, extending between Broadway in Downtown Oakland and Berkeley, with two travel lanes in each direction north of 29th Street and one lane in each direction south of 29th Street.
- *Valley Street* is a north-south street extending from 22nd Street at the project site boundary to 24th Street, with one travel lane in each direction.
- *Broadway* is a major north-south street along the eastern boundary of the project site, extending between Jack London Square and SR 24 in Oakland. Broadway generally provides two travel lanes in each direction and provides a landscaped median in the vicinity of the project site.
- *Grand Avenue* and *West Grand Avenue* together form a major east-west street extending from I-80 near the Bay Bridge Toll Plaza through West Oakland and Downtown to I-580 where the street turns north and continues into Piedmont. West Grand Avenue west of Broadway is generally two lanes with a landscaped median. East of Broadway, Grand Avenue either has a striped median or no median.
- *20th Street* is an east-west street with one lane in each direction between Castro Street and Telegraph Avenue and two lanes in each direction east of Telegraph Avenue to Harrison Street. In the vicinity of the project site, this street has been officially renamed Thomas L. Berkley Way, although it is still commonly identified as 20th Street. The Uptown Transit Center is located on 20th Street between Telegraph Avenue and Broadway.
- *21st Street* is the east-west street along the southern boundary of the project site. It is a two-lane street with one-way eastbound traffic between San Pablo Avenue and

Broadway. East of Broadway, 21st Street is a two-lane street with two-way traffic to Harrison Street at Lake Merritt. The on-street parking adjacent to the project site is often unavailable due to event activity at the Paramount Theater.

- *22nd Street* is the east-west street along the northern boundary of the project site. It is a two-lane street with one-way westbound traffic between Webster Street and Telegraph Avenue. East of Webster Street it is a two-lane street with two-way traffic to Kaiser Plaza.

b. Existing Transit Services

Transit service providers in the project vicinity include AC Transit, which provides local and Transbay bus service with connections to the Transbay Terminal in San Francisco and Bay Area Rapid Transit (BART), which provides regional rail service. Transit services provided near the project site are shown on Figure V.C-2 and described below.

(1) Bus Services

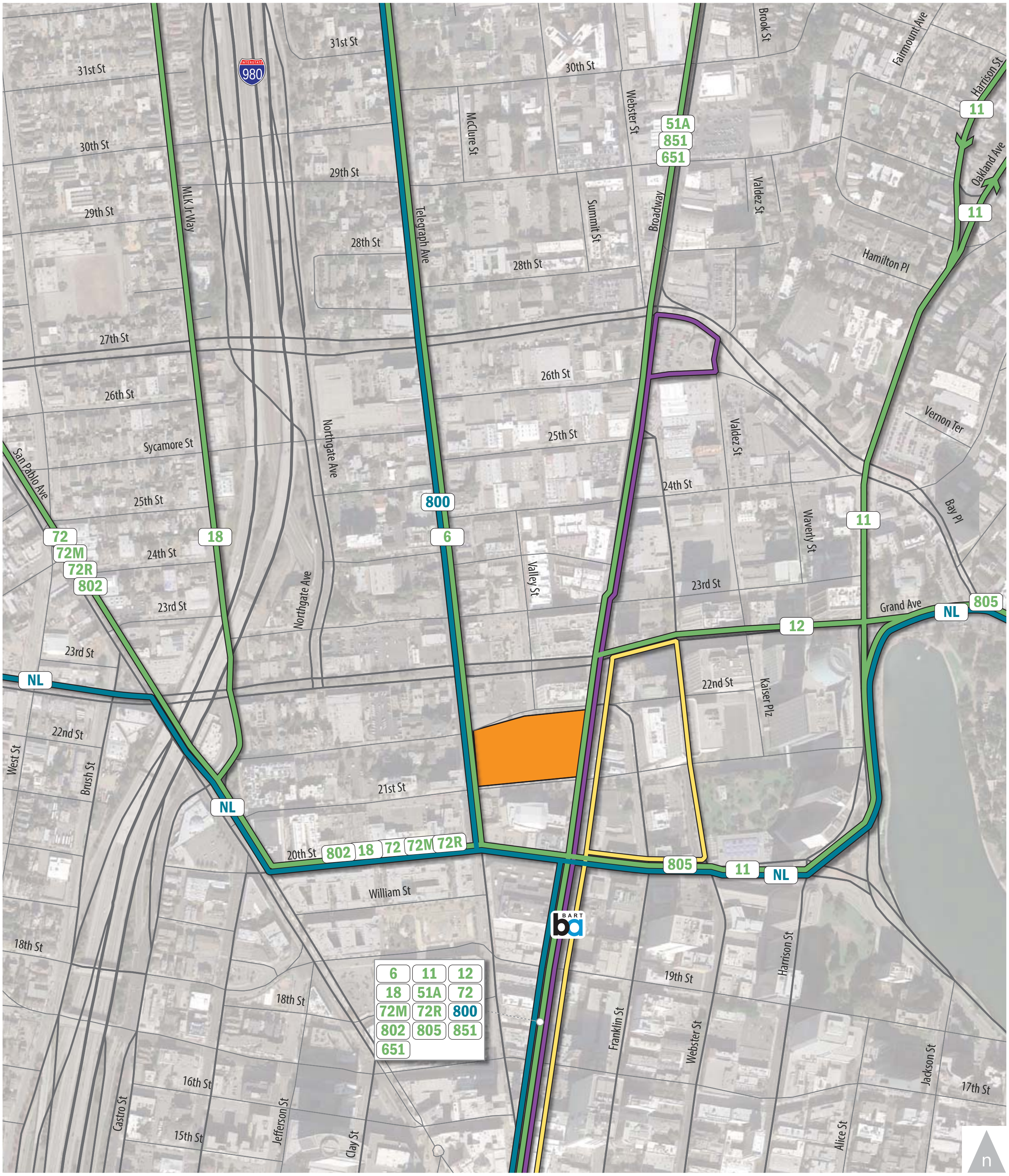
AC Transit is the primary bus service provider in 13 cities and adjacent unincorporated areas in Alameda and Contra Costa Counties, with Transbay service to destinations in San Francisco, San Mateo and Santa Clara Counties. Table V.C-1 summarizes the characteristics of the AC Transit routes operating in the project area. Eight local routes, one Transbay route, four night routes, and one school route operate in the vicinity of the project site. The Free Broadway Shuttle also operates near the site.

Table V.C-2 describes the bus stops near the project site. All bus routes include bus stops at the Uptown Transit Center which is located one block south of the project site. The nearest bus stops are adjacent to the project site along Broadway at 22nd Street where the bus stops are located on the near-side of the intersection in each direction.

Table V.C-3 shows the capacity and loads (passengers) of the AC Transit routes serving the project area and vicinity. Load factor is defined as the ratio of occupied seats to the number of seats on the bus. A load factor of 100 percent or more indicates that the bus operates at or above its seated capacity. During the weekday PM peak period (4:00 p.m. to 6:00 p.m.) the buses in the project vicinity generally operate below bus capacities. In general, Route 6 at the Uptown Transit Center and Route 51A at the Broadway/Grand/West Grand intersection are the most heavily utilized bus routes in the study area.

(2) Bay Area Rapid Transit (BART)

BART provides regional rail service throughout the East Bay and across the Bay to San Francisco and the Peninsula. The nearest BART station to the project site is the 19th Street



LEGEND

Project Site | AC Transit Transbay | AC Transit Local | Broadway Shuttle (Night) | Broadway Shuttle (Day)

Source: Fehr & Peers, 2017

Figure V.C-2
Existing Transit Service

TABLE V.C-1 AC TRANSIT ROUTES IN THE PROJECT VICINITY

			Weekday		Weekend		
Line	**Route**	**Nearest Stop**	**Hours**	**Headway[a]**	**Hours**	**Headway[a]**	**Bus Type**
Local Lines							
6	Downtown Oakland to Downtown Berkeley	Telegraph Avenue/24th Street, 20th Street/ Telegraph Avenue	5 AM–12 AM	10 (20)	5 AM–12 AM	15 (20)	40-foot buses with a 36-person seating capacity
12	Downtown Berkeley to Oakland Amtrak at Jack London Square	Broadway/22nd Street, Broadway/20th Street	6 AM–11 PM	20 (20)	6 AM–11 PM	30 (30)	30-foot buses with a 25-person seating capacity
18	University Village, Albany, to Montclair	20th Street/Telegraph Avenue	5:20 AM–11:40 PM	15 (15)	6:20 AM–12 AM	20 (20)	40-foot buses with a 36-person seating capacity
33	Dimond District, Oakland to Estates Drive & Inverleith Terrace Piedmont	Broadway/19th Street	6 AM–11 PM	15 (20)	6 AM–10 PM	20 (20)	40-foot buses with a 36-person seating capacity
51A	Rockridge BART to Fruitvale BART	Broadway/22nd Street, Broadway/W Grand Avenue	5 AM–12 AM	10 (12)	5:40 AM–12 PM	15 (20)	40-foot buses with a 36-person seating capacity
72	Hilltop Mall to Jack London Square	20th Street/Telegraph Avenue	5 AM–12 AM	15 (15)	5:20 AM–12:20 AM	15 (20)	40-foot buses with a 36-person seating capacity
72M	Point Richmond to Jack London Square	20th Street/Telegraph Avenue	5 AM–12 AM	15 (15)	5:20 AM–12:20 AM	15 (20)	40-foot buses with a 36-person seating capacity
72R	San Pablo Rapid–Contra Costa College to Jack London Square	20th Street/Telegraph Avenue	6 AM–7:20 PM	12 (12)	7 AM–7 PM	15 (15)	40-foot buses with a 32-person seating capacity
Free Broadway Shuttle	Embarcadero West (Jack London Square) to Grand Avenue	Broadway/West Grand Avenue	M-Th:7 AM–10 PM F: 7 AM–1 AM	20 (30)	Sat: 6 PM-1 AM	30 (30)	30-foot buses with a 25-person seating capacity
Transbay Lines							
NL	Eastmont Transit Center to Transbay Temporary Terminal	20th Street/Broadway	6 AM–12 AM	15 (20)	6 AM–12 AM	30 (30)	60-foot buses with a 47-person seating capacity

TABLE V.C-1 AC TRANSIT ROUTES IN THE PROJECT VICINITY

			Weekday		Weekend		
Line	**Route**	**Nearest Stop**	**Hours**	**Headway**[a]	**Hours**	**Headway**[a]	**Bus Type**
All Nighter							
800	Richmond BART to Market Street & Van Ness Avenue, San Francisco	Telegraph Avenue/24th Street, 20th Street/ Telegraph Avenue	12:30 AM–5:40 AM	60 (60)	12:30 AM–7:30 AM	20 (20)	60-foot buses with a 47-person seating capacity
802	Berkeley Amtrak to Downtown Oakland	Broadway/19th Street, 20th Street/Telegraph Avenue	12:40 AM–4:40 AM	60 (60)	12:40 AM–4:40 AM	60 (60)	40-foot buses with a 36-person seating capacity
805	Downtown Oakland to Oakland Airport	Broadway/19th Street	12:40 AM–5:40 AM	60 (60)	12:40 AM–5:40 AM	60 (60)	40-foot buses with a 36-person seating capacity
851	Downtown Berkeley to Fruitvale BART	Broadway/20th Street, Broadway/Grand Avenue	12:30 AM–4:30 AM	60 (60)	12:30 AM–4:30 AM	60 (60)	40-foot buses with a 36-person seating capacity
School Lines							
651	9th Street & Broadway, Oakland, to Holy Names High School	Broadway/Grand Avenue, Broadway/20th Street	7:40 AM	-	-	-	40-foot buses with a 36-person seating capacity

[a] Headway is the frequency, or interval of time, between buses travelling in any given direction along a designated route: Peak Period Headway (Off-Peak Period Headway).
Source: AC Transit website; summarized by Fehr & Peers, 2017.

TABLE V.C-2 AC TRANSIT BUS STOPS IN THE PROJECT VICINITY

Street	Direction	Location	Bus Routes	Bus Stop Amenities	Nearest Pedestrian Crossing
Broadway	NB	N of 19th Street	6, 18, 33, 72, 72M, 800, 802, 805	Bus stop sign, map, schedule, bench, and trash receptacle	Signalized intersection with marked crosswalks and pedestrian-countdown heads at Broadway/19th Street
	NB	N of 20th Street	12, 51A, 851, 651, Free Broadway Shuttle	Bus stop sign, map, schedule, bench, and trash receptacle	Signalized intersection with marked crosswalks and pedestrian-countdown heads at Broadway/20th Street
	NB	S of 22nd Street	12, Free Broadway Shuttle	Bus stop sign	Signalized intersection with marked crosswalks and pedestrian-countdown heads at Broadway/22nd Street
	NB	N of Grand Avenue	51A, 851, 651, Free Broadway Shuttle (Night Route Only)	Bus stop sign, bus shelter, bench, map, schedule and trash receptacle	Signalized intersection with marked crosswalks and pedestrian signal heads at Broadway/Grand Avenue
	SB	S of W Grand Avenue	12, 51A, 851, 651, Free Broadway Shuttle (Night Route Only)	Bus stop sign, bench, and schedule	Signalized intersection with marked crosswalks and pedestrian signal heads at Broadway/Grand Avenue and pedestrian-countdown heads at Broadway/22nd Street
	SB	S of 20th Street	12, 51A, 851, 651, Free Broadway Shuttle	Bus stop sign, bench, map, and schedule	Signalized intersection with marked crosswalks and pedestrian-countdown heads at Broadway/20th Street
	SB	N of 19th Street	6, 11, 18, 72, 72M, 800, 802	Bus stop sign, bench, map, schedule, and trash receptacle	Signalized intersection with marked crosswalks and pedestrian-countdown heads at Broadway/19th Street

TABLE V.C-2 AC TRANSIT BUS STOPS IN THE PROJECT VICINITY

Street	Direction	Location	Bus Routes	Bus Stop Amenities	Nearest Pedestrian Crossing
Uptown Transit Center	WB	E of Telegraph Avenue	6, 800	Bus-stop sign, bus shelter, bench, real-time arrival display, map, schedule, lighting, and trash receptacle	Signalized intersection with marked crosswalks and pedestrian-countdown heads at Telegraph Avenue/20th Street and Broadway/20th Street
	WB	Midblock btwn Telegraph Avenue & Broadway	18, 72, 72M, 72R, 802	Bus-stop sign, bus shelter, bench, real-time arrival display, map, schedule, lighting, and trash receptacle	Signalized intersection with marked crosswalks and pedestrian-countdown heads at Telegraph Avenue/20th Street and Broadway/20th Street
	WB	W of Broadway	NL	Bus-stop sign, bus shelter, bench, real-time arrival display, map, schedule, lighting, and trash receptacle	Signalized intersection with marked crosswalks and pedestrian-countdown heads at Telegraph Avenue/20th Street and Broadway/20th Street
	EB	E of Telegraph Avenue	72, 72M, 72R, 802	Bus-stop sign, bus shelter, bench, real-time arrival display, map, schedule, lighting, and trash receptacle	Signalized intersection with marked crosswalks and pedestrian-countdown heads at Telegraph Avenue/20th Street and Broadway/20th Street
	EB	W of Broadway	6, 18, 800	Bus-stop sign, bus shelter, bench, real-time arrival display, map, schedule, lighting, and trash receptacle	Signalized intersection with marked crosswalks and pedestrian-countdown heads at Telegraph Avenue/20th Street and Broadway/20th Street
	EB	W of Broadway	NL	Bus-stop sign, bus shelter, bench, real-time arrival display, map, schedule, lighting, and trash receptacle	Signalized intersection with marked crosswalks and pedestrian-countdown heads at Telegraph Avenue/20th Street and Broadway/20th Street

TABLE V.C-2 AC TRANSIT BUS STOPS IN THE PROJECT VICINITY

Street	Direction	Location	Bus Routes	Bus Stop Amenities	Nearest Pedestrian Crossing
Telegraph Avenue	NB	N of 24^{th} Street	6, 800	Bus-stop sign and schedule	Marked Crosswalk with pedestrian crossing signage at Telegraph/ 24^{th} Street
	SB	S of 24^{th} Street	6, 800	Bus-stop sign and schedule	Signalized Intersection with marked crosswalks and pedestrian signal heads at Telegraph Avenue/ 24^{th} Street

Source: Fehr & Peers, 2017.

TABLE V.C-3 AC TRANSIT PASSENGER LOAD CHARACTERISTICS (WEEKDAY)

Bus Route and Stop Location[a]	Direction	Average Capacity (Seats)	Average Load[b] (Passengers)	Maximum Load[c] (Passengers)	Maximum Load Factor
Route 6 on 20th Street at Telegraph Avenue	NB	36	17	53	1.5
	SB	36	14	41	1.1
Route 12 on Broadway at 20th Street	NB	26	12	33	1.3
	SB	26	12	35	1.3
Route 18 on Broadway at 19th Street	NB	36	10	31	1.2
	SB	36	11	31	0.9
Route 33 on Broadway at 19th Street [d]	EB	36	8	28	0.8
	WB	36	10	30	0.8
Route 51A on Broadway at Grand Avenue	NB	36	12	30	0.8
	SB	36	16	48	1.3
Route 72 on 20th Street at Telegraph Avenue	NB	36	16	45	1.3
Route 72 on Broadway at 19th Street	SB	36	17	38	1.1
Route 72M on 20th Street at Telegraph Avenue	NB	36	12	31	0.9
	SB	36	17	39	1.1
Route 72R on 20th Street at Telegraph Avenue	NB	32	12	30	0.8
	SB	32	16	43	1.3
Free Broadway Shuttle (Day) on Broadway at 22nd Street	NB	25	12	31	1.0
Free-Broadway Shuttle (Day) on Broadway at 20th Street	SB	25	6	13	0.5
Free-Broadway Shuttle (Night) on Broadway at Grand Avenue	NB	25	9	23	0.9
	SB	25	3	9	0.4
Route NL on 20th Street at Broadway	EB	41	3	8	0.3
	WB	41	17	61	1.5
Route 800 on 20th Street at Telegraph Avenue	EB	51	9	23	0.6
	WB	51	12	35	0.7
Route 802 on 20th Street at Telegraph Avenue	NB	34	8	23	0.5
	SB	34	5	11	0.3

TABLE V.C-3 AC TRANSIT PASSENGER LOAD CHARACTERISTICS (WEEKDAY)

Bus Route and Stop Location[a]	Direction	Average Capacity (Seats)	Average Load[b] (Passengers)	Maximum Load[c] (Passengers)	Maximum Load Factor
Route 805 on Broadway at 19th Street	EB	36	5	13	0.4
	WB	36	6	13	0.4
Route 851 on Broadway at Grand Avenue	NB	36	5	13	0.4
	SB	36	7	17	0.5
Route 651 on Broadway at 20th Street	NB	36	8	23	0.6
Route 651 on Broadway at 20th Street	SB	36	7	14	0.4

[a] Bus stop chosen is the closest to project site with data available.
[b] Average load is defined as the average number of passengers onboard when the bus departs that stop.
[c] Maximum load is the observed maximum number of passengers onboard the bus when it departs that stop during the weekday PM peak period (4:00 p.m.to 6:00 p.m.).
[d] AC transit changed Route 11 to Route 33 on March 26, 2017. Results are presented for formerly Route 11.
Source: AC Transit Fall 2016 data provided in Spring 2017, analyzed by Fehr & Peers, 2017.

BART Station, one block south of the site. The station is underground and the nearest station access to the project site is on Broadway at the intersection with 20th Street, which is one block south of the project site. There are several bus stops located near the BART access points including the Uptown Transit Center on 20th Street. While the station does not include any specific pick-up/drop off facilities, private shuttle and automobile drivers often use curb space on the north side of 20th Street, east of Broadway, to pick-up/drop-off passengers.

Table V.C-4 summarizes the number of passengers using the 19th Street BART Station. More than 28,000 riders access the 19th Street BART Station on a typical weekday.

TABLE V.C-4 19TH STREET BART STATION ENTRIES AND EXITS (WEEKDAY)

	AM Peak Hour (8 AM–9 AM)	PM Peak Hour (5 PM–6 PM)	Daily
Entries	1,370	2,540	14,250
Exits	2,390	1,250	14,060
Total	**3,760**	**3,790**	**28,310**

Source: Fall 2016 ridership data provided by BART, post-processed by Fehr & Peers, 2017.

The Pittsburg/Bay Point–SFO/Millbrae, Daly City/Millbrae–Richmond, and Richmond-Fremont lines provide service at the 19th Street BART Station. The station is served by about 30 trains per hour during the peak periods. Table V.C-5 summarizes peak-hour loads near the 19th Street BART Station.

TABLE V.C-5 BART PEAK-HOUR LOADS BY LINE

Peak Period	Line	Peak Hour	Trains During Peak Hour	Average Cars per Peak Hour Train	Average Maximum Load (Passengers/ Car)	Load Factor
AM	**Pittsburg/Bay Point – SFO/Millbrae**	**7:30 AM–8:30 AM**	**11**	**9**	**112**	**1.05**
	SFO/Millbrae – Pittsburg/Bay Point	8:20 AM–9:20 AM	7	10	13	0.12
	Daly City/Millbrae – Richmond	8:20 AM–9:20 AM	5	9	19	0.18
	Richmond-Daly City/ Millbrae	**8:00 AM–9:00 AM**	**5**	**9**	**125**	**1.17**
	Fremont – Richmond	7:40 AM–8:40 AM	5	7	39	0.36
	Richmond – Fremont	7:30 AM–8:30 AM	5	6	39	0.36
PM	Pittsburg/Bay Point – SFO/Millbrae	5:00 PM–6:00 PM	9	10	27	0.25
	SFO/Millbrae – Pittsburg/Bay Point	**5:10 PM–6:10 PM**	**11**	**9**	**108**	**1.01**
	Daly City/Millbrae – Richmond	**5:20 PM–6:20 PM**	**5**	**9**	**120**	**1.12**
	Richmond – Daly City/Millbrae	5:10 PM–6:10 PM	5	9	35	0.33
	Fremont – Richmond	5:10 PM–6:10 PM	5	6	72	0.67
	Richmond – Fremont	4:40 PM–5:40 PM	5	7	66	0.62

Note: **Bold** indicates load above capacity.
[a] Load Factor defined as average load over the assumed design capacity (47 seats and 60 standing)
Source: Fall 2016 data provided by BART in March 2017 and summarized by Fehr & Peers, 2017.

Currently, both directions of the Pittsburg/Bay Point–SFO/Millbrae and the Richmond–Daly City/Millbrae lines have average load factors above BART's planning capacity (107 passengers per train car) during peak periods.

(1) Free Broadway Shuttle

The Free Broadway Shuttle provides free shuttle service along the Broadway corridor, between Jack London Square and Grand Avenue. The shuttle connects major destinations such as Jack London Square, City Center, and Uptown with major transportation services such as BART, AC Transit, Amtrak, the Oakland Ferry Terminal, and the Greyhound station. The shuttle operates on Monday through Thursday from 7:00 a.m. to 10:00 p.m., Fridays from 7:00 a.m. to 1:00 a.m., and Saturdays from 6:00 p.m. to 1:00 a.m., except on major holidays. The shuttle has headways of about 10 minutes during commute hours and lunch time, and 15 minutes during other times of the day. The nearest shuttle stop to the project site is on Broadway, within one block of the project site.

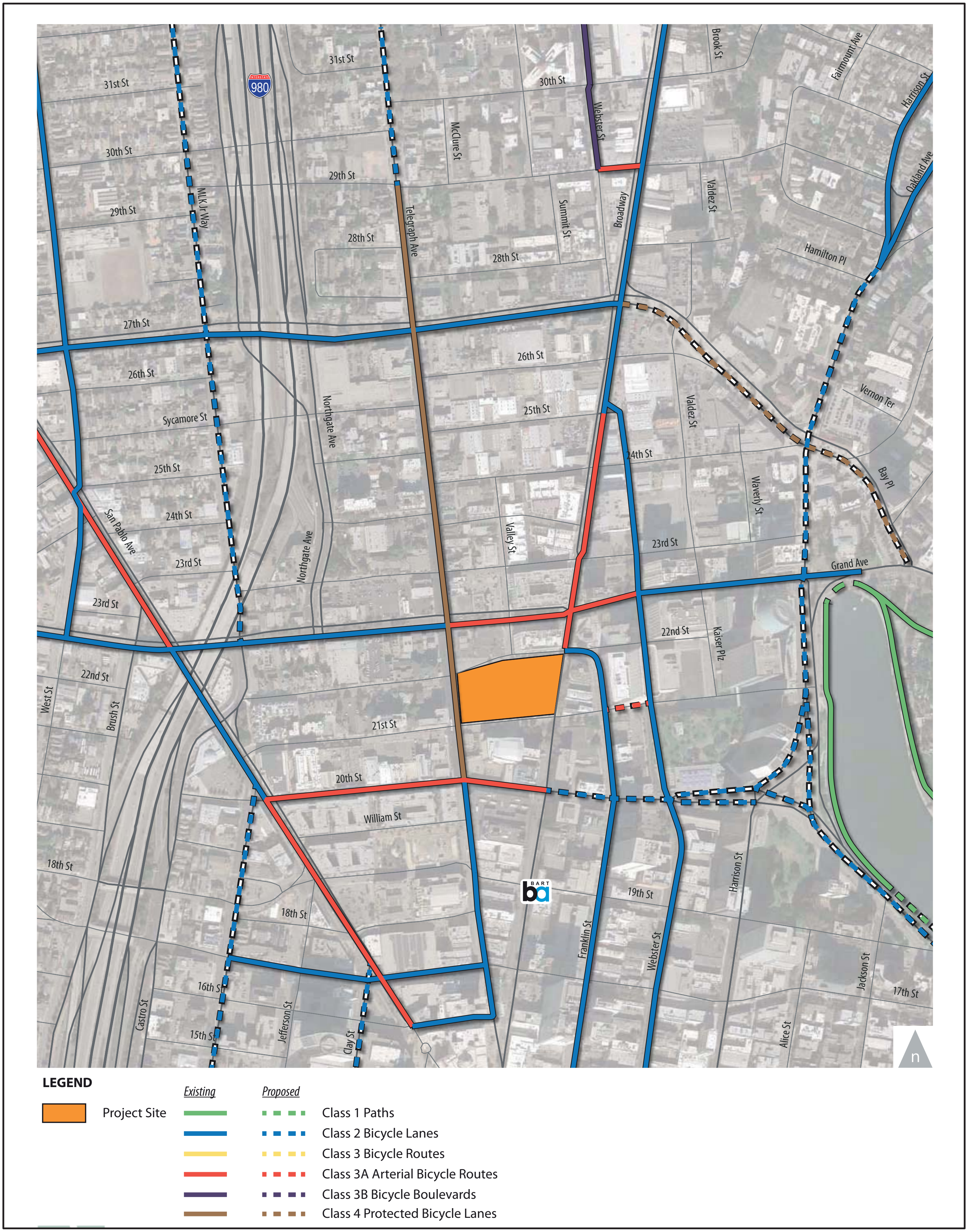
c. Existing Bicycle Network

The City of Oakland identifies the following bicycle facility types.

- Class I Paths are located off-street and can serve both bicyclists and pedestrians. Recreational trails can be considered Class 1 facilities. Class 1 paths are typically 8 to 10 feet wide excluding shoulders and are generally paved. There are no Class 1 paths in the vicinity of the project.
- Class 2 Bicycle Lanes provide a dedicated area for bicyclists within the paved street width through the use of striping and appropriate signage. These facilities are typically 5 to 6 feet wide.
- Class 3 Bicycle Routes are located along streets that do not provide sufficient width for dedicated bicycle lanes. The street is then designated as a bicycle route through the use of signage informing drivers to expect bicyclists.
- Class 3A Arterial Bicycle Routes are located along some arterial streets where bicycle lanes are not feasible and parallel streets do not provide adequate connectivity. Speed limits as low as 25 miles per hour (mph), and shared-lane bicycle stencils, wide curb lanes, and signage are used to encourage shared use.
- Class 3B Bicycle Boulevards are located along residential streets with low traffic volumes. Assignment of right-of-way to the route, traffic calming measures and bicycle traffic signal actuation are used to prioritize through-trips for bicycles.
- Class 4 Protected Bicycle Lanes, also known as cycle tracks, these facilities provide space that is exclusively for bicyclists and separated from motor vehicle travel lanes, parking lanes, and sidewalks. Parked cars, curbs, bollards, or planter boxes provide physical separation between bicyclists and moving cars. Where on-street parking is allowed, it is placed between the bikeway and the travel lanes (rather than between the bikeway and the sidewalk, as is typical for Class 2 bike lanes).

Figure V.C-3 shows the existing and planned bicycle facilities in the project vicinity at the time of the NOP. Currently, the following bicycle facilities are provided in the vicinity of the site:

- Telegraph Avenue provides Class 4 Protected Bicycle Lanes between 20th and 29th Streets, buffered Class 2 Bicycle Lanes south of 20th Street, and a Class 3A Arterial Bicycle Route north of 29th Street.
- Broadway provides a Class 3A Arterial Bicycle Route between Grand Avenue and 25th Street, Class 2 Bicycle Lanes north of 25th Street.



Source: Fehr & Peers, 2017

Figure V.C-3
Existing and Planned Bicycle Facilities

- Grand Avenue and West Grand Avenue provide Class 2 Bicycle Lanes between Lakeshore Avenue and Webster Street and between Telegraph Avenue and Market Street, and a Class 3A Arterial Bicycle Route between Webster Street and Telegraph Avenue.
- 20th Street provides Class 3A Arterial Bicycle Routes between Lakeside Drive and San Pablo Avenue.

d. Existing Pedestrian Network

The City of Oakland's Pedestrian Master Plan[1] (PMP) at the time of the NOP designates Telegraph Avenue, Broadway, and Grand Avenue/West Grand Avenue as city routes within the project vicinity. The project is also located within the Downtown Pedestrian District. Both Telegraph Avenue and Broadway are identified as primary routes within the district while 20th Street and West Grand Avenue, west of Broadway, are secondary routes. Grand Avenue, east of Broadway, is a primary route. Neither 21st nor 22nd Streets are noted in the district designations. The PMP states the following about these types of routes:

- City Routes designate streets that are destinations in themselves – places to live, work, shop, socialize and travel. They provide the most direct connections between walking and transit and connect multiple districts in the City. Telegraph, Broadway, and Grand Avenue/West Grand Avenue are all considered city routes.
- Neighborhood Routes are local streets that connect to schools, parks, recreational centers, and libraries. They are places for people to meet and they provide the basis for neighborhood life. They are used for walking to school, walking for exercise, and safe walking at night. 21st and 22nd Streets are considered neighborhood routes.

For each type of route, the PMP presents minimum design guidelines, which consists of the through passage zone, utility zone, and total sidewalk width. The through passage zone is the paved part of the sidewalk usable by pedestrians. The utility zone includes features such as street furnishings, vegetation, and signage. City Routes require an eight-foot through passage zone and a 4-foot utility zone, for a 12-foot total sidewalk width. Neighborhood Routes require five-foot through passage zone and a four-foot utility zone.

Pedestrian facilities include sidewalks, crosswalks, and pedestrian signals. Figure V.C-4 summarizes pedestrian facilities in the study area and shows the major pedestrian routes to and from the project site.

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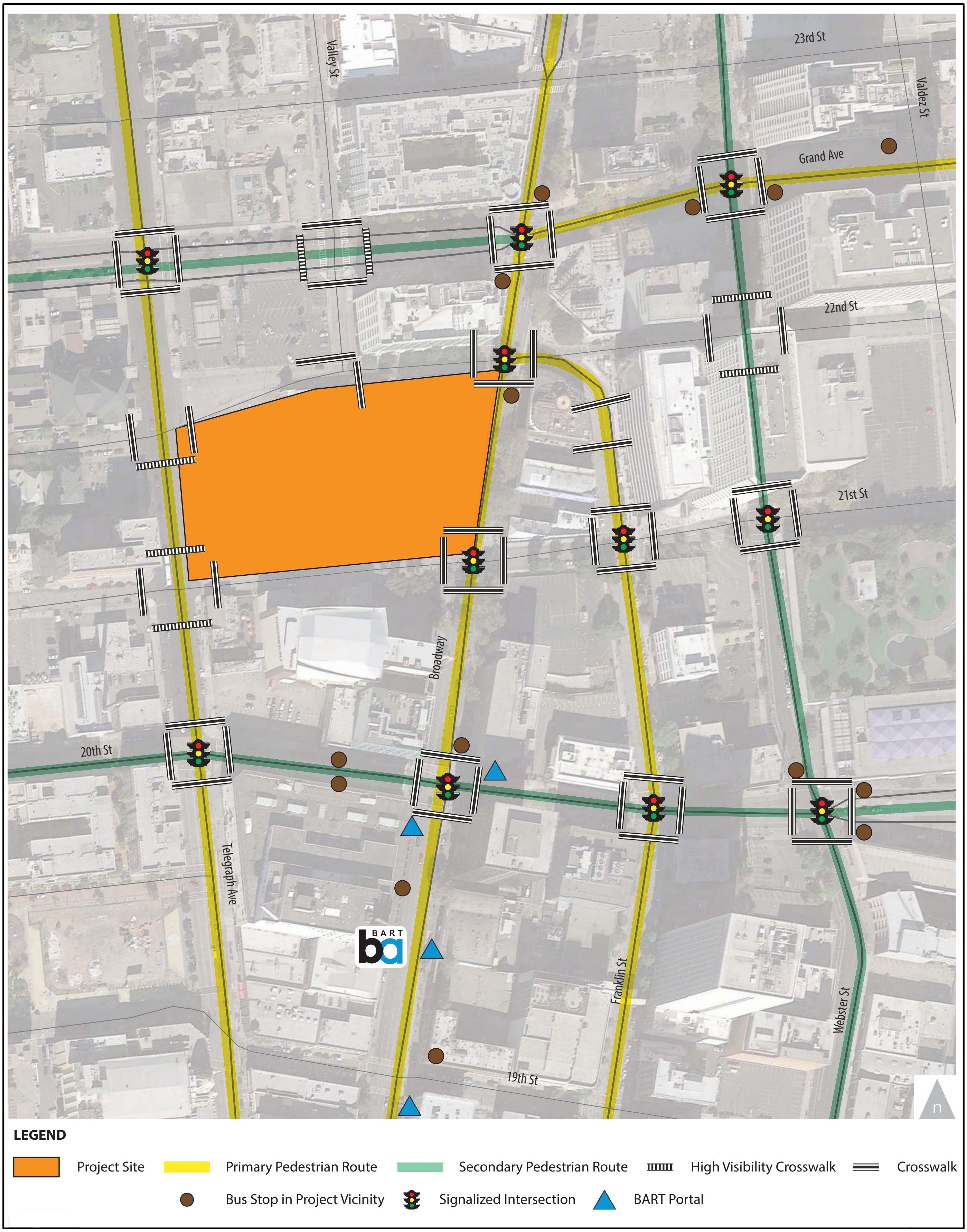
[1] City of Oakland, 2002. Pedestrian Master Plan, November.



Source: Fehr & Peers, 2017

Figure V.C-4
Pedestrian Facilities in the Project Vicinity

Sidewalks are provided on both sides of streets in the project vicinity. The effective sidewalk width is less than the actual sidewalk width because it accounts for the lost space due to landscaping, parking meters, light poles, and storefronts. The minimum effective sidewalk width in the area ranges from four to eight feet. Pedestrian facilities on the streets adjacent to the project site include:

- Telegraph Avenue includes sidewalks along the project frontage about 15 feet wide with a minimum 8-foot through pedestrian passage zone and a 7-foot utility zone which accommodates trees, parking meters, signs, and light poles. These sidewalks generally meet the PMP guidelines for 12-foot sidewalks along Telegraph Avenue.
- Broadway includes sidewalks along the project frontage about 14 feet wide with a minimum 8-foot through pedestrian passage zone and a 6-foot utility zone which accommodates trees, parking meters, signs, and light poles. These sidewalks generally meet the PMP guidelines for 12-foot sidewalks along Broadway.
- 21st Street includes sidewalks adjacent to the existing site about 7 feet wide with a continuous 4-foot through pedestrian passage zone and a 3-foot utility zone which accommodates trees, signs, utility poles, and light poles. A minimum 5-foot through pedestrian passage zone would be needed to generally be consistent with the PMP guidelines.
- 22nd Street includes sidewalks adjacent to the existing site about 9 feet wide with a continuous 6-foot through pedestrian passage zone and a 3-foot utility zone which accommodates trees, signs, utility poles, and light poles, which is consistent with PMP design guidelines.

The signalized Broadway/22nd Street intersection provides marked crosswalks on all approaches except the southbound approach while the signalized Broadway/21st Street intersection provides marked crosswalks on all approaches. Countdown pedestrian heads are provided for each crosswalk and both signals provide adequate time for pedestrians to cross the street. Pedestrian push buttons are provided for pedestrians crossing Broadway. There are no pedestrian push buttons for pedestrians crossing either 22nd or 21st Streets. A single curb ramp at each corner of the two intersections serves two crosswalks.

The unsignalized Telegraph Avenue/21st Street intersection is stop-controlled on 21st Street and provides marked crosswalks on all approaches including high visibility crosswalks crossing Telegraph Avenue. A single curb ramp at each corner serves two crosswalks. Pedestrian warning signs are provided for the Telegraph Avenue crossings. Intersection lighting is provided at each corner of the intersection.

The unsignalized Telegraph Avenue/22nd Street intersection provides a high visibility crosswalk crossing Telegraph Avenue on the south side of the intersection and standard crosswalks crossing 22nd Street. There is no crosswalk on the north side of the intersection. Directional curb ramps at each corner serve each crosswalk. Pedestrian warning signs are provided for the Telegraph Avenue crossing. Intersection lighting is missing at the southwest corner of the intersection.

e. Existing Parking

The existing on-street and off-street parking supply and occupancy within the project study area at the time of the NOP are described below.

(1) On-Street Parking

Most streets in the project vicinity provide on-street parking on both sides of the street. Figure V.C-5 shows the boundary for the parking supply within walking distance (about ¼-mile) of the project site. About 1,320 on-street parking spaces are provided in the study area, which can be classified into the following categories:

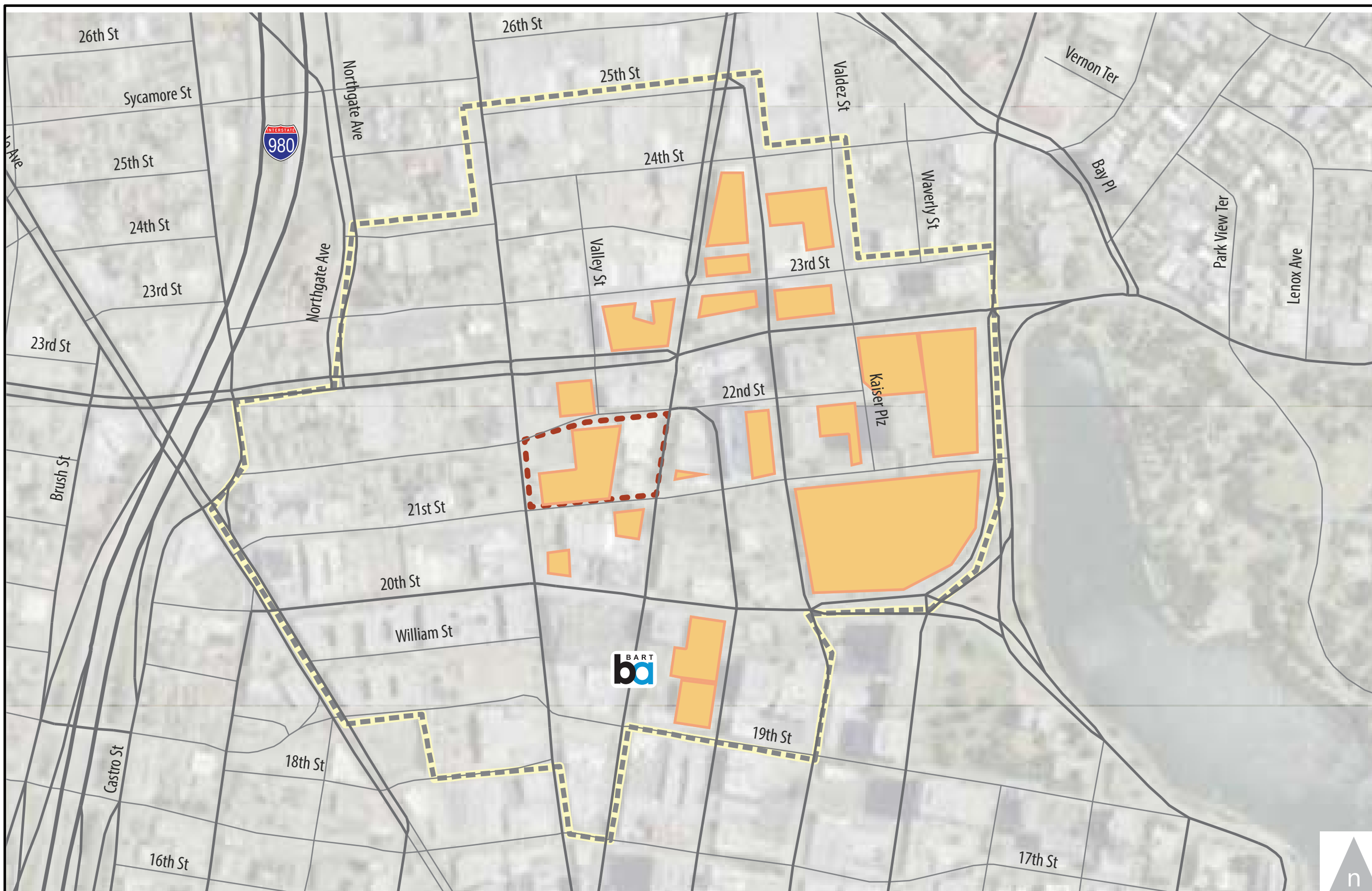
- Metered Parking is generally provided along downtown streets and in non-residential areas. The metered spaces generally have a two-hour time limit. There are about 810 metered parking spaces in the study area. Metered parking currently costs $2.00 per hour (Monday through Saturday, 8:00 a.m. to 6:00 p.m.).
- Unregulated Parking is parking that is free year-round, has no time limits, and is generally located in residential areas. There are about 300 unregulated parking spaces in the study area.
- Other Parking includes free time-limited parking (68 spaces), short-term parking (5 spaces), and ADA parking (13 spaces) in the study area.

In addition, there are also loading zones and red curb throughout the study area.

On-street parking occupancy for weekday midday and weekday evening periods is based on observations in February 2017. Overall, about 89 percent of the on-street parking spaces are occupied during the weekday midday and 91 percent of the parking spaces are occupied in the weekday evening.

(2) Off-Street Parking

There are a number of off-street parking lots and garages in the study area where parking is available for a fee. Figure V.C-5 shows the off-street parking supply within walking distance (about ¼-mile) of the project site. About 3,130 off-street parking spaces are provided in the study area, and about 91 percent of them are occupied during the weekday midday period while 45 percent are occupied during the weekday evening period. The off-street parking excludes parking that is reserved for specific users such as residential parking spaces assigned to a specific tenant.



Parking Inventory	Supply	Demand	
		Weekday Midday	Weekday Evening
Short-Term	5	5 / 100%	5 / 100%
ADA	13	10 / 77%	4 / 31%
Metered	934	810 / 87%	881 / 94%
Time Limited	68	59 / 87%	54 / 79%
Unregulated	297	291 / 98%	256 / 86%
Total On-Street Parking Supply*	**1,317**	**1,175/89%**	**1,200 / 91%**
Total Off-Street Pay (Public, Private) Parking	**3,130**	**2,854 / 91%**	**1,411 / 45%**

* Loading zones not included

LEGEND

Off-Street Parking Facilities

Project Site

1/4-Mile from Project Site

Source: Fehr & Peers, 2017

Figure V.C-5
On- and Off-Street Parking Characteristics

f. Existing Traffic Conditions

Traffic conditions at the time of the NOP in the project vicinity are described below.

(1) Traffic Volumes

Intersection automobile and bicycle turning movement counts, as well as pedestrian counts, were collected at the study intersections on weekdays in May and September 2016. The count data were collected on clear days, while area schools were in normal session. The traffic data collection was conducted during the morning (7:00 a.m. to 9:00 a.m.) and evening (4:00 p.m. to 6:00 p.m.). Appendix C.1 presents the traffic counts at the study intersections. These time periods were selected because trips generated by the project, in combination with background traffic, are expected to represent typical worst traffic conditions at these times. Within the peak periods, the peak hours (i.e., the hour with the highest traffic volumes observed in the study area) are from 8:00 a.m. to 9:00 a.m. (AM peak hour) and from 4:45 p.m. to 5:45 p.m. (PM peak hour).

Field reconnaissance was performed at each intersection to identify intersection lane configurations and signal operations data. Intersection operations were also observed at the study intersections. In addition, the City of Oakland provided signal timing data for the signalized study intersections.

Appendix C.1 presents the existing AM and PM peak hour traffic volumes, intersection lane configurations and traffic control devices at the study intersections. Appendix C.1 presents the existing pedestrian and bicycle volumes for all study intersections. Intersection operations, delay and level of service at these intersections are evaluated as part of the non-CEQA documentation, in Appendix C.2

(2) CMP and MTS Roadway Segments

The Alameda County Transportation Commission (Alameda CTC) conducts periodic monitoring of the major roadways on the Congestion Management Program (CMP) roadway network and the Metropolitan Transportation System (MTS) in Alameda County. The most recent Level of Service Monitoring on the Congestion Management Program roadway network was released by Alameda CTC in November 2016. The Alameda CTC monitoring report assesses existing freeway operations through commercial speed data or "floating car" travel time surveys, which are conducted on all freeway segments during the evening peak hours (4:00 p.m. to 6:00 p.m.). Based on the results of these surveys, Alameda CTC assigns a level of service grade to each segment according to the method described in the 1985 HCM with the exception that Tier 2 arterial segments are reported using HCM 2000. Any freeway segment with an average speed less than 30 mph is assigned level of service (LOS) F. Freeway ramps and special freeway segments with speeds below 50 percent of free flow speed are assigned LOS F. The travel time surveys concluded that 40 freeway segments, five freeway ramps and special freeway segments, and 16 arterial segments within Alameda County operate at LOS F during the PM peak hours, including the following 14 freeway segments and six freeway ramp and special freeway segments in the project vicinity:

<u>Freeway Segments</u>

- I-80 eastbound: Toll Plaza to I-580 (grandfathered segment)[2]
- I-580 eastbound: I-80 to I-980 (grandfathered segment)
- I-580 eastbound: I-980 to Harrison Street
- I-580 eastbound: Harrison Street to Lakeshore Avenue
- I-580 eastbound: Coolidge Avenue to SR 13
- I-580 westbound: SR 24 to I-80/580 Split (grandfathered segment)
- I-880 northbound: between I-80 Ramps
- I-880 southbound: between I-80 merge to Junction 980
- I-880 southbound: between I-980 to 23rd Avenue
- SR 13 northbound: Moraga Avenue to Hiller Drive
- SR 13 southbound: Redwood Road to I-580
- SR 24 eastbound: I-580 to Broadway/SR 13 (grandfathered segment)
- SR 24 eastbound: Broadway/SR 13 to Caldecott Tunnel (grandfathered segment)
- SR 24 eastbound: Caldecott Tunnel to Fish Ranch Road (grandfathered segment)

<u>Freeway Ramps</u>

- I-80/I-580 Interchange: I-580 westbound to I-80 northbound
- I-580/SR 24 Interchange: I-580 westbound to SR 24 eastbound
- I-580/SR 24 Interchange: SR 24 westbound to I-580 eastbound
- SR 13/SR 24 Interchange: SR 13 northbound to SR 24 eastbound (grandfathered segment)
- I-880/SR 260 Connection: SR 260 eastbound to I-880 northbound
- I-880 Northbound Off-Ramp to 5th Street/Broadway intersection

In addition, the travel time surveys concluded that 28 freeway segments, three freeway ramps and special freeway segments, and six arterial segments within Alameda County operate at LOS F during the AM peak hours, including the following eight freeway segments and one freeway ramp and special freeway segments in the project vicinity:

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[2] Grandfathered segments operated at level of service (LOS) F during the initial data collection effort in 1991 by the Alameda County Congestion Management Agency, a predecessor to Alameda CTC, and are therefore "grandfathered," meaning that they are exempt from level of service standards. The other segments are not exempt meaning that they operate at unacceptable conditions based on Alameda CTC standards. Alameda CTC requires preparation of a deficiency plan for non-grandfathered segments that fail to meet the established standards.

Freeway Segments

- I-80 westbound: I-580 to Toll Plaza
- I-80 westbound: Toll Plaza to San Francisco County
- I-580 westbound: Foothill Boulevard to MacArthur Boulevard/SR 13
- I-580 westbound: SR 13 to Fruitvale Avenue
- I-580 westbound: SR 24 to I-880/580
- I-880 northbound: SR 112 to Hegenberger Road
- I-880 northbound: Hegenberger Road to High Street/42nd Avenue
- I-880 northbound: High Street/42nd Avenue to 23rd Avenue

Freeway Ramps

- I-880/SR 260 Connection: SR 260 eastbound to I-880 northbound

Based on the level of service Monitoring Report, all non-freeway CMP and MTS roadway segments in the project vicinity operate at LOS E or better during both AM and PM peak hours.

g. Planned Transportation Network Changes

Changes are planned for the various transportation modes in the project vicinity, as described below. Planned changes include improvement projects planned by the City of Oakland or AC Transit. These are changes that are not related to the project and would be implemented regardless of the project. Changes that have full approval and funding are assumed in the analysis of future conditions in this EIR. Changes lacking final design, full approval, and/or full funding are not considered reasonably foreseeable, and therefore are not be assumed in the analysis of future conditions. Planned changes by travel mode are summarized below:

(1) Planned Transit Changes

AC Transit is constructing the East Bay Bus Rapid Transit (BRT) Project between the Uptown Transit Center and the San Leandro BART Station. BRT Station platforms will allow level boarding and pre-payment so loading and unloading passengers is more efficient, and buses will arrive every 7 minutes during the day time. BRT will operate in dedicated lanes along most of the corridor, although along Broadway the buses would operate in lanes shared with other motor vehicles.

(2) Planned Bicycle/Pedestrian Changes

The City of Oakland Bicycle Master Plan Update proposes the following improvements to the bicycle facilities in the project vicinity. The City is beginning an update to the Bicycle Master Plan, and these facilities may be modified through the update process.

- Telegraph Avenue. The City of Oakland received funding to construct the permanent bikeway design on Telegraph Avenue between 20th and 29th Streets. This project would essentially replace today's interim condition, which uses paint and plastic, to a permanent condition with raised features such as bus boarding islands. This project is assumed in the EIR analysis.
- 20th Street. Class 2 Bicycle Lanes between Harrison Street and Broadway, Class 3A between Broadway and Telegraph Avenue (through the Uptown Transit Center), and Class 2 Bicycle Lanes west of Telegraph Avenue. This project is assumed in the EIR analysis.
- Harrison Street. Class 2 Bicycle Lanes between 20th Street and 27th Street. This project is assumed in the EIR analysis.
- 27th Street. Class 4 Protected Bicycle Lanes between Grand Avenue and Broadway and Class 2 Bicycle Lane west of Broadway. This project will not be assumed in the EIR analysis because it is not funded.
- Martin Luther King Jr. Way. Class 2 Bicycle Lanes between 2nd and 20th Streets. This project is assumed in the EIR analysis because it will be completed as part of street resurfacing projects and include a road diet from 4 to 2 lanes to accommodate the bicycle lanes.
- Clay Street. Class 2 Bicycle Lanes between 8th and 20th Streets. This project is assumed in the EIR analysis because it will be completed as part of street resurfacing projects.
- Franklin Street. Class 2 Bicycle Lanes between 8th Street and Broadway at 22nd Street in the northbound direction with the potential for a southbound lane as well. This project is assumed in the EIR analysis because it will be completed as part of street resurfacing projects.
- Webster Street. Class 2 Bicycle Lanes between 8th and 20th Streets in the northbound direction. This project is assumed in the EIR analysis because it will be completed as part of street resurfacing projects.

2. Regulatory Framework

The Oakland General Plan comprises numerous elements, and those containing policies relevant to transportation resources primarily are contained in the Land Use and Transportation Element (LUTE). The goals and policies contained in the various General Plan Elements are often competing. In reviewing a project for conformity with the General Plan, the City is required to 'balance' the competing goals and policies. This project is reviewed for compliance with the following local plans and policies which were in effect at the time of the NOP:

- General Plan LUTE.

- City of Oakland Pedestrian Master Plan (incorporated into the City's General Plan).
- City of Oakland Bicycle Master Plan (incorporated into the City's General Plan).
- City of Oakland Public Transit and Alternative Modes Policy.
- City of Oakland Complete Streets Policy.
- City of Oakland Standard Conditions of Approval and Uniformly Applied Development Standards.
- September 21, 2016, City of Oakland Planning Commission, update to Oakland's California Environmental Quality Act (CEQA) Thresholds of Significance Guidelines aligning with Senate Bill 743.[3]

a. General Plan

The General Plan is a comprehensive plan for the growth and development of the City. The General Plan includes policies related to: land use and circulation; housing; recreation; conservation and open space; noise; environmental hazards; and historic resources. These topics are addressed within individual elements of the General Plan: Land Use and Transportation; Pedestrian Master Plan; Bicycle Master Plan; Housing; Historic Preservation; Open Space; Conservation; Recreation; Noise; and Safety. Each is addressed separately below.

Regarding a project's consistency with the General Plan in the context of CEQA, the General Plan states the following:

> The General Plan contains many policies which may in some cases address different goals, policies and objectives and thus some policies may compete with each other. The Planning Commission and City Council, in deciding whether to approve a proposed project, must decide whether, on balance, the project is consistent (i.e., in general harmony) with the General Plan. The fact that a specific project does not meet all General Plan goals, policies and objectives does not inherently result in a significant effect on the environment within the context of the California Environmental Quality Act (CEQA).[4]

[3] Steinberg. 2013. Available online at http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140SB743, accessed on March 10, 2017.

[4] City Council Resolution No. 79312 C.M.S.; adopted June 2005.

(1) Land Use and Transportation Element

The City of Oakland, through various policy documents, states a strong preference for encouraging use of pedestrian, bicycle, and transit travel modes. The following policies are included in the LUTE:

LUTE Policy Framework, Encouraging Alternative Means of Transportation: "A key challenge for Oakland is to encourage commuters to carpool or use alternative modes of transportation, including bicycling or walking. The Policy Framework proposes that congestion be lessened by promoting alternative means of transportation, such as transit, biking, and walking, providing facilities that support alternative modes, and implementing street improvements. The City will continue to work closely with local and regional transit providers to increase accessibility to transit and improve intermodal transportation connections and facilities. Additionally, policies support the introduction of light rail and trolley buses along appropriate arterials in heavily traveled corridors, and expanded use of ferries in the bay and estuary."

Policy T3.5, Including Bikeways and Pedestrian Walks: The City should include bikeways and pedestrian walks in the planning of new, reconstructed, or realized streets, wherever possible.

Policy T3.6, Encouraging Transit: The City should encourage and promote use of public transit in Oakland by expediting the movement of and access to transit vehicles on designated "transit streets" as shown on the Transportation Plan. (Policies T3.6 and T3.7 are based on the City Council's passage of "Transit First" policy in October 1996.)

Policy T3.7, Resolving Transportation Conflicts: The City, in constructing and maintaining its transportation infrastructure, should resolve any conflicts between public transit and single occupant vehicles in favor of the transportation mode that has the potential to provide the greatest mobility and access for people, rather than vehicles, giving due consideration to the environmental, public safety, economic development, health and social equity impacts.

Policy T4.1, Incorporating Design Features for Alternative Travel: The City will require new development, rebuilding, or retrofit to incorporate design features in their projects that encourage use of alternative modes of transportation such as transit, bicycling, and walking.

(2) Pedestrian Master Plan

In November 2002, the PMP was adopted by the City Council and incorporated into the adopted General Plan. The PMP identifies policies and implementation measures that promote a walkable City. In the study area, the PMP designates the Downtown with either Primary or Secondary corridors. The plan is currently being updated with an expected release date in 2017.

Policy 1.1, Crossing Safety: Improve pedestrian crossings in areas of high pedestrian activity where safety is an issue.

Action 1.1.1: Consider the full range of design elements – including bulbouts and refuge islands – to improve pedestrian safety.

Policy 1.2, Traffic Signals: Use traffic signals and their associated features to improve pedestrian safety at dangerous intersections.

Action 1.2.7: Consider using crossing enhancement technologies like countdown pedestrian signals at the highest pedestrian volume locations.

Policy 1.3, Sidewalk Safety: Strive to maintain a complete sidewalk network free of broken or missing sidewalks or curb ramps.

Action 1.3.7: Conduct a survey of all street intersections to identify corners with missing, damaged, or non-compliant curb ramps and create a plan for completing their installation.

Policy 2.1, Route Network: Create and maintain a pedestrian route network that provides direct connections between activity centers.

Action 2.1.8: To the maximum extent possible, make walkway accessible to people with physical disabilities.

Policy 2.3, Safe Routes to Transit: Implement pedestrian improvements along major AC Transit lines and at BART stations to strengthen connections to transit.

Action 2.3.1: Develop and implement street designs (like bus bulbouts) that improve pedestrian/bus connections.

Action 2.3.3: Prioritize the implementation of street furniture (including bus shelters) at the most heavily used transit stops.

Action 2.3.4: Improve pedestrian wayfinding by providing local area maps and directional signage at major AC Transit stops and BART stations.

Policy 3.2, Land Use: Promote land uses and site designs that make walking convenient and enjoyable.

Action 3.2.1: Use building and zoning codes to encourage a mix of uses, connect entrances and exits to sidewalks, and eliminate "blank walls" to promote street level activity.

Action 3.2.2: Promote parking and development policies that encourage multiple destinations within an area to be connected by pedestrian trips.

Action 3.2.4: Require contractors to provide safe, convenient, and accessible pedestrian rights-of-way along construction sites that require sidewalk closure.

Action 3.2.8: Discourage motor vehicle parking facilities that create blank walls, unscreened edges along sidewalks, and/or gaps between sidewalks and building entrances.

(3) Bicycle Master Plan

The Oakland City Council adopted the Oakland Bicycle Master Plan Update in December 2007 and incorporated the plan into the adopted General Plan. The adopted plan includes the following policy-supporting actions that are applicable to the project which may be updated by the in the new plan, expected to be released in 2017:

Policy 1A, Bikeway Network: Develop and improve Oakland's bikeway network.

Action 1A.1, Bicycle Lanes (Class 2): Install bicycle lanes where feasible as the preferred bikeway type for all streets on the proposed bikeway network (except for the bicycle boulevards proposed for local streets with low traffic volumes and speeds).

Action 1A.3, Bicycle Boulevards (Class 3B): Enhance bicycle routes on local streets by developing bicycle boulevards with signage, striping, and intersection modifications to prioritize bicycle travel.

Action 1A.6, Dedicated Right Turn Lanes and "Slip Turns": Where feasible, avoid the use of dedicated right turn lanes on streets included in the bikeway network. Where infeasible, consider a bicycle through lane to the left of the turn lane or a combined bicycle lane/right turn lane.

Policy 1B, Routine Accommodation: Address bicycle safety and access in the design and maintenance of all streets.

Action 1B.2, Traffic Signals: Include bicycle-sensitive detectors, bicycle detector pavement markings, and adequate yellow time for cyclists with all new traffic signals and in the modernization of all existing signals.

Policy 1C, Safe Routes to Transit: Improve bicycle access to transit, bicycle parking at transit facilities, and bicycle access on transit vehicles.

Action 1C.1, Bikeways to Transit Stations: Prioritize bicycle access to major transit facilities from four directions, integrating bicycle access into the station design and connecting the station to the surrounding neighborhoods.

Policy 1D, Parking and Support Facilities: Promote secure and conveniently located bicycle parking at destinations throughout Oakland.

Action 1D.6, Bicycle Parking Ordinance: Adopt an ordinance as part of the City's Planning Code that would require new development to include short and long-term bicycle parking.

Action 1D.7, Development Incentives: Consider reduced automobile parking requirements in exchange for bicycle facilities as part of transportation demand management strategies in new development.

b. City of Oakland Public Transit and Alternative Modes Policy

The City of Oakland adopted the Public Transit and Alternative Modes Policy, also known as the "Transit-First Policy," in October 2006 (City Council Resolution 73036 C.M.S.). This resolution supports public transit and other alternatives to single occupant vehicles, and directs the LUTE to incorporate "various methods of expediting transit services on designated streets, and encouraging greater transit use." The resolution also directs the City, in constructing and maintaining its transportation infrastructure, to resolve any conflicts between public transit and single occupant vehicles on City streets in favor of the transportation mode that provides the greatest mobility for people rather than vehicles giving due consideration to the environment, public safety, economic development, health, and social equity impacts.

c. City of Oakland Complete Street Policy

The City of Oakland adopted the Complete Street Policy to Further Ensure that Oakland Streets Provide Safe and Convenient Travel Options for all Users in January 2013 (City Council Resolution 84204 C.M.S.). This resolution, consistent with the California Complete Streets Act of 2008, directs the City of Oakland to plan, design, construct, operate, and maintain the street network in the City to accommodate safe, convenient, comfortable travel for all modes, including pedestrians, bicyclists, transit users, motorists, trucks, and emergency vehicles.

d. Standard Conditions of Approval

The City's SCAs that directly pertain to transportation and circulation and that apply to the proposed project are listed below. If the proposed project is adopted by the City, all applicable SCAs will be adopted as conditions of approval and required, as applicable, of the proposed project to help ensure no significant impacts. Because the conditions of approval are incorporated as part of the proposed project, they are not listed as mitigation measures. SCA-UTL-2: Construction Management Plan (#13) also addresses construction impacts related to traffic control and is listed in *Section V.K: Public Services, Utilities, and Recreation*.

SCA-TRANS-1: Construction Activity in the Public Right-of-Way (#68). *Prior to issuance of a demolition, grading, or building permit.*

a. Obstruction Permit Required
Requirement: The project applicant shall obtain an obstruction permit from the City prior to placing any temporary construction-related obstruction in the public right-of-way, including City streets and sidewalks.

b. Traffic Control Plan Required

Requirement: In the event of obstructions to vehicle or bicycle travel lanes, the project applicant shall submit a Traffic Control Plan to the City for review and approval prior to obtaining an obstruction permit. The project applicant shall submit evidence of City approval of the Traffic Control Plan with the application for an obstruction permit. The Traffic Control Plan shall contain a set of comprehensive traffic control measures for auto, transit, bicycle, and pedestrian detours, including detour signs if required, lane closure procedures, signs, cones for drivers, and designated construction access routes. The project applicant shall implement the approved Plan during construction.

c. Repair of City Streets
Requirement: The project applicant shall repair any damage to the public right-of way, including streets and sidewalks caused by project construction at his/her expense within one week of the occurrence of the damage (or excessive wear), unless further damage/excessive wear may continue; in such case, repair shall occur prior to approval of the final inspection of the construction-related permit. All damage that is a threat to public health or safety shall be repaired immediately.

SCA-TRANS-2: Bicycle Parking (#69). *Prior to issuance of a demolition, grading, or building permit.*
Requirement: The project applicant shall comply with the City of Oakland Bicycle Parking Requirements (chapter 17.118 of the Oakland Planning Code). The project drawings submitted for construction-related permits shall demonstrate compliance with the requirements.

SCA-TRANS-3: Transportation Improvements (#70). *Prior to issuance of a demolition, grading, or building permit.*
Requirement: The project applicant shall implement the recommended on- and off-site transportation-related improvements contained within the Transportation Impact Study for the project (e.g., signal timing adjustments, restriping, signalization, traffic control devices, roadway reconfigurations, and pedestrian and bicyclist amenities). The project applicant is responsible for funding and installing the improvements, and shall obtain all necessary permits and approvals from the City and/or other applicable regulatory agencies such as, but not limited to, Caltrans (for improvements related to Caltrans facilities) and the California Public Utilities Commission (for improvements related to railroad crossings), prior to installing the improvements. To implement this measure for intersection modifications, the project applicant shall submit Plans, Specifications, and Estimates (PS&E) to the City for review and approval. All elements shall be designed to applicable City standards in effect at the time of construction and all new or upgraded signals shall include these enhancements as required by the City. All other facilities supporting vehicle travel and alternative modes through the intersection shall be brought up to both City standards and ADA standards (according to Federal and State Access Board guidelines) at the time of construction. Current City Standards call for, among other items, the elements listed below:

a. 2070L Type Controller with cabinet accessory
b. GPS communication (clock)
c. Accessible pedestrian crosswalks according to Federal and State Access Board guideline with signals (audible and tactile)
d. Countdown pedestrian head module switch out
e. City Standard ADA wheelchair ramps
f. Video detection on existing (or new, if required)
g. Mast arm poles, full activation (where applicable)
h. Polara Push buttons (full activation)
i. Bicycle detection (full activation)
j. Pull boxes
k. Signal interconnect and communication with trenching (where applicable), or through existing conduit (where applicable), 600 feet maximum
l. Conduit replacement contingency
m. Fiber switch
n. PTZ camera (where applicable)
o. Transit Signal Priority (TSP) equipment consistent with other signals along corridor
p. Signal timing plans for the signals in the coordination group

SCA-TRANS-4: Transportation and Parking Demand Management (#71). *Prior to issuance of a final inspection of the building permit.*
The project applicant shall submit a Transportation and Parking Demand Management (TDM) plan for review and approval by the City.

i. The goals of the TDM Plan shall be the following:
   - Reduce vehicle traffic and parking demand generated by the project to the maximum extent practicable, consistent with the potential traffic and parking impacts of the project.
   - Achieve the following project vehicle trip reductions (VTR):
     - o Projects generating 50 to 99 net new AM or PM peak hour vehicle trips: 10% VTR
     - o Projects generating 100 or more net new AM or PM peak hour vehicle trips: 20% VTR
   - Increase pedestrian, bicycle, transit, and carpool use, and reduce parking demand. All four modes of travel shall be considered, as appropriate.
   - Enhance the City's transportation system, consistent with City policies and programs

ii. TDM strategies to consider include, but are not limited to, the following:
   - Inclusion of additional long term and short term bicycle parking that meets the design standards set forth in chapter five of the Bicycle Master Plan, and Bicycle Parking Ordinance (chapter 17.117 of the Oakland Planning Code), and shower and locker facilities in commercial developments that exceed the requirement.

- Construction of and/or access to bikeways per the Bicycle Master Plan; construction of priority Bikeway Projects, on-site signage and bike lane striping.
- Installation of safety elements per the Pedestrian Master Plan (such as cross walk striping, curb ramps, count-down signals, bulb outs, etc.) to encourage convenient and safe crossing at arterials, in addition to safety elements required to address safety impacts of the project.
- Installation of amenities such as lighting, street trees, trash receptacles per the Pedestrian Master Plan and any applicable streetscape plan.
- Construction and development of transit stops/shelters, pedestrian access, way finding signage, and lighting around transit stops per transit agency plans or negotiated improvements.
- Direct on-site sales of transit passes purchased and sold at a bulk group rate (through programs such as AC Transit Easy Pass or a similar program through another transit agency).
- Provision of a transit subsidy to employees or residents, determined by the project sponsor and subject to review by the City, if the employees or residents use transit or commute by other alternative modes.
- Provision of an ongoing contribution to AC Transit service to the area between the development and nearest mass transit station prioritized as follows: 1) Contribution to AC Transit bus service; 2) Contribution to an existing area shuttle or streetcar service; and 3) Establishment of new shuttle or streetcar service. The amount of contribution (for any of the above scenarios) would be based upon the cost of establishing new shuttle service (Scenario3).
- Guaranteed ride home program for employees, either through 511.org or through separate program.
- Pre-tax commuter benefits (commuter checks) for employees.
- Free designated parking spaces for on-site car-sharing program (such as City Car Share, Zip Car, etc.) and/or car-share membership for employees or tenants.
- Onsite carpooling and/or vanpooling program that includes preferential (discounted or free) parking for carpools and vanpools.
- Distribution of information concerning alternative transportation options.
- Parking spaces sold/leased separately for residential units. Charge employees for parking, or provide a cash incentive or transit pass alternative to a free parking space in commercial properties.
- Parking management strategies; including attendant/valet parking and shared parking spaces.
- Requiring tenants to provide opportunities and the ability to work off-site.
- Allow employees or residents to adjust their work schedule in order to complete the basic work requirement of five eight-hour workdays by adjusting

their schedule to reduce vehicle trips to the worksite (e.g., working four, ten-hour days; allowing employees to work from home two days per week).

- Provide or require tenants to provide employees with staggered work hours involving a shift in the set work hours of all employees at the workplace or flexible work hours involving individually determined work hours.

The TDM Plan shall indicate the estimated VTR for each strategy proposed based on published research or guidelines. For TDM Plans containing ongoing operational VTR strategies, the Plan shall include an ongoing monitoring and enforcement program to ensure the Plan is implemented on an ongoing basis during project operation. If an annual compliance report is required, as explained below, the TDM Plan shall also specify the topics to be addressed in the annual report.

The project applicant shall implement the approved TDM Plan on an ongoing basis. For projects that generate 100 or more net new a.m. or p.m. peak hour vehicle trips and contain ongoing operational VTR strategies, the project applicant shall submit an annual compliance report for the first five years following completion of the project (or completion of each phase for phased projects) for review and approval by the City. The annual report shall document the status and effectiveness of the TDM program, including the actual VTR. If deemed necessary, the City may elect to have a peer review consultant, paid for by the project applicant, review the annual report. If timely reports are not submitted and/or the annual reports indicate that the project applicant has failed to implement the TDM Plan, the project will be considered in violation of the Conditions of Approval and the City may initiate enforcement action as provided for in these Conditions of Approval. The project shall not be considered in violation of this Condition if the TDM Plan is implemented but the VTR goal is not achieved.

e. CEQA Thresholds of Significance Guidelines

On September 21, 2016, the City of Oakland's Planning Commission directed staff to update the City of Oakland's CEQA Thresholds of Significance Guidelines related to transportation impacts in order to implement the directive from Senate Bill 743[5] to modify local environmental review processes by removing automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion, as a significant impact on the environment pursuant to CEQA. The Planning Commission direction aligns with draft proposed guidance from the Governor's Office of Planning and Research and the City's approach to transportation impact analysis with adopted plans and polices related to transportation, which promote the reduction of greenhouse gas

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[5] Steinberg. 2013. Available online at http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140SB743, accessed on March 10, 2017.

(GHG) emissions, the development of multimodal transportation networks, and a diversity of land uses.

3. Project Transportation Characteristics

This section discusses various characteristics of the existing and proposed project site that affect transportation and circulation. *Chapter III, Project Description*, and Appendix C.1, Traffic and Transportation Analysis, provide more detail.

a. Existing Characteristics

Various aspects of the existing site are described below:

(1) Buildings

The project site currently encompasses four buildings and a two-story public parking structure. A vacant fast-food restaurant (most recently occupied by Space Burger) and the parking garage front Telegraph Avenue. The three buildings fronting Broadway include: 2101 Broadway (currently vacant), 2127 Broadway (Bank of the West), and 2135/47 Broadway (mix of tenants).

(2) Parking Garage

The project site contains a two-story public parking garage with 339 parking spaces including 336 regular spaces and three accessible parking spaces. The parking structure is generally open Monday through Friday from 6:00 a.m. to 7:00 p.m. and Saturdays from 8:00 a.m. to 6:00 p.m., with special hours during downtown events and major activities. General parking pricing is one dollar per 20 minutes with a $12 maximum.

b. Proposed Project

Various aspects of the proposed project are described below:

(1) Project Description

To allow flexibility for development to be responsive to market demands and opportunities, the transportation chapter of this EIR studies the maximum development envelope which includes up to 2,689,000 square feet of office with 87,000 square feet of retail and 1,750 parking spaces. The Residential/Office Mix Scenario is an office and residential mix with up to 880,550 square feet of large-floor-plate office, 395 residential units, 85,000 square feet of retail, 18,500 square feet of community space and 1,750 parking spaces. The All Office Scenario includes 1,450,000 square feet of office, as well as 80,000 square feet of retail, 22,790 square feet of community space[6], and 2,050 parking spaces. The Maximum Residential Scenario under consideration includes 1,556 residential units, 99,220 square feet of retail space, 37,150 square feet of community space, and 1,750 parking spaces.

The Maximum Office Scenario provides 1,750 parking spaces in a parking structure with automobile access via 21st and 22nd Streets, and commercial loading docks accessed via 22nd Street. Ground floor retail wraps the project site with two office tower lobbies on Telegraph Avenue and one lobby each on 21st Street and 22nd Street. Curb management includes meter parking spaces on the street frontages with the potential for loading spaces adjacent to the office lobbies.

As required by SCA-TRANS-4: Transportation and Parking Demand Management (#71), the project would also include implementation of Transportation Demand Management (TDM) strategies to provide further incentives that encourage walking, biking, and transit and reduce private automobile trips and parking demand. The trip generation and parking demand assumptions used in this analysis do not account for the effectiveness of the TDM program in order to present a more conservative analysis.

(2) Automobile Trip Generation

Trip generation is the process of estimating the number of vehicles that would likely access the project. Trip generation data published by the Institute of Transportation Engineers (ITE) in Trip Generation Manual (Ninth Edition) was used as a starting point to estimate the vehicle trip generation. The ITE data is based on data collected at mostly single-use suburban sites where the automobile is often the only travel mode. However, the project site is in a dense mixed-use urban environment where many trips are walk, bike, or transit trips. Since the project is only one to two blocks from the 19th Street BART Station, this analysis reduces the ITE based trip generation by 43 percent to account for the non-automobile trips. This reduction is consistent with City of Oakland Transportation Impact Study Guidelines and is based on the Bay Area Travel Survey (BATS) 2000 which shows that the non-automobile mode share within ½-mile of a BART Station in Alameda County is about 43 percent. A 2011 research study shows reducing ITE-based trip

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[6] Note at the time trip generation estimates were calculated for the All Office Scenario, community space was not included; however, trip generation is not associated with this type of use because it is unclear how often it would be used and for what types of activities. Therefore, shifting 22,790 square feet of office space to community space would only reduce trip generation.

generation using BATS data results in a more accurate estimation of trip generation for urban mixed-use developments than just using ITE-based trip generation.[7]

Pass-by trips are trips attracted to a site from adjacent roadways as an intermediate stop on the way to a final destination. Pass-by trips alter travel patterns in the immediate study area, but do not add new vehicle trips to the roadway network, and should therefore be excluded from trip generation estimates. According to ITE's Trip Generation Handbook (3rd Edition), the average weekday PM peak hour pass-by reduction is 34 percent for retail uses. No pass-by reductions were applied to the AM peak hour and it was assumed that on a daily basis there would be a 17 percent reduction. The same rates were applied to existing retail and bank uses at the site and the retail component of the proposed project.

A similar process described for the project trip generation was implemented for trip generation from the existing buildings. The trip generation for Space Burger was estimated with driveway counts collected in April, 2014. No discounts were applied to the Space Burger trip generation. The building at 2127 Broadway was estimated as a walk-in bank with an adjustment of 50 percent to reflect field observations showing very low demand for the bank. The 2101 Broadway building was excluded from the existing trip generation as the building was vacant at the time data was collected. The community space for each alternative was considered to generate no vehicle traffic as use would be oriented toward the site and adjacent neighbors.

Table V.C-8 summarizes automobile trip generation of the existing buildings. The existing buildings generate about 840 daily trips and 13 AM peak hour and 69 PM peak hour trips. These trips are deducted from the project trip generation to estimate the net change in automobile trips resulting from the project.

Table V.C-9 summarizes trip generation for the Maximum Office Scenario. The Maximum Office Scenario is estimated to generate about 11,230 net new daily trips and 1,590 AM peak hour and 1,900 PM peak hour trips.

Table V.C-10 summarizes the net new trips generated by various travel modes of the Maximum Office Scenario.

(1) Automobile Trip Distribution

The trip distribution and assignment process is used to estimate how the vehicle trips generated by a project site would be distributed across the roadway network. Based on

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[7] Institute of Transportation Studies, UC Davis, 2011. *Evaluation of the Operation and Accuracy of Five Available Smart Growth Trip Generation Methodologies.*

TABLE V.C-8 AUTOMOBILE TRIP GENERATION – EXISTING USES

			AM Peak Hour			PM Peak Hour		
Land Use, ITE Code	**Units[a]**	**Daily**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Space Burger[b]	4.3 ksf	180	0	0	0	5	7	12
Retail[c]	24.0 ksf	1,020	14	9	23	43	46	89
Walk-in Bank[d]	10.2 ksf	380	0	0	0	27	35	62
Non-Auto Reduction (43%)[e]		-600	-6	-4	-10	-30	-35	-65
Pass-by-Reduction[f]		-140	0	0	0	-15	-14	-29
Total Trips		**840**	**8**	**5**	**13**	**30**	**39**	**69**

[a] DU = Dwelling Units, KSF = 1,000 square feet.
[b] Driveway counts collected on April 24, 2014.
[c] ITE Trip Generation (9th Edition) land use category 820 (Shopping Center – Adj. Streets, 7-9 AM, 4-6 PM):
Daily: T = 42.70(X)
AM Peak Hour: T = 0.96(X) (62% in, 38% out)
PM Peak Hour: T = 3.71(X) (48% in, 52% out)
[d] ITE Trip Generation (9th Edition) land use category 911 (Walk-in Bank – Adj. Streets, 4-6 PM) reduced by 50% to account for low observed activity at the site:
Daily: T = 36.98 (X)
PM Peak Hour: T = 6.07 (X) (44% in, 56% out)
[e] The 43% reduction is based on data from the City of Oakland Transportation Impact Study Guidelines for development in an urban environment within 0.5 miles of a BART Station.
[f] PM peak hour pass-by rates based on ITE Trip Generation Handbook (3rd Edition). The weekday PM peak hour average pass-by rates for land use category 820 is 34%. Pass-by rates are not applied to the AM peak hour. Half of the reduction (17%) is applied to the daily trips. Same rates are applied to land use category 911.
Source: Fehr & Peers, 2017.

existing travel patterns, locations of complementary land uses, results of the Alameda CTC Travel Demand Model, and the one-way street network and turn restrictions in Downtown Oakland, Fehr & Peers determined directions of approach to and departure from the project site. Figure V.C-6 shows the resulting trip distribution.

(1) Automobile Trip Assignment

The new automobile trips generated by the project, as shown in Appendix C.1-5 and C.1-6, were assigned to the roadway network according to the trip distribution described in the previous section. The trip assignment accounts for project access via 21st and 22nd Streets. They also show the resulting net peak hour trip assignment at the intersection level. This analysis assumes that most vehicles would use the major streets, such as Broadway, Telegraph Avenue, and West Grand Avenue, to travel to and from the site. Existing parking garage trips were reassigned from Telegraph Avenue to 21st Street.

TABLE V.C-9 AUTOMOBILE TRIP GENERATION – MAXIMUM OFFICE SCENARIO

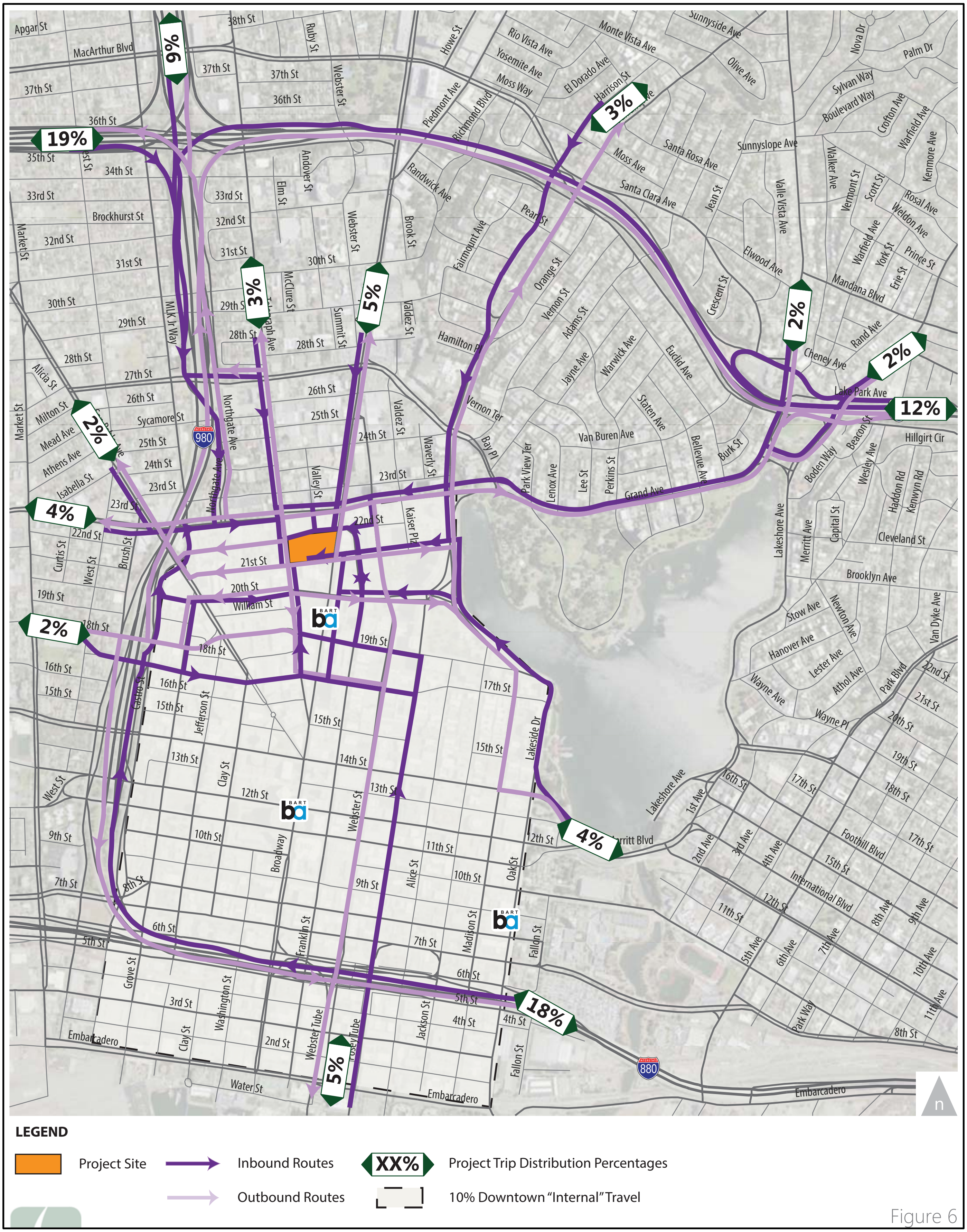
			AM Peak Hour			PM Peak Hour		
Land Use, ITE Code	**Units[a]**	**Daily**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Retail[b]	87.0 ksf	6,210	89	55	144	262	284	546
Office[c]	2,689 ksf	16,030	2,344	320	2,664	525	2,566	3,091
Non-Auto Reduction (43%)[d]		-9,560	-1,046	-161	-1,207	-338	-1,226	-1,564
Pass-by-Reduction[e]		-610	0	0	0	-53	-53	-106
Existing Trip Generation[f]		-840	-8	-5	-13	-30	-39	-69
Total Trips		**11,230**	**1,379**	**209**	**1,588**	**366**	**1,532**	**1,898**

[a] DU = Dwelling Units, KSF = 1,000 square feet.
[b] ITE Trip Generation (9th Edition) land use category 820 (Shopping Center – Adj. Streets, 7-9 AM, 4-6 PM):
Daily: T = 42.70(X)
AM Peak Hour: T = 0.96(X) (62 percent in, 38 percent out)
PM Peak Hour: T = 3.71(X) (48 percent in, 52 percent out)
[c] ITE Trip Generation (9th Edition) land use category 710 (General Office Building – Pk. Hr. of Generator):
Daily: Ln(T) = 0.76 * ln(X) + 3.68
AM Peak Hour: Ln(T) = 0.80 * ln(X) + 1.57 (88 percent in, 12 percent out)
PM Peak Hour: T = 1.12(X) + 78.45 (17 percent in, 83 percent out)
[d] The 43 percent reduction is based on data from the City of Oakland Transportation Impact Study Guidelines for development in an urban environment within ½ miles of a BART Station. Reduction consistent with guidelines at time of the Notice of Preparation.
[e] PM peak hour pass-by rates based on ITE Trip Generation Handbook (3rd Edition). The weekday PM peak hour average pass-by rates for land use category 820 is 34 percent. Pass-by rates are not applied to the AM peak hour. Half of the reduction (17 percent) is applied to the daily trips.
[f] See Table IV.D-8
Source: Fehr & Peers, 2017.

TABLE V.C-10 TRIP GENERATION BY TRAVEL MODE – MAXIMUM OFFICE SCENARIO

Travel Mode	**Mode Share Adjustment Factors[a]**	**Daily**	**Weekday AM Peak Hour**	**Weekday PM Peak Hour**
Automobile	57.0%	11,230	1,588	1,898
BART / AC Transit	30.4%	5,990	847	1,012
Bike	3.9%	770	109	130
Walk	23.0%	4,530	641	766
Total Trips		**22,520**	**3,185**	**3,806**

[a] Based on City of Oakland Transportation Impact Study Guidelines assuming project site is in an urban environment within 0.5 miles of a BART Station.
Source: Fehr & Peers, 2017.



Source: Fehr & Peers, 2017

Figure V.C-6
Project Vehicle Trip Distribution

These intersections were generally selected to identify likely locations where the proposed project may significantly alter travel patterns. In general, intersections were selected if they provide immediate access to the project site or where the proposed project would increase traffic volumes by 100 or more peak-hour vehicle at signalized intersections, or ten or more peak hour vehicles on the controlled approach of unsignalized intersections.

4. Impacts and Mitigation Measures

This section describes environmental impacts related to transportation and circulation that could result from the implementation of the Eastline project. The section begins with the criteria of significance that establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the project and identifies SCAs and/or mitigation measures to address these impacts as needed.

a. Significance Criteria

The project would have a significant impact on the environment if it would conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including, but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit, specifically:

1. Cause substantial additional vehicle miles traveled (VMT) per capita, per service population, or other appropriate efficiency measure. Specifically,
   - For residential projects, a project would cause substantial additional VMT if it exceeds existing regional household VMT per capita minus 15 percent.
   - For office projects, a project would cause substantial additional VMT if it exceeds the existing regional VMT per employee minus 15 percent.
   - For retail projects greater than 80,000 square feet, a project would cause substantial additional VMT if it results a net increase in citywide total VMT per service population.
2. Conflict with a plan, ordinance, or policy addressing the safety or performance of the circulation system, including transit, roadways, bicycle lanes, and pedestrian paths (except for automobile level of service or other measures of vehicle delay)
3. Substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow lanes) or by adding new roadways to the network.

b. Less-Than-Significant Traffic and Transportation Impacts

(1) Vehicle Miles Travel (Criterion 1)

Many factors affect travel behavior, including density of development, diversity of land uses, design of the transportation network, access to regional destinations, distance to high-quality transit, development scale, demographics, and transportation demand management. Typically, low-density development that is located at a great distance from other land uses, in areas with poor access to non-single occupancy vehicle travel modes generate more automobile travel compared to development located in urban areas, where a higher density of development, a mix of land uses, and travel options other than private vehicles are available.

The Governor's Office of Planning and Research established that the VMT metric is the appropriate metric to fully account for the many factors that affect travel behavior and specifically indicated that VMT should be reported on a per capita basis for residential uses and a per worker basis for office uses, and this too aligns with the City's direction established at the September 21, 2016, meeting of the Planning Commission.

VMT Estimate Approach

Estimating VMT requires the use of travel demand models to fully capture the length of trips on the transportation network as well as the changes in VMT behavior that may occur with the introduction of the project. This analysis presents use of two travel demand models to fully analyze the VMT impacts of the project. The VMT analysis for the residential and office components of the project uses the Metropolitan Transportation Commission (MTC) Travel Model while the VMT analysis for the retail component uses the Alameda CTC Countywide Travel Demand Model. The following describes how the two models estimate VMT.

MTC Travel Model

Neighborhoods within Oakland are expressed geographically in transportation analysis zones, or TAZs. The MTC Travel Model includes approximately 120 TAZs within Oakland that vary in size from a few city blocks in the downtown core, to multiple blocks in outer neighborhoods, to even larger geographic areas in lower density areas in the hills. TAZs are used in transportation planning models for transportation analysis and other planning purposes.

The MTC Travel model assigns all predicted trips within, across, to or from the nine-county San Francisco Bay Area region onto the roadway network and the transit system, by mode (single-driver and carpool vehicle, biking, walking, or transit) and transit carrier (bus, rail) for a particular scenario.

The travel behavior from MTC Travel Model is modeled based on the following inputs:

- Socioeconomic data developed by the Association of Bay Area Governments (ABAG).
- Population data created using 2000 US Census and modified using the open source PopSyn software.
- Zonal accessibility measurements for destinations of interest.
- Travel characteristics and automobile ownership rates derived from the 2000 Bay Area Travel Survey.
- Observed vehicle counts and transit boardings.

The daily VMT output from the MTC Travel Model for residential and office uses comes from a tour-based analysis. The tour-based analysis examines the entire chain of trips over the course of a day, not just trips to and from the project site. In this way, all of the VMT for an individual resident or employee is included; not just trips into and out of the person's home or workplace. For example: a resident leaves her apartment in the morning, stops for coffee, and then goes to the office. In the afternoon she heads out to lunch, and then returns to the office, with a stop at the drycleaners on the way. After work she goes to the gym to work out, and then joins some friends at a restaurant for dinner before returning home. The tour-based approach would add up the total amount driven and assign the daily VMT to this resident for the total number of miles driven on the entire "tour."

Based on the MTC Travel Model, the regional average daily VMT per capita is 15.0 under 2020 conditions and 13.8 under 2040 conditions, and the regional average daily VMT per worker is 21.8 under 2020 conditions and 20.3 under 2040 conditions. MTC has calculated these same metrics for every TAZ in the nine-county Bay Area.

Alameda CTC Travel Model

The MTC model does not calculate retail-based VMT, and so the Alameda CTC travel model is used to estimate VMT for the retail component of the project. Similar to the MTC Model, neighborhoods within Oakland are expressed geographically in TAZs. The Alameda CTC Travel Model includes approximately 370 TAZs within Oakland that vary in size. Generally, Oakland TAZs in the Alameda CTC model are smaller than those in the MTC model.

The travel behavior for the Alameda CTC Model is based on the same inputs as described above for the MTC Model but produces outputs differently. As opposed to the MTC's tour-based analysis, The Alameda CTC model is a trip-based analysis. That is to say that it tracks trips to and from TAZs (or project sites) but does not keep track of the entire chain of trips over the course of a day. Thus, the Alameda CTC model does not track VMT for a specific resident or worker over an entire day. The overall regional VMT estimated by the two models are comparable even though the two models use different methodologies to estimate VMT. The benefits of using the Alameda CTC Model compared to the MTC Model include:

- Increased granularity in Alameda County.
- Ease of use and fewer degrees of assumptions that could influence results.
- Consistency with regional planning despite less complexity than MTC Model.
- Ability to track retail trips.

Based on these factors, the Alameda CTC Model was used for the VMT analysis to capture city-level scale VMT impacts for the retail component of the project, while still maintaining consistency with the MTC Model and regional planning.

Project VMT Analysis Screening

This section evaluates impacts of the project on the transportation network under Existing and 2040 conditions. VMT impacts would be less than significant for a project if any of the identified screening criteria are met:

Criteria #1: Small Projects – The project generates fewer than 100 vehicle trips per day.

Criteria #2: Low-VMT Areas – The project meets map-based screening criteria by being located in an area that exhibits below threshold VMT, or 15 percent or more below the regional average.

Criteria #3: Near Transit Stations – The project is located in a Transit Priority Area or within a ½-mile of a Major Transit Corridor or Stop and satisfies the following:

- Has a Floor Area Ratio (FAR) of more than 0.75.
- Does not includes more parking for use by residents, customers, or employees of the project than other typical nearby uses, or more than required by the City (if parking minimums pertain to the site) or allowed without a conditional use permit (if minimums and/or maximums pertain to the site).
- Is consistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Transportation Commission).

Residential and Office VMT Analysis Screening

This section describes the VMT per capita for the residential component of the project and the VMT per worker for the office component of the project.

Criterion 1: The project would generate more than 100 trips per day and therefore does not meet Criterion #1.

Criterion 2: Table V.C-11 describes the 2020 and 2040 VMT for TAZ 970, the TAZ in which the project is located as well as applicable VMT thresholds of 15 percent below the regional average. As shown in Table V.C-11, the 2020 and 2040 average daily VMT per capita and VMT per worker in the project TAZ is more than 15 percent below the regional averages. The proposed project would generate less VMT than 15 percent below the regional averages and its impact would be less than significant for the residential and office portions of the project. The project would satisfy Criterion #2. Accordingly, the project will not have a significant transportation impact with respect to the VMT criteria.

TABLE V.C-11 DAILY VEHICLE MILES TRAVELLED PER CAPITA

	2020		2040		TAZ 970	
Land Use	**Regional Average**	**Regional Average Minus 15%**	**Regional Average**	**Regional Average Minus 15%**	**2020**	**2040**
Residential (VMT per capita)[a]	15.0	12.8	13.8	11.7	3.2	2.5
Office (VMT per worker)[b]	21.8	18.5	20.3	17.3	12.5	10.6

[a] MTC Model results at analytics.mtc.ca.gov/foswiki/Main/PlanBayAreaVmtPerCapita and accessed in November 2016.
[b] MTC Model results at analytics.mtc.ca.gov/foswiki/Main/PlanBayAreaVmtPerWorker and accessed in November 2016.
Source: Fehr & Peers, 2017.

Criterion 3: The project would be located about 0.1 miles from the 19th Street BART Station and within 0.1 miles of frequent bus service along Broadway, Telegraph Avenue, 20th Street, and Grand Avenue. However, the project would not satisfy Criterion #3 because it would only meet two of the following three conditions for this criterion:

- The project has an FAR greater than 0.75. (Satisfied)
- The project includes 1,750-space structured parking spaces. The City of Oakland Municipal Code requires a minimum of zero residential and office parking spaces in the CBD-P zone. The project provides parking in excess of the minimum required by the City Code. (Not Satisfied)
- The project is located within the Downtown Priority Development Area (PDA) as defined by Plan Bay Area, and is therefore consistent with the region's Sustainable Communities Strategy. (Satisfied)

The project would not satisfy Criterion #3 because it would provide on-site parking exceeding the minimum required by the City Code.

Retail VMT Analysis

The project proposes 87,000 square feet of retail uses for the Maximum Office Scenario and 99,220 square feet for the maximum residential development scenario, both of which are considered regional serving retail because it is over 80,000 square feet. A full VMT analysis is required for regional serving retail.

To assess the VMT generated by the retail component of the project, the total accounting method was used to understand the project's retail development influence on overall city-wide travel behavior. As opposed to analyzing only project trips, analyzing project retail VMT impacts requires the context of understanding how the proposed project would interact with the outside world, as adding housing to a jobs-rich area could reduce average vehicle trip length on a per capita basis, while adding jobs to an area with limited residential population could increase average trip length. This is consistent with California Office of Planning and Research (OPR) guidance that recommends that "agencies should analyze the effects of a retail project by assessing the change in total VMT, because retail projects typically re-route travel from other destinations." This analysis was completed using the Alameda CTC travel demand model.

The base 2020 and 2040 year Alameda CTC Models were executed for the project scenarios. Results are shown in Table V.C-12 for the Total Accounting Method[8] (or Origin-Destination Method) for the retail component of the project. The City of Oakland VMT per service population (defined as total number of residents plus workers within the City of Oakland) is approximately 17.9 miles in 2020 and 15.7 miles in 2040 with or without the retail component of the project. While the retail component of the project has a slight overall increase in total VMT, the added retail employees from the project absorb the increased VMT such that there is no change in VMT per service population.

<u>Retail VMT Analysis Conclusions</u>

Projects with regional serving retail would cause substantial additional VMT if it results in a net increase in citywide VMT per service population. As noted in Table V.C-12, the retail component of the project maintains the same citywide VMT per service population of 17.9

[8] The total account method, also known as origin-destination method, tracks all vehicle trips generated by the City of Oakland (including the proposed Project) across the entire regional network. These trips are then multiplied by the distance traveled to determine the total VMT, and this total is then divided by the total residential and employment populations to establish the VMT per service population.

TABLE V.C-12 CITY OF OAKLAND VMT PER SERVICE POPULATION – FULL ACCOUNTING

	2020			2040		
	No Project	Plus Project	Difference	No Project	Plus Project	Difference
Population	449,200	449,200	0	554,600	554,600	0
Employment	241,000	241,200	200	283,000	283,200	200
Service Population	690,200	690,400	200	837,600	837,800	200
VMT[a]	12,348,000	12,365,000	17,000	13,151,000	13,163,000	12,000
VMT/Service Population	17.9	17.9	0.0	15.7	15.7	0.0

[a] Citywide VMT generated by City of Oakland as estimated by the Alameda CTC Model.
Source: Alameda CTC Model and Fehr & Peers, 2016.

for year 2020 and 15.7 for year 2040. Therefore, the retail component of the project has a less-than-significant impact on VMT.

Parking Supply VMT Analysis

Parking supply in new developments has a direct correlation with mode split and VMT for those travelling to and from the site. The City of Oakland recognized this correlation through the removal of off-street parking minimum requirements in their Planning Code for Downtown to ensure excess parking is not contributing to VMT. This section describes parking to determine adequate parking to meet the needs of the project site without over-providing parking, and therefore, avoiding induced vehicle trips and increased VMT.

Estimated Parking Demand

Table V.C-13 shows the estimated weekday parking demand, current site parking provided, and proposed parking with the project. Parking rates were derived from ITE's Parking Generation, 4th Edition; and Urban Land Institute's Shared Parking, 2nd Edition. This data was used as a starting point to estimate the parking demand. The ITE data is based on data collected at mostly single-use suburban sites where the automobile is often the only travel mode. However, the project site is in a dense mixed-use urban environment where many trips are walk, bike, or transit trips. Since the project is only one to two blocks from the 19th Street BART Station, this analysis reduces the ITE based parking demand by 43 percent to account for the non-automobile trips. This reduction is consistent with City of Oakland Transportation Impact Study Guidelines (in effect at the time of the NOP) for vehicle trip generation and is based on the Bay Area Travel Survey

TABLE V.C-13 PARKING DEMAND ESTIMATE – MAXIMUM OFFICE SCENARIO

Land Use	Size	Unit[a]	Parking Rate per Unit	Demand
Parking Demand				
Retail	87.0	KSF	1.45[b]	126
Community Space	0	KSF	0.00[c]	0
Office	2,689	KSF	1.62[d]	4,353
Subtotal				*4,479*
Current Site Parking[e]				
Garage Parking				336
On-Street Parking				24
Total Parking Demand				**4,839**
Proposed Parking Supply				1,750
Parking Deficit				3,089

[a] DU = Dwelling Unit; KSF = 1,000 square-feet
[b] Based ITE Parking Generation, 4th Edition land use category 820 (Shopping Center; non-Friday Weekday Non-December) and applying a 43% non-auto reduction.
[c] Assuming all trips to land use are internal, and therefore do not demand additional parking.
[d] Based on ITE Parking Generation, 4th Edition land use category 701 (Office Building; weekday suburban) and applying a 43% non-auto reduction.
[e] The proposed project will replace public parking one for one.
Sources: ITE Parking Generation, 4th Edition; ULI Shared Parking, 2nd Edition; Fehr & Peers, 2016.

(BATS) 2000 which shows that the non-automobile mode share within ½-mile of a BART Station in Alameda County is about 43 percent. A 2011 research study shows reducing ITE based trip generation using BATS data results in a more accurate estimation of trip generation for urban mixed-use developments than just using ITE based trip generation.[9]

Retail Parking Demand

Parking demand for the retail land use was based on ITE Parking Generation, 4th Edition. The parking rate determined most relevant for the land use was "Shopping Center" (ITE Land Use Code 820) on a weekday (excluding Friday) outside of December. Oakland's non-

[9] Institute of Transportation Studies, UC Davis, 2011. *Evaluation of the Operation and Accuracy of Five Available Smart Growth Trip Generation Methodologies.*

auto trip adjustment of 43 percent was applied to this rate, producing a rate of 1.45 spaces per 1,000 square-feet of retail.

Office Parking Demand

Parking demand for the office land use of the proposed project was based on ITE's Parking Generation, 4th Edition. The parking rate determined most relevant for the land use was "Office Building" (ITE Land Use Code 701) on a weekday in a suburban setting. While the proposed project is in downtown Oakland, by choosing the suburban rate, it is acceptable to apply Oakland's non-auto trip adjustment. A rate of 1.62 per 1,000 square feet of office space was applied.

Current Land Use

The proposed project will replace the 339-stall garage and 24 metered on-street parking spaces. These spaces will be provided in a new parking garage on the project site.

Parking VMT Analysis Conclusions

As can be seen in Table V.C-13, the project results in a parking deficit based on the demand analysis. The parking deficit implies that the project would not induce demand by over-supplying parking, and therefore, the proposed parking supply will not add to VMT.

The All Office Scenario would provide 2,050 parking spaces but generate a parking demand for 2,349 parking spaces. In addition, the All Office Scenario would remove the existing parking supply (336 spaces) and on-street spaces (24) which results in a total parking demand of 2,709 spaces. Similar to the Maximum Office Scenario, the All Office Scenario also results in a parking deficit, and a parking deficit implies that the All Office Scenario would not induce demand by over-supplying parking.

VMT Analysis Conclusions

Overall, the proposed project would have a less-than-significant impact on VMT because:

- VMT generated by the proposed project would be more than 15 percent below the regional averages, and would thus be less than significant for the residential and office portions of the project.
- Citywide VMT per service population would remain the same without and with the retail component of the proposed project which would be less than significant for the retail component of the proposed project.
- The proposed project (and the All Office Scenario) would provide less parking supply than demand, so that the project's parking supply, while it exceeds code requirements, would not induce demand for more travel.

(2) Consistency with Adopted Policies, Plans, or Programs Supporting Alternative Transportation Addressing Safety and Performance of Circulation System (Criterion 2)

The discussion of consistency with adopted policies, plans, or programs supporting alternative transportation is based on application of Significance Threshold #1. A discussion of applicable policies and plans is provided below. In general, the project and the associated SCAs presented in this EIR, are consistent with these policies, plans and programs, and would not cause a significant impact by conflicting with adopted policies, plans, or programs supporting public transit, bicycle, or pedestrian.

The City of Oakland General Plan LUTE, as well as the City's Public Transit and Alternative Mode and Complete Streets Policies, states a strong preference for encouraging the use of non-automobile transportation modes, such as transit, bicycling, and walking. The proposed project would encourage the use of non-automobile transportation modes because it is in a walkable urban environment with quality bicycle infrastructure and local and regional transit service. Specifically, the site is within one city block of frequent AC Transit routes providing easy walking access to bus service and BART service. In addition, the project parking supply, 1,750 parking spaces, is much less than the estimated parking demand, 4,838 parking spaces, further encouraging travel modes other than motor vehicles.

As required by City of Oakland's SCA-TRANS-4: Transportation and Parking Demand Management (#71), the project would implement a TDM program to directly encourage more employees to shift from driving alone to other modes of travel. The TDM program would consist of strategies that incentivize travel by non-automobile modes, such as discounted transit tickets and preferential carpool parking, and strategies that disincentive travel by automobile, such as higher parking fees.

As previously described, the project and the SCAs included in this EIR would alter the public right-of-way in the project vicinity. However, these modifications would generally enhance pedestrian and bicycle access and safety. For example, the project would construct new sidewalks that meet or exceed the design guidance in the City's PMP. The project would include short-term and long-term bicycle parking that encourage bicycle activity.

Overall, the proposed project is consistent with both the City's Pedestrian Master Plan and Bicycle Master Plan because modifications proposed to existing pedestrian or bicycle facilities in the surrounding areas would not adversely affect current pedestrian and bicycle access and circulation and would not adversely affect installation of future facilities.

The project would not conflict with adopted City policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities. This is a less-than-significant impact, and no mitigation measures are required.

Safety

The final detailed design for the project would be reviewed during the City's Design Review Process to ensure consistency with applicable design standards, such as adequate sight distance for pedestrians and vehicles at project driveways. The final design for the project would minimize potential conflicts between various modes and provide safe and efficient pedestrian, bicycle, and vehicle circulation within the project buildings and parking facilities and between the project and the surrounding circulation systems. The project would result in increased vehicular traffic and pedestrian and bicycle activity in and around the project area. In addition, the project proposes changes to the public right-of-way and changes to access and circulation for various travel modes. The project site would be completely demolished including all sidewalks around the site perimeter. The project elements, after construction, would include:

- Sidewalks on the project site would be replaced with new sidewalks that meet or exceed the PMP design guidance, including:
  - 15- to 20-foot sidewalks on the Broadway frontage.
  - 20-foot sidewalks on the 21st Street frontage
  - 20-foot sidewalks on the Telegraph Avenue frontage.
  - 10- to 22-foot sidewalks on the 22nd Street frontage
- Commercial truck loading for trucks on 22nd Street.
- Primary parking garage access would be on 21st Street and include two inbound and two outbound lanes. Secondary parking garage access would be on 22nd Street. All parking garage access would be controlled with gates.
- Open space would be provided on the Telegraph Avenue frontage and in the vicinity of the Broadway/21st Street intersection. Both open space areas would be located behind the back of sidewalk.

The project would be reviewed through the City's Design Review Process to ensure consistency with applicable design standards. This is a less-than-significant impact on safety, and no mitigation measures are required.

(3) Roadway Capacity (Criterion 3)

The project does not propose any new streets or modifications to existing streets that would substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow lanes) or by adding new roadways to the network.

c. Significant Traffic and Transportation Impacts

Implementation of the project would not result in any significant traffic or transportation impacts.

d. Cumulative Impacts

This section measures the project against the significance criteria under cumulative conditions in 2040, and establishes whether or not the project would result in any cumulative traffic or transportation impacts.

(1) Vehicle Miles Travel (Criterion 1)

Table V.C-11 shows the project's 2040 VMT for office and residential uses. As shown, per capita VMT in 2040 for the project will be 2.5 compared to the regional average of 13.8. The per worker project VMT will be 10.6 compared to the regional average of 20.3. Under both conditions, project-generated VMT would be more than 15 percent below the regional averages in 2040 and constitute a less-than-significant impact.

Table V.C.-12 shows the proposed project 2040 retail VMT in terms of citywide service population. As shown in the table, VMT per citywide service population would remain the same without and with the retail component of the proposed project which would be less than significant for the retail component of the proposed project in 2040.

(2) Consistency with Adopted Policies, Plans, or Programs Supporting Alternative Transportation Addressing Safety and Performance of Circulation System (Criterion 2)

The project and the associated SCAs presented in this EIR are consistent with the City's policies, plans and programs, and would not cause a significant impact by conflicting with adopted policies, plans, or programs supporting public transit, bicycle usage, or pedestrian activity

(3) Roadway Capacity (Criterion 3)

The project does not propose any new streets under cumulative conditions in 2040. Nor does the proposed project modify existing streets that would substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow lanes) or by adding new roadways to the network. The project would not cause a significant impact on roadway capacity.

D. AIR QUALITY

This section describes the existing air quality conditions in the vicinity of the project site; discusses the federal, State, and local regulations and policies pertinent to air quality; assesses the potentially significant impacts to air quality as a result of implementation of the Eastline project; and provides, where appropriate, mitigation measures and SCAs to address those impacts. The potential impacts assessed include increases in criteria air pollutant and toxic air contaminant (TAC) emissions during both the construction and operational phases of the project.

The analysis in this section was prepared in accordance with the Bay Area Air Quality Management District (BAAQMD) CEQA Air Quality Guidelines (CEQA Guidelines).[1]

1. Setting

The project site is in the city of Oakland, which is situated within the San Francisco Bay Area Air Basin (SFBAAB). Air basins have natural characteristics that limit the ability of natural processes to either dilute or transport air pollutants. The major determinants of air pollution transport and dilution are climatic and topographic factors such as wind, atmospheric stability, terrain that influences air movement, and sunshine. Wind and terrain can combine to transport pollutants away from upwind areas, while solar energy can chemically transform pollutants in the air to create secondary photochemical pollutants such as ozone. The following discussion provides an overview of the environmental setting with regard to air quality in the SFBAAB.

a. Regional Climate, Meteorology, and Topography

The Bay Area has a Mediterranean climate characterized by wet winters and dry summers. During the summer, a high-pressure cell centered over the northeastern Pacific Ocean results in stable meteorological conditions and a steady northwesterly wind flow that keep storms from affecting the California coast. During the winter, the Pacific high-pressure cell weakens, resulting in increased precipitation and the occurrence of storms. The highest air pollutant concentrations in the Bay Area generally occur during inversions, when a surface layer of cooler air becomes trapped beneath a layer of warmer air. An inversion reduces the amount of vertical mixing and dilution of air pollutants in the cooler air near the surface.

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[1] Bay Area Air Quality Management District (BAAQMD), 2017b. California Environmental Quality Act Air Quality Guidelines. May.

Oakland is within a climatological subregion that stretches from Richmond to San Leandro. The western boundary of this subregion is defined by San Francisco Bay and the eastern boundary by the Oakland-Berkeley Hills. The Oakland-Berkeley Hills have a ridge-line height of approximately 1,500 feet, which creates a significant barrier to air flow in the Bay Area. The prevailing wind direction is from the west.[2] Average summer temperatures range from about 55 to 75 degrees Fahrenheit (°F), and average winter temperatures range from about 45 to 55 °F.

b. Air Pollutants of Concern

The California Air Resources Board (CARB) and United States Environmental Protection Agency (EPA) focus on the following air pollutants as regional indicators of ambient air quality:

- ozone
- suspended particulate matter—both respirable (PM_{10}) and fine ($PM_{2.5}$)
- nitrogen dioxide (NO_2)
- carbon monoxide (CO)
- sulfur dioxide (SO_2)
- lead

Because these are the most prevalent air pollutants known to be harmful to human health, based on extensive criteria documents, they are referred to as "criteria air pollutants."

In the SFBAAB, the primary criteria air pollutants of concern are CO, ground-level ozone formed through reactions of oxides of nitrogen (NO_x) and reactive organic gases (ROG), PM_{10}, and $PM_{2.5}$. In addition to criteria air pollutants, local emissions of TACs, such as diesel particulate matter (DPM), are a concern for nearby receptors. These primary air pollutants of concern are discussed further below.

(1) Carbon Monoxide

CO is a colorless, odorless gas produced by the incomplete combustion of fuels. The primary source of CO in the SFBAAB is motor vehicles. CO impacts are generally localized as concentrations disperse rapidly into the atmosphere; however, high CO concentrations can be a concern in areas with heavy traffic congestion. CO concentrations tend to be highest during winter mornings when there is little to no wind, when surface-based inversions trap the pollutant at ground levels. The highest ambient CO concentrations are generally found near highly congested transportation corridors and intersections. When

[2] Bay Area Air Quality Management District (BAAQMD), 2000. BAAQMD Meteorological Data; Oakland STP, Station No. 1804.

inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia, as well as for fetuses. Even healthy people exposed to high CO concentrations can experience headaches, dizziness, fatigue, unconsciousness, and even death.

(2) Ozone

While ozone serves a beneficial purpose in the upper atmosphere (stratosphere) by reducing ultraviolet radiation, it can be harmful to the human respiratory system and to sensitive species of plants when it reaches elevated concentrations in the lower atmosphere. Ozone is not emitted directly into the environment, but is formed in the atmosphere by complex chemical reactions between ROG and NO_x in the presence of sunlight. Ozone formation is greatest during periods of little or no wind, bright sunshine, and high temperatures. As a result, levels of ozone usually build up during the day and peak in the afternoon.

Sources of ROG and NO_x are vehicle tailpipe emissions; evaporation of solvents, paints, and fuels; and biogenic emissions.[3] Automobiles are the single largest source of ozone precursors in the SFBAAB. Short-term ozone exposure can reduce lung function in children, facilitate respiratory infections, and produce symptoms of respiratory distress. Long-term exposure can impair lung defense mechanisms and lead to emphysema and chronic bronchitis. Ozone can also damage plants and trees and materials such as rubber and fabrics.

(3) Particulate Matter

PM_{10} and $PM_{2.5}$ consist of extremely small, suspended particles or droplets that are 10 microns and 2.5 microns or smaller in diameter, respectively. Some sources of particulate matter, like pollen, forest fires, and windblown dust, are naturally occurring. In populated areas, however, most particulate matter is caused by road dust, combustion products, abrasion of tires and brakes, and construction activities. Particulate matter can also be formed in the atmosphere by condensation of SO_2 and ROG.

Particulate matter exposure can affect breathing, aggravate existing respiratory and cardiovascular disease, alter the body's defense systems against foreign materials, and damage lung tissue, contributing to cancer and premature death. Individuals with chronic

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[3] Biogenic sources include volatile organic compounds, which include ROG, from the decomposition of vegetative matter and certain plants, such as oak and pine trees.

obstructive pulmonary or cardiovascular disease, asthmatics, the elderly, and children are most sensitive to the effects of particulate matter.

(4) Toxic Air Contaminants

TACs include a diverse group of air pollutants that can adversely affect human health. Unlike criteria air pollutants, which generally affect regional air quality, TAC emissions are evaluated based on estimations of localized concentrations and risk assessments. The adverse health effects a person may experience following exposure to any chemical depend on several factors, including the amount (dose), duration, chemical form, and any simultaneous exposure to other chemicals.

For risk assessment purposes, TACs are separated into carcinogens and non-carcinogens. Carcinogens are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per 1 million exposed individuals over a lifetime of exposure. Non-carcinogenic substances are generally assumed to have a safe threshold below which health impacts would not occur. Acute and chronic exposure to non-carcinogens is expressed as a hazard index (HI), which is the sum of expected exposure levels divided by the corresponding acceptable exposure levels. In the SFBAAB, adverse air quality impacts on public health from TACs are predominantly from DPM.

DPM, generated when an engine burns diesel fuel, is a complex mixture of soot, ash particulates, metallic abrasion particles, volatile organic compounds, and other components that can penetrate deeply into the lungs and contribute to a range of health problems. In 1998, the CARB identified DPM from diesel-powered engines as a TAC based on its potential to cause cancer and other adverse health effects.[4] While diesel exhaust is a complex mixture that includes hundreds of individual constituents, under California regulatory guidelines, DPM is used as a surrogate measure of exposure for the mixture of chemicals that make up diesel exhaust as a whole. More than 90 percent of DPM is less than 1 micron in diameter, and thus is a subset of $PM_{2.5}$.[5]

c. Existing Sensitive Receptors

Sensitive receptors located near the project site include an apartment building (Hamilton Apartments in the old YMCA Building) about 90 feet west of the project, a pre-school (New

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[4] California Air Resources Board (CARB), 1998. Initial Statement of Reasons for Rulemaking; Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant, June.

[5] California Air Resources Board (CARB), 2016. Overview: Diesel Exhaust and Health. Available at: https://www.arb.ca.gov/research/diesel/diesel-health.htm, accessed January 13, 2017. Last updated April 12, 2016.

Day Preschool and Learning Center) about 300 feet north of the project, and another apartment building (Broadway Grand Apartments) about 300 feet north of the project. The term "sensitive receptor" refers to a location where individuals are more susceptible to poor air quality. Sensitive receptors include schools, convalescent homes, and hospitals because the very young, the old, and the infirm are more susceptible to air-quality-related health problems relative to other members of the public. Residential areas are also considered sensitive to poor air quality because people are often at home for extended periods, thereby increasing the duration of exposure to potential air contaminants.

d. Odors

Other air quality issues of concern in the SFBAAB include nuisance impacts from odors; objectionable odors may be associated with a variety of pollutants. Common sources of odors include wastewater treatment plants, landfills, composting facilities, refineries, and chemical plants. Odors rarely have direct health impacts, but they can be very unpleasant and lead to anger and concern over possible health effects among the public.

2. Regulatory Setting

a. Federal and State Regulations

The EPA is responsible for implementing the programs established under the federal Clean Air Act, such as establishing and reviewing the National Ambient Air Quality Standards (NAAQS) and judging the adequacy of State Implementation Plans (SIPs) to attain the NAAQS. A SIP must integrate federal, State, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. If a State fails to enforce its SIP-approved regulations, or if the EPA determines that a State's SIP is inadequate, the EPA is required to prepare and enforce a Federal Implementation Plan to promulgate comprehensive control measures for a given SIP.

The CARB is responsible for establishing and reviewing the California Ambient Air Quality Standards (CAAQS), developing and managing the California SIP, identifying TACs, and overseeing the activities of regional air quality management districts. In California, mobile emissions sources (e.g., construction equipment, trucks, and automobiles) are regulated by the CARB, and stationary emissions sources (e.g., industrial facilities) are regulated by the regional air quality management districts.

The CAAQS and NAAQS, which were developed for criteria air pollutants, are intended to incorporate an adequate margin of safety to protect the public health and welfare. California also has ambient air quality standards for sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. To achieve CAAQSs, criteria air pollutant emissions are managed through control measures described in regional air quality plans as well as emission limitations placed on permitted stationary sources.

In accordance with the federal Clean Air Act and California Clean Air Act, areas in California are classified as either in attainment, maintenance, or nonattainment of the NAAQS or CAAQS for each criteria air pollutant. To assess the regional attainment status, the BAAQMD collects ambient air quality data from over 30 monitoring sites within the SFBAAB. Based on current monitoring data, the SFBAAB is designated as a nonattainment area for ozone, PM_{10}, and $PM_{2.5}$, and is designated an attainment or unclassified area for all other pollutants (see Table V.D-1).

Regulation of TACs, referred to as hazardous air pollutants (HAPs) under federal regulations, is achieved through federal, State, and local controls on individual sources. The air toxics provisions of the federal Clean Air Act require the EPA to identify HAPs that are known or suspected to cause cancer or other serious health effects to protect public health and welfare, and to establish National Emission Standards for Hazardous Air Pollutants. California regulates TACs primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act created California's program to identify and reduce exposure to TACs. To date, the CARB has identified over 21 TACs and adopted the EPA's list of 187 HAPs as TACs. The Hot Spots Act supplements the Tanner Act by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

b. Bay Area Air Quality Management District and Clean Air Plan

(1) BAAQMD Responsibilities

The BAAQMD is primarily responsible for ensuring that the NAAQS and CAAQS are attained and maintained in the SFBAAB. The BAAQMD fulfills this responsibility by adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits, inspecting stationary sources of air pollutants, responding to citizen complaints, and monitoring ambient air quality and meteorological conditions. The BAAQMD also awards grants to reduce motor vehicle emissions and conducts public education campaigns and other activities associated with improving air quality within the SFBAAB.

The demolition of existing buildings and structures are subject to BAAQMD's Regulation 11, Rule 2 (Asbestos Demolition, Renovation, and Manufacturing), which limits asbestos emissions from demolition or renovation of structures and the associated disturbance of asbestos-containing waste material generated or handled during these activities. The rule addresses the national emissions standards for asbestos and contains additional requirements. The rule requires the lead agency and its contractors to notify the BAAQMD

TABLE V.D-1 AIR QUALITY STANDARDS AND ATTAINMENT STATUS

Pollutant	Averaging Time	CAAQS Concentration	CAAQS Attainment Status	NAAQS Concentration	NAAQS Attainment Status
Ozone	8-Hour	0.070 ppm	N	0.070 ppm	N
	1-Hour	0.09 ppm	N	Revoked in 2005	---
Carbon Monoxide (CO)	8-Hour	9.0 ppm	A	9 ppm	A
	1-Hour	20 ppm	A	35 ppm	A
Nitrogen Dioxide (NO_2)	1-Hour	0.18 ppm	A	0.100 ppm	U
	Annual	0.030 ppm	A	0.053 ppm	A
Sulfur Dioxide (SO_2)	24-Hour	0.04 ppm	A	0.14 ppm	A
	1-Hour	0.25 ppm	A	0.075 ppm	A
	Annual	---	---	0.030 ppm	A
Respirable Particulate Matter (PM_{10})	Annual	20 μg/m^3	N	---	---
	24-Hour	50 μg/m^3	N	150 μg/m^3	U
Fine Particulate Matter ($PM_{2.5}$)	Annual	12 μg/m^3	N	12 μg/m^3	U/A
	24-Hour	---	---	35 μg/m^3	N
Sulfates	24-Hour	25 μg/m^3	A	---	---
Lead	30-Day	1.5 μg/m^3	A	---	---
	Calendar Quarter	---	---	1.5 μg/m^3	A
	Rolling 3-Month	---	---	0.15 μg/m^3	A
Hydrogen Sulfide	1-Hour	0.03 ppm	U	---	---
Vinyl Chloride	24-Hour	0.010 ppm	Unknown	---	---
Visibility Reducing Particles	8 Hour (10:00 to 18:00 PST)	---	U	---	---

Notes: A=Attainment; N=Nonattainment; U=Unclassified; "---"=not applicable; ppm=parts per million; μg/m^3=micrograms per cubic meter; PST=Pacific Standard Time.
Source: Bay Area Air Quality Management District (BAAQMD), 2017a. Air Quality Standards and Attainment Status. Available at: http://www.baaqmd.gov/research-and-data/air-quality-standards-and-attainment-status, accessed January 13, 2017. Last updated January 5, 2017.

of any regulated renovation or demolition activity. The notification must include a description of the affected structures and the methods used to determine the presence of asbestos-containing materials. All asbestos-containing material found on-site must be removed prior to demolition or renovation activity in accordance with BAAQMD Regulation 11, Rule 2, which includes specific requirements for surveying, notification, removal, and disposal of materials that contain asbestos. Therefore, projects that comply with Regulation 11, Rule 2, would ensure that asbestos-containing materials would be disposed of appropriately and safely.

In June 2010, the BAAQMD adopted thresholds of significance to assist lead agencies in evaluating and mitigating air quality impacts under CEQA.[6] The BAAQMD's thresholds, which have been adopted by the City of Oakland (City), established levels at which emissions of ozone precursors (ROG and NO_x), PM_{10}, $PM_{2.5}$, local CO, and TACs could cause significant air quality impacts. The scientific soundness of the thresholds is supported by substantial evidence presented in the BAAQMD's Revised Draft Options and Justification Report.[7] In 2010, the thresholds of significance were incorporated into the BAAQMD CEQA Guidelines to assist lead agencies in evaluating air quality impacts of projects proposed in the SFBAAB.[8] However, the California Building Industry Association brought a legal suit against the use of the thresholds in the BAAQMD CEQA Guidelines—based, in part, on a claim that the thresholds are invalid under CEQA because one of the thresholds would require the analysis of how existing environmental conditions will impact future developments. In an opinion issued on December 17, 2015, the California Supreme Court held that CEQA does not generally require an analysis of the impacts of locating development in areas subject to environmental hazards unless the project would exacerbate existing environmental hazards.[9] In May 2017, the BAAQMD published a new version of its CEQA Guidelines which included revisions to address the Supreme Court's opinion. Because the scientific soundness of the BAAQMD thresholds has not been challenged, the thresholds adopted by the City that relate to the analysis of the project's impacts on the environment are used in this CEQA analysis.

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[6] Bay Area Air Quality Management District (BAAQMD), 2010a. Proposed Air Quality CEQA Thresholds of Significance, May 3.

[7] Bay Area Air Quality Management District (BAAQMD), 2009. Revised Draft Options and Justification Report; California Environmental Quality Act Thresholds of Significance, October.

[8] Bay Area Air Quality Management District (BAAQMD), 2011. California Environmental Quality Act, Air Quality Guidelines, May.

[9] *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal.4th 369.

(2) Bay Area Clean Air Plan

In accordance with the California Clean Air Act, the BAAQMD is required to prepare and update an air quality plan that outlines measures by which both stationary and mobile sources of pollutants can be controlled to achieve the NAAQS and CAAQS in areas designated as nonattainment. In April 2017, the BAAQMD adopted the *2017 Clean Air Plan: Spare the Air, Cool the Climate* (2017 CAP).[10] The 2017 CAP includes 85 control measures to reduce ozone precursors, particulate matter, TACs, and greenhouse gases. The 2017 CAP was developed based on a multi-pollutant evaluation method that incorporates well-established studies and methods of quantifying the health benefits and air quality regulations, computer modeling and analysis of existing air quality monitoring data and emissions inventories, and traffic and population growth projections prepared by the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG), respectively.

c. City of Oakland

The following section summarizes relevant noise policies and standards from the General Plan, Municipal Code, and Standard Conditions of Approval (SCAs).

(1) General Plan

The following air quality policies from the Open Space, Conservation and Recreation Element of the City of Oakland General Plan would relate to the project.

> **Policy CO-12.1: Land Use Patterns Which Promote Air Quality.** Promote land use patterns and densities which help improve regional air quality conditions by: (a) minimizing dependence on single passenger autos; (b) promoting projects which minimize quick auto starts and stops, such as live-work development, mixed use development, and office development with ground floor retail space; (c) separating land uses which are sensitive to pollution from the sources of air pollution; and (d) supporting telecommuting, flexible work hours, and behavioral changes which reduce the percentage of people in Oakland who must drive to work on a daily basis.

> **Policy CO-12.6: Control of Dust Emissions.** Require construction, demolition, and grading practices which minimize dust emissions. These practices are currently required by the City and include the following:

- Avoiding earth moving and other major dust generating activities on windy days.
- Sprinkling unpaved construction areas with water during excavation, using reclaimed water where feasible. (Watering can reduce construction-related dust by 50 percent.)

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[10] Bay Area Air Quality Management District (BAAQMD), 2010b. Bay Area 2010 Clean Air Plan. Adopted September 15.

- Covering stockpiled sand, soil, and other particulates with a tarp to avoid blowing dust.
- Covering trucks hauling dirt and debris to reduce spills. If spills do occur, they should be swept up promptly before materials become airborne.
- Preparing a comprehensive dust control program for major construction in populated areas or adjacent to sensitive uses like hospitals and schools.
- Operating construction and earth-moving equipment, including trucks, to minimize exhaust emissions.

(2) Oakland Municipal Code

Chapter 15.34 of the Oakland Municipal Code requires new construction projects to submit a Waste Reduction and Recycling Plan to the City's Building Official for review and approval. The intent of the provisions are to divert (e.g., reuse on-site) at least 50 percent of construction and demolition debris from landfills. The purpose of these provisions is to prescribe requirements designed to meet and further the goals of the California Integrated Waste Management Act of 1989 AB 939 and the Alameda County Waste Reduction and Recycling Act of 1990 (Measure D).

Chapter 15.36 of the Municipal Code requires the implementation of the following dust control measures during demolition activities:

- "Best manager practices" shall be used throughout all phases of work, including suspension of work, to alleviate or prevent fugitive dust nuisance and the discharge of smoke or any other air contaminants into the atmosphere in such quantity as will violate any city or regional air pollution control rules, regulations, ordinances, or statutes.
- Water or dust palliatives or combinations of both shall be applied continuously and in sufficient quantity during the performance of work and at other times as required. Dust nuisance shall also be abated by cleaning and sweeping or other means as necessary.
- A dust control plan may be required as condition of permit issuance or at other times as may be deemed necessary to assure compliance with this section. Failure to control effectively or abate fugitive dust nuisance or the discharge of smoke or any other air contaminants into the atmosphere may result in suspension or revocation of the permit, in addition to any other applicable enforcement actions or remedies.

(3) Standard Conditions of Approval

The City of Oakland Uniformly Applied Development Standards would be incorporated into the project as Standard Conditions of Approval (SCAs). SCA-TRANS-4: Transportation and Parking Demand Management (#71) would also provide further incentives that encourage walking, biking, and transit and reduce private automobile trips. Additionally, the following SCAs would apply to the project.

SCA-AIR-1: Construction-Related Air Pollution Controls (Dust and Equipment Emissions) (#19)

Requirement: The project applicant shall implement all of the following applicable air pollution control measures during construction of the project:

Enhanced Controls

a) Water all exposed surfaces of active construction areas at least twice daily. Watering should be sufficient to prevent airborne dust from leaving the site. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water should be used whenever feasible.
b) Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer).
c) All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
d) Pave all roadways, driveways, sidewalks, etc. within one month of site grading or as soon as feasible. In addition, building pads should be laid within one month of grading or as soon as feasible unless seeding or soil binders are used.
e) Enclose, cover, water twice daily, or apply (non-toxic) soil stabilizers to exposed stockpiles (dirt, sand, etc.).
f) Limit vehicle speeds on unpaved roads to 15 miles per hour.
g) Idling times on all diesel-fueled commercial vehicles over 10,000 lbs. shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485, of the California Code of Regulations). Clear signage to this effect shall be provided for construction workers at all access points.
h) Idling times on all diesel-fueled off-road vehicles over 25 horsepower shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes and fleet operators must develop a written policy as required by Title 23, Section 2449, of the California Code of Regulations ("California Air Resources Board Off-Road Diesel Regulations").
i) All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
j) Portable equipment shall be powered by electricity if available. If electricity is not available, propane or natural gas shall be used if feasible. Diesel engines shall only

be used if electricity is not available and it is not feasible to use propane or natural gas.

k) All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.
l) All excavation, grading, and demolition activities shall be suspended when average wind speeds exceed 20 mph.
m) Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
n) Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for one month or more).
o) Designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holidays and weekend periods when work may not be in progress.
p) Install appropriate wind breaks (e.g., trees, fences) on the windward side(s) of actively disturbed areas of the construction site to minimize wind blown dust. Wind breaks must have a maximum 50 percent air porosity.
q) Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
r) Activities such as excavation, grading, and other ground-disturbing construction activities shall be phased to minimize the amount of disturbed surface area at any one time.
s) All trucks and equipment, including tires, shall be washed off prior to leaving the site.
t) Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.
u) All equipment to be used on the construction site and subject to the requirements of Title 13, Section 2449, of the California Code of Regulations ("California Air Resources Board Off-Road Diesel Regulations") must meet emissions and performance requirements one year in advance of any fleet deadlines. Upon request by the City, the project applicant shall provide written documentation that fleet requirements have been met.
v) Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., BAAQMD Regulation 8, Rule 3: Architectural Coatings).
w) All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of NO_x and PM.
x) Off-road heavy diesel engines shall meet the California Air Resources Board's most recent certification standard.
y) Post a publicly-visible large on-site sign that includes the contact name and phone number for the project complaint manager responsible for responding to dust complaints and the telephone numbers of the City's Code Enforcement unit and

the Bay Area Air Quality Management District. When contacted, the project complaint manager shall respond and take corrective action within 48 hours.

When Required: During construction
Initial Approval: N/A
Monitoring/Inspection: Bureau of Building

SCA-AIR-2: Exposure to Air Pollution (Toxic Air Contaminants) (#20)
Health Risk Reduction Measures

Requirement: The project applicant shall incorporate appropriate measures into the project design in order to reduce the potential health risk due to exposure to toxic air contaminants. The project applicant shall choose one of the following methods:

i. The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with California Air Resources Board (CARB) and Office of Environmental Health and Hazard Assessment requirements to determine the health risk of exposure of project residents/occupants/users to air pollutants. The HRA shall be submitted to the City for review and approval. If the HRA concludes that the health risk is at or below acceptable levels, then health risk reduction measures are not required. If the HRA concludes that the health risk exceeds acceptable levels, health risk reduction measures shall be identified to reduce the health risk to acceptable levels. Identified risk reduction measures shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City.

ii. The project applicant shall incorporate the following health risk reduction measures into the project. These features shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City:
   - Installation of air filtration to reduce cancer risks and Particulate Matter (PM) exposure for residents and other sensitive populations in the project that are in close proximity to sources of air pollution. Air filter devices shall be rated MERV-13 [insert MERV-16 for projects located in the West Oakland Specific Plan area] or higher. As part of implementing this measure, an ongoing maintenance plan for the building's HVAC air filtration system shall be required.
   - Where appropriate, install passive electrostatic filtering systems, especially those with low air velocities (i.e., 1 mph).
   - Phasing of residential developments when proposed within 500 feet of freeways such that homes nearest the freeway are built last, if feasible.
   - The project shall be designed to locate sensitive receptors as far away as feasible from the source(s) of air pollution. Operable windows, balconies, and building air intakes shall be located as far away from these sources as feasible.

If near a distribution center, residents shall be located as far away as feasible from a loading dock or where trucks concentrate to deliver goods.
- Sensitive receptors shall be located on the upper floors of buildings, if feasible.
- Planting trees and/or vegetation between sensitive receptors and pollution source, if feasible. Trees that are best suited to trapping PM shall be planted, including one or more of the following: Pine (Pinus nigra var. maritima), Cypress (X Cupressocyparis leylandii), Hybrid popular (Populus deltoids X trichocarpa), and Redwood (Sequoia sempervirens).
- Sensitive receptors shall be located as far away from truck activity areas, such as loading docks and delivery areas, as feasible.
- Existing and new diesel generators shall meet CARB's Tier 4 emissions standards, if feasible.
- Emissions from diesel trucks shall be reduced through implementing the following measures, if feasible:
  - Installing electrical hook-ups for diesel trucks at loading docks.
  - Requiring trucks to use Transportation Refrigeration Units (TRU) that meet Tier 4 emission standards.
  - Requiring truck-intensive projects to use advanced exhaust technology (e.g., hybrid) or alternative fuels.
  - Prohibiting trucks from idling for more than two minutes.
  - Establishing truck routes to avoid sensitive receptors in the project. A truck route program, along with truck calming, parking, and delivery restrictions, shall be implemented.

When Required: Prior to approval of construction-related permit
Initial Approval: Planning and Zoning Division
Monitoring/Inspection: Bureau of Building

Maintenance of Health Risk Reduction Measures
Requirement: The project applicant shall maintain, repair, and/or replace installed health risk reduction measures, including but not limited to the HVAC system (if applicable), on an ongoing and as-needed basis. Prior to occupancy, the project applicant shall prepare and then distribute to the building manager/operator an operation and maintenance manual for the HVAC system and filter including the maintenance and replacement schedule for the filter.
When Required: Ongoing
Initial Approval: N/A
Monitoring/Inspection: Bureau of Building

SCA-AIR-3: Stationary Sources of Air Pollution (Toxic Air Contaminants) (#21)
Requirement: The project applicant shall incorporate appropriate measures into the project design in order to reduce the potential health risk due to on-site stationary

sources of toxic air contaminants. The project applicant shall choose one of the following methods:

i. The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with California Air Resources Board (CARB) and Office of Environmental Health and Hazard Assessment requirements to determine the health risk associated with proposed stationary sources of pollution in the project. The HRA shall be submitted to the City for review and approval. If the HRA concludes that the health risk is at or below acceptable levels, then health risk reduction measures are not required. If the HRA concludes the health risk exceeds acceptable levels, health risk reduction measures shall be identified to reduce the health risk to acceptable levels. Identified risk reduction measures shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City.
ii. The project applicant shall incorporate the following health risk reduction measures into the project. These features shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City:
    - Installation of non-diesel fueled generators, if feasible, or;
    - Installation of diesel generators with an EPA-certified Tier 4 engine or engines that are retrofitted with a CARB Level 3 Verified Diesel Emissions Control Strategy, if feasible.

When Required: Prior to approval of construction-related permit
Initial Approval: Planning and Zoning Division
Monitoring/Inspection: Bureau of Building

SCA-AIR-4: Asbestos in Structures (#23)
Requirement: The project applicant shall comply with all applicable laws and regulations regarding demolition and renovation of Asbestos Containing Materials (ACM), including but not limited to California Code of Regulations, Title 8; California Business and Professions Code, Division 3; California Health and Safety Code sections 25915-25919.7; and Bay Area Air Quality Management District, Regulation 11, Rule 2, as may be amended. Evidence of compliance shall be submitted to the City upon request.
When Required: Prior to approval of construction-related permit
Initial Approval: Applicable regulatory agency with jurisdiction
Monitoring/Inspection: Applicable regulatory agency with jurisdiction

3. Impacts, Standard Conditions of Approval, and Mitigation Measures

This section analyzes environmental impacts related to air quality that could result from implementation of the Eastline project. This section begins with the criteria of significance that establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the project and identifies SCAs and/or mitigation measures to address these impacts as needed.

a. Significance Criteria

The City has established CEQA Thresholds of Significance Guidelines to help clarify and standardize analysis and decision making in the environmental review process. As presented below, the City's air quality thresholds establish levels at which emissions of ozone precursors (ROG and NO_x), PM_{10}, $PM_{2.5}$, local CO, and TACs could cause significant air quality impacts. These thresholds are supported by substantial evidence presented in the BAAQMD's Revised Draft Options and Justification Report.[11] While the thresholds pertaining to the effect of the environment on the project (as compared to the project's impact on the environment) are not legally required to be analyzed under CEQA, they are nevertheless evaluated to provide information to decision makers and the public.

In developing thresholds of significance related to criteria air pollutants (thresholds 1 through 3, below), the City considered the emission levels for which a project's individual emissions would be cumulatively considerable. If a project does not exceed the identified significance thresholds, its emissions would not be considered cumulatively considerable, resulting in less-than-significant cumulative air quality impacts relative to existing air quality conditions.[12]

Implementation of the Eastline project would result in a significant air quality impact if it would:

1. During project construction, result in average daily emissions of 54 pounds per day of ROG, NO_x, or $PM_{2.5}$ or 82 pounds per day of PM_{10}.
2. During project operation, result in average daily emissions of 54 pounds per day of ROG, NO_x, or $PM_{2.5}$ or 82 pounds per day of PM_{10}, or result in maximum annual emissions of 10 tons per year of ROG, NO_x, or $PM_{2.5}$ or 15 tons per year of PM_{10}.
3. Contribute to CO concentrations exceeding the CAAQS of 9 parts per million (ppm) averaged over 8 hours or 20 ppm over 1 hour.

   [NOTE: Pursuant to BAAQMD CEQA Guidelines, localized CO concentrations should be estimated for projects in which: (a) project-generated traffic would conflict with an

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[11] Bay Area Air Quality Management District (BAAQMD), 2009. Revised Draft Options and Justification Report; California Environmental Quality Act Thresholds of Significance, October.

[12] City of Oakland, 2013. CEQA Thresholds of Significance Guidelines. October 28. See also Bay Area Air Quality Management District (BAAQMD), 2009. Revised Draft Options and Justification Report; California Environmental Quality Act Thresholds of Signifcance, October.

applicable congestion management program established by the county congestion management agency; or (b) project-generated traffic would increase traffic volumes at affected intersections to more than 44,000 vehicles per hour (or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited, such as tunnels, parking garages, bridge underpasses, natural or urban street canyons, and below-grade roadways). In Oakland, only the MacArthur Maze portion of Interstate 580 exceeds the 44,000 vehicles per hour screening criteria.]

4. For new sources of TACs, during either project construction or project operation, expose sensitive receptors to substantial levels of TACs under project conditions resulting in:

   (a) an increase in cancer risk level greater than 10 in 1 million,

   (b) a non-cancer risk (chronic or acute) hazard index greater than 1.0, or

   (c) an increase of annual average $PM_{2.5}$ of greater than 0.3 micrograms per cubic meter;

   or, under cumulative conditions, resulting in:

   (a) a cancer risk level greater than 100 in a million,

   (b) a non-cancer risk (chronic or acute) hazard index greater than 10.0, or

   (c) annual average $PM_{2.5}$ of greater than 0.8 micrograms per cubic meter.

   [NOTE: Pursuant to the BAAQMD CEQA Guidelines, when siting new TAC sources, consider receptors located within 1,000 feet. For this threshold, sensitive receptors include residential uses, schools, parks, daycare centers, nursing homes, and medical centers. The cumulative analysis should consider the combined risk from all TAC sources.]

5. Expose new sensitive receptors to substantial ambient levels of TACs resulting in

   (a) a cancer risk level greater than 100 in a million,

   (b) a non-cancer risk (chronic or acute) hazard index greater than 10.0, or

   (c) annual average $PM_{2.5}$ of greater than 0.8 micrograms per cubic meter.

   [NOTE: Pursuant to the BAAQMD CEQA Guidelines, when siting new sensitive receptors, consider TAC sources located within 1,000 feet, including but not limited to stationary sources, freeways, major roadways (10,000 or greater vehicles per day), truck distribution centers, airports, seaports, ferry terminals, and rail lines. For this threshold, sensitive receptors include residential uses, schools, parks, daycare centers, nursing homes, and medical centers.]

6. Frequently and for a substantial duration, create or expose sensitive receptors to substantial objectionable odors affecting a substantial number of people.

[NOTE: For this threshold, sensitive receptors include residential uses, schools, daycare centers, nursing homes, and medical centers (but not parks).]

b. Analysis Approach

The Planned Unit Development and Preliminary Development Plan (PUD/PDP), which is the key component of the proposed project allows the site to be developed, illustrates the range of development scenarios that could occur under the PUD/PDP: the Maximum Residential Scenario, the Residential/Office Mix Scenario, the Maximum Office Scenario, and the All Office Scenario. Construction and operation of each development scenario could result in different impacts to local and regional air quality. For air quality impacts found to be less than significant, only the results for the development scenario considered representative of the worst-case scenario are presented. For impacts found to be potentially significant, the results for all four development options are presented to demonstrate the full range of potential air quality impacts.

c. Less-Than-Significant Air Quality Impacts

Implementation of the Eastline project would result in the less-than-significant impacts described below. Because implementation of the Eastline project would not exceed the significance criteria described above, the project's impacts would not be considered significant and no mitigation measures are needed.

(1) Criteria Air Pollutants During Construction (Criterion 1)

Project construction would generate criteria air pollutant emissions that could affect regional air quality. The BAAQMD recommends using the most recent version of the California Emissions Estimator Model (CalEEMod versions 2016.3.1) to estimate construction emissions of criteria air pollutants and precursors for a proposed project. CalEEMod uses widely accepted models for emissions estimates combined with appropriate default data for a variety of land use projects that can be used if site-specific information is not available. The default data (e.g., type and power of construction equipment) are supported by substantial evidence from regulatory agencies and a combination of statewide and regional surveys of existing land uses. The primary input data used to estimate emissions associated with construction and operation of the project are summarized in Table V.D-2. Pollutant emissions were estimated in CalEEMod for the Residential/Office Mix Scenario, Maximum Residential Scenario, Maximum Office Scenario, and All Office Scenario. A copy of the CalEEMod report for the project, which summarizes the input parameters, assumptions, and findings, is provided in Appendix D.

TABLE V.D-2 SUMMARY OF LAND USE INPUT PARAMETERS FOR CALEEMOD

Land Use Type	CalEEMod Land Use Type	Unit	Amount
Existing Conditions			
Space Burger	Fast food restaurant	square feet	4,300
Bank	Bank (with drive-through)	square feet	10,200
Retail	Regional shopping center	square feet	24,000
Parking Garage	Unenclosed parking structure	spaces	351
Residential/Office Mix Scenario			
Residential	Apartments high-rise	Dwelling Units	395
		square feet	359,720
Office	General office building	square feet	880,550
Retail	Regional shopping center	square feet	85,000
Community Space	Daycare center	square feet	19,000
Parking Garage	Enclosed parking with elevator	spaces	1,821
Maximum Residential Scenario			
Residential	Apartments high-rise	Dwelling Units	1,556
		square feet	1,652,385
Retail	Regional shopping center	square feet	99,220
Community Space	Daycare center	square feet	37,000
Parking Garage	Enclosed parking with elevator	spaces	2,130
Maximum Office Scenario			
Office	General office building	square feet	2,689,000
Retail	Regional shopping center	square feet	87,000
Parking Garage	Enclosed parking with elevator	spaces	3,238
All Office Scenario			
Office	General office building	square feet	1,450,000
Retail	Regional shopping center	square feet	80,000
Parking Garage	Enclosed parking with elevator	spaces	2,050

Notes: These land use input parameters were used to evaluate emissions during both project construction and operation. The project footprint would be about 3.21 acres.
Source: CalEEMod (Appendix D).

Project construction activities would include demolition, grading, excavation and shoring, trenching, building construction, paving, and applications of architectural coatings. The primary pollutant emissions of concern during project construction would be ROG, NO_x, PM_{10}, and $PM_{2.5}$ from the exhaust of off-road construction equipment and on-road vehicles (worker vehicles, vendor trucks, and haul trucks). In addition, fugitive dust emissions of PM_{10} and $PM_{2.5}$ would be generated by soil disturbance and demolition activities, and fugitive ROG emissions would result from the application of architectural coatings and paving. While emissions of fugitive dust $PM_{2.5}$ and PM_{10} are a common concern, these emissions would be minimized by implementation of the dust control measures required under SCA-AIR-1: Construction-Related Air Pollution Controls (Dust and Equipment Emissions) (#19).

Emissions of ROG, NO_x, PM_{10}, and $PM_{2.5}$ during construction of each development scenario under the PUD/PDP were estimated using the CalEEMod input parameters summarized in Table V.D-3. Because project development would involve a demolition permit, extensive soil export (more than 10,000 cubic yards), and/or more than 240 multi-family units, the City's enhanced control measures for construction emissions described under SCA-AIR-1: Construction-Related Air Pollution Controls (Dust and Equipment Emissions) (#19), would apply. In accordance with SCA-AIR-1, the evaluation assumed that all off-road diesel equipment would be equipped with engines certified to meet the CARB's Tier 4 emissions standards, which have incorporated best available control technologies into the engine design to reduce emissions of ROG, NO_x, PM_{10}, and $PM_{2.5}$.

The total emissions estimated during construction were averaged over the total working days (650 days) and compared to the City's thresholds of significance in Table V.D-4. The project's estimated emissions for ROG, NO_x, and exhaust PM_{10} and $PM_{2.5}$, both before and after applying the Tier 4 engine requirements under SCA-AIR-1: Construction-Related Air Pollution Controls (Dust and Equipment Emissions) (#19), are below the applicable thresholds of significance for all the development scenarios.

In addition to the emissions controls required under SCA-AIR-1, the project must comply with all applicable laws and regulations regarding demolition of existing structures on the project site that could contain asbestos materials as described under SCA-AIR-4: Asbestos in Structures (#23). Because naturally occurring asbestos has not been mapped in the vicinity of the project, the dust mitigation measures for asbestos described under SCA-AIR-4 would not apply to the project. With implementation of SCA-AIR-1: Construction-Related Air Pollution Controls (Dust and Equipment Emissions) (#19) and SCA-AIR-4: Asbestos in Structures (#23), construction of the project (all PUD/PDP scenarios) would not significantly impact regional air quality standards for all development scenarios under the PUD/PDP.

TABLE V.D-3 SUMMARY OF CONSTRUCTION INPUT PARAMETERS FOR CALEEMOD

CalEEMod Input Category	Construction Assumptions and Changes to Default Data
Construction Phase	The default construction duration was modified to 650 work days (about 30 months) with work scheduled to begin in mid-2017. A crane (for shoring), drill rig (for pile driving), and forklift (for general construction) were added to the default construction equipment list.
Material Movement	Approximately 66,000 cubic yards of soil is expected to be hauled off site.
Demolition	Approximately 99,268 tons of demolition debris is expected to be hauled off site.
Vendor Trips	Based on the development scenario, the default vendor truck trip rates were equivalent to about 1 truck arriving every 45 to 90 seconds throughout an 8-hour work day, which is not practical based on the limited area of the project footprint. Therefore, the default vendor truck rates were modified to a more practical estimate of 1 vendor truck arriving every 5 minutes throughout an 8-hour work day (96 trips per day).
Exterior Paints	Exterior paints will not be used.

Notes: Construction assumptions are based on information provided by the project sponsor. Default CalEEMod data was used for all other parameters not described.
Source: CalEEMod (Appendix D).

TABLE V.D-4 ESTIMATED CONSTRUCTION EMISSIONS WITH AND WITHOUT SCA-AIR-1 (POUNDS PER DAY)

			Exhaust		Fugitive Dust	
Emissions Scenario	**ROG**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**
Residential/Office Mix Scenario						
Emissions without SCA-AIR-1	21.1	39.3	1.35	1.26	9.5	2.4
Emissions with SCA-AIR-1	19.1	19.4	0.15	0.14	---	---
Maximum Residential Scenario						
Emissions without SCA-AIR-1	32.2	40.4	1.37	1.28	12.3	3.2
Emissions with SCA-AIR-1	30.2	20.5	0.17	0.16	---	---
Maximum Office Scenario						
Emissions without SCA-AIR-1	36.6	40.2	1.36	1.28	11.9	3.1
Emissions with SCA-AIR-1	34.7	20.4	0.17	0.16	---	---

TABLE V.D-4 ESTIMATED CONSTRUCTION EMISSIONS WITH AND WITHOUT SCA-AIR-1 (POUNDS PER DAY)

			Exhaust		Fugitive Dust	
Emissions Scenario	**ROG**	**NO_x**	**PM_{10}**	**$PM_{2.5}$**	**PM_{10}**	**$PM_{2.5}$**
All Office Scenario						
Emissions without SCA-AIR-1	21.6	39.1	1.34	1.26	9.1	2.3
Emissions with SCA-AIR-1	19.7	19.3	0.15	0.14	---	---
Thresholds of Significance	54	54	82	54	---	---
Thresholds Exceedance?	No	No	No	No	---	---

Notes: --- = not applicable
Reduced fugitive dust emissions from implementation of dust-control measures under SCA-AIR-1 cannot be readily quantified.
Source: CalEEMod (Appendix D).

(2) Local Carbon Monoxide Concentrations (Criterion 3)

The vehicle trips generated by operation of the Eastline project could increase localized CO concentrations (also known as hotspots), which would affect sensitive receptors in the local community. The source of local CO concentrations is often associated with heavy traffic congestion, which most frequently occurs at signalized intersections of high-volume roadways. The City's threshold of significance for local CO concentrations is equivalent to the 1- and 8-hour CAAQS of 20.0 ppm and 9.0 ppm, respectively, because these represent levels that are protective of public health. As described above, the City recommends using the BAAQMD's screening criteria to evaluate potential impacts related to localized CO concentrations.

The Alameda County Transportation Commission (ACTC) serves as the County Congestion Management Agency. The ACTC updates the County's Congestion Management Program (CMP) every two years to assess, monitor, and improve the performance of the County's multimodal transportation system and strengthen the integration of transportation and land use planning. The current CMP[13] requires an analysis of any project that is expected to generate more than 100 PM peak hour vehicle trips. During weekdays, the project is expected to generate PM peak hour vehicle trips ranging from 705 (Maximum Residential Scenario) to 1,898 (Maximum Office Scenario). Because the project would generate more

[13] Alameda County Transportation Commission (ACTC), 2015. Congestion Management Program, October.

than 100 PM peak hour trips, a traffic analysis was conducted to evaluate potential traffic congestion impacts to nearby intersections affected by the project (see Section V.C, Traffic and Transportation).

In accordance with Senate Bill 743, the traffic analysis evaluated average daily vehicle miles traveled (VMT) per capita and VMT per employee for the residential, office, and retail portions of the project. The VMT analysis for the residential and office portions of the project used the MTC Travel Model, while the VMT analysis for the retail portion of the project used the ACTC Countywide Travel Demand Model. The VMT analysis found that the project would have a less-than-significant impact on regional VMT for the residential, office, and retail portions of the project (see Section V.C, Traffic and Transportation). As a result, the project is considered consistent with the current CMP.

The Maximum Office Scenario, which would generate the most PM peak hour vehicle trips under the PUD/PDP, would increase traffic volumes up to about 4,000 vehicles per hour at nearby intersections in 2020.[14] This is well below the BAAQMD's screening criteria of 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited. Because the project would comply with the BAAQMD's screening criteria, local CO concentrations associated with operation of the project would have a less-than-significant impact on nearby sensitive receptors for all development scenarios under the PUD/PDP.

(3) New Toxic Air Contaminants (Criterion 4)

Project construction would generate DPM and $PM_{2.5}$ emissions from the exhaust of off-road diesel construction equipment and on-road vehicles (worker, vendor, and haul trucks) accessing the project site. Similarly, project operations could generate DPM and $PM_{2.5}$ emissions from testing and maintenance of emergency generators. The emissions of DPM and $PM_{2.5}$ from diesel exhaust during project construction and operation could pose a health risk to nearby sensitive receptors. The BAAQMD recommends evaluating the potential health risks to sensitive receptors within 1,000 feet of a proposed project that could be exposed to TACs, such as DPM and $PM_{2.5}$.

Generation of TAC Emissions During Construction

The potential health risks to nearby sensitive receptors from emissions of DPM and $PM_{2.5}$ during construction were evaluated for the Maximum Residential Scenario. Based on the default model assumptions, evaluation of Maximum Residential Scenario is considered worst-case under the PUD/PDP because it would generate higher emissions of

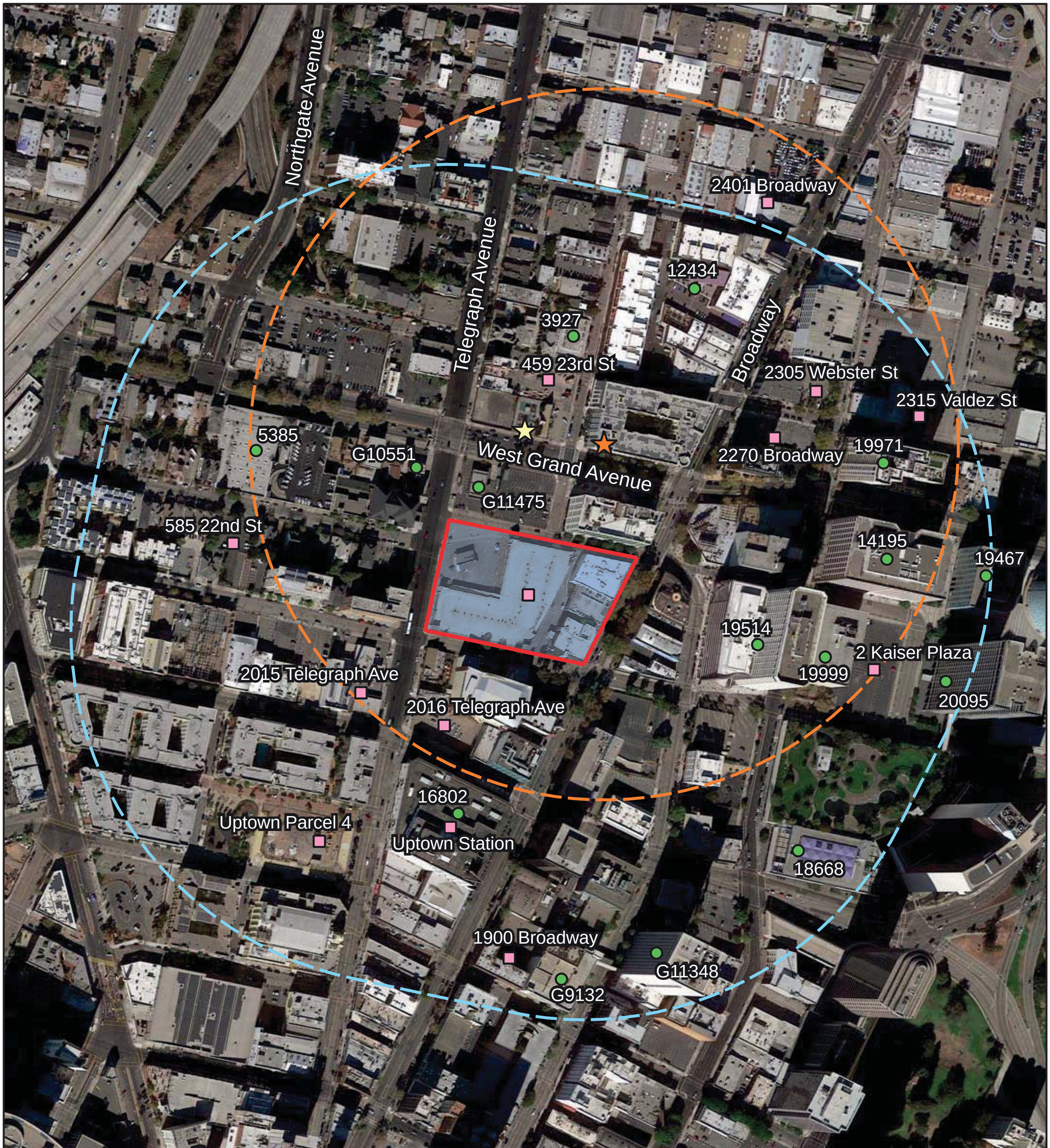
[14] Fehr & Peers, 2017. Turning Movement Volumes .

construction related DPM and $PM_{2.5}$ than the Maximum Office Scenario due to higher truck traffic volumes associated with multi-family construction. The annual average concentrations of DPM and exhaust $PM_{2.5}$ during construction of the Maximum Residential Scenario were estimated within 1,000 feet of the project site using the EPA's Industrial Source Complex Short Term (ISCST3) air dispersion model. For this analysis, emissions of exhaust PM_{10} were used as a surrogate for DPM, which is a conservative assumption because more than 90 percent of DPM is less than 1 micron in diameter. The input parameters and assumptions used for estimating emission rates of DPM and $PM_{2.5}$ from off-road diesel construction equipment and on-road vehicles (worker, vendor, and haul trucks) accessing the project site are included in Appendix D.

Daily emissions from off-road construction equipment were assumed to occur over an 8-hour period between 8:00 a.m. and 4:00 p.m. Monday through Friday. The exhaust from off-road equipment was represented in the ISCST3 model as a series of volume sources with a release height of 5 meters to represent the mid-range of the expected plume rise from frequently used construction equipment. On-road vehicles accessing the project site were represented in the ISCST3 model as a series of line-area sources with a release height of 3 meters for exhaust emissions.

A uniform grid of receptors spaced 10 meters apart with receptor heights of 1 meter (for ground-level receptors) and 6 meters (for second-story receptors) was placed around the development area as a means of developing isopleths (i.e., concentration contours) that illustrate the dispersion pattern from the various emissions sources. The ISCST3 model input parameters included 1 year of BAAQMD meteorological data from the Oakland STP weather station located about 2.5 miles northwest of the project site.

The air dispersion model was used to estimate annual average concentrations of DPM and $PM_{2.5}$, both before and after applying the Tier 4 engine requirements under SCA-AIR-1: Construction-Related Air Pollution Controls (Dust and Equipment Emissions) (#19). Based on the results of the air dispersion model (Appendix D), potential health risks were evaluated for the maximally exposed individual student (MEIS) and the maximally exposed individual resident (MEIR) located at a pre-school and the second-story of a multi-family residential building, respectively; both sensitive receptors are about 300 feet north of the project boundary (Figure V.D-1). The annual average concentration of DPM and $PM_{2.5}$ at the MEIS and MEIR are summarized in Table V.D-5.



Project Site
1,000-Foot Buffer around Project Site
1,000-Foot Buffer around Maximally Exposed Individual Resident (MEIR)
Existing Stationary Source (with Permit ID)
Future Emergency Generator
Maximally Exposed Individual Resident (MEIR)
Maximally Exposed Individual Student (MEIS)

Source: BASELINE Environmental Consulting, Google Earth Pro 2017

Figure V.D-1
TAC Sources and Sensitive Sources

TABLE V.D-5 ANNUAL AVERAGE CONCENTRATIONS AT MEIR AND MEIS DURING CONSTRUCTION OF THE MAXIMUM RESIDENTIAL SCENARIO

	Annual Average Concentration ($\mu g/m^3$)	
Sensitive Receptor	**DPM**	**Exhaust $PM_{2.5}$**
Construction Emissions (without SCA-AIR-1)		
Maximally Exposed Individual Resident	0.0560	0.0524
Maximally Exposed Individual Student	0.0601	0.0562
Construction Emissions (with SCA-AIR-1)		
Maximally Exposed Individual Resident	0.0028	0.0027
Maximally Exposed Individual Student	0.0036	0.0035

Notes: $\mu g/m^3$ = micrograms per cubic meter
Annual average concentrations of DPM and exhaust $PM_{2.5}$ associated with construction of the Maximum Residential Scenario are considered a worst-case scenario for all developments proposed under the PUD/PDP due to higher truck traffic volumes associated with multi-family construction.
Source: See Appendix D.

In accordance with guidance from the BAAQMD[15] and the Office of Environmental Health Hazard Assessment (OEHHA),[16] a health risk assessment was conducted to calculate the incremental increase in cancer risk and chronic HI to sensitive receptors from DPM emissions during construction. The acute HI for DPM was not calculated because an acute reference exposure level has not been approved by the OEHHA or the CARB, and the BAAQMD does not recommend analysis of acute non-cancer health hazards from construction activity. The annual average concentrations of DPM at the MEIR and MEIS were used to assess potential health risks to nearby sensitive receptors.

It was conservatively assumed that the MEIR and MEIS would be exposed to an annual average DPM concentration over the entire estimated duration of construction, which is about 2.5 years (30 months). At the MEIR location, the incremental increase in cancer risk from on-site DPM emissions during construction was assessed for a young child exposed to DPM for 2.5 years starting from infancy in the third trimester of pregnancy. At the MEIS location, the incremental increase in cancer risk from on-site DPM emissions during

[15] Bay Area Air Quality Management District (BAAQMD), 2012a. Recommended Methods for Screening and Modeling Local Risks and Hazards, May.

[16] Office of Environmental Health Hazard Assessment (OEHHA), 2015. Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, February.

construction was assessed for a pre-school child exposed to DPM for 2.5 years starting at the age of two. These exposure scenarios represent the most sensitive individuals who could be exposed to adverse air quality conditions in the vicinity of the project site. The input parameters and results of the health risk assessment are included in Appendix D.

Estimates of the health risks at the MEIR and MEIS from inhalation of DPM and $PM_{2.5}$ during construction of the Maximum Residential Scenario, both before and after applying the Tier 4 engine requirements under SCA-AIR-1: Construction-Related Air Pollution Controls (Dust and Equipment Emissions) (#19), are summarized and compared to the City's thresholds of significance in Table V.D-6. The estimated chronic HI for DPM and annual average $PM_{2.5}$ concentrations from construction emissions without SCA-AIR-1 were below the City's thresholds of significance at both receptors; however, the excess cancer risk exceeded the City's thresholds of significance without SCA-AIR-1 at both receptors. Implementation of SCA-AIR-1 would reduce the excess cancer risks at the MEIR and MEIS by about 95 percent and the risk levels would not exceed the City's threshold of significance. Therefore, the project's emissions of DPM and $PM_{2.5}$ during construction would have a less-than-significant impact on nearby sensitive receptors for all development options under the PUD/PDP.

TABLE V.D-6 HEALTH RISKS AT MEIR AND MEIS DURING CONSTRUCTION OF THE MAXIMUM RESIDENTIAL SCENARIO

	Diesel Particulate Matter		Exhaust $PM_{2.5}$
Sensitive Receptor	**Cancer Risk (per million)**	**Chronic Hazard Index**	**Annual Average Concentration (μg/m³)**
Construction Emissions (without SCA-AIR-1)			
Maximally Exposed Individual Resident	**16.7**	0.01	0.06
Maximally Exposed Individual Student	**12.9**	0.01	0.06
Construction Emissions (with SCA-AIR-1)			
Maximally Exposed Individual Resident	0.8	<0.01	<0.01
Maximally Exposed Individual Student	0.8	<0.01	<0.01
Thresholds of Significance	10	1.0	0.3

Notes: μg/m³ = micrograms per cubic meter

Bold and shaded text indicates exceedance of threshold.

Health risks associated with construction of the Maximum Residential Scenario are considered a worst-case scenario for all developments proposed under the PUD/PDP.
Source: See Appendix D.

Generation of TAC Emissions During Operation

The project would operate emergency generators under any development scenarios that would be implemented under the PUD/PDP. To operate emergency generators, the project would be required to comply with the BAAQMD's permit requirements for a stationary source. In accordance with BAAQMD Regulation 2-5, New Source Review of Toxic Air Contaminants, the BAAQMD does not issue a stationary source permit for a project that would result in an excess cancer risk greater than 10 in 1 million or an acute or chronic HI greater than 1.0. These health standards are also enforced through SCA-AIR-3: Stationary Sources of Air Pollution (Toxic Air Contaminants) (#21).

Conservatively assuming operation of the project's emergency generators would result in the BAAQMD's maximum permissible excess cancer risk of 10 in 1 million due to emissions of DPM, the BAAQMD's Risk and Hazards Emissions Screening Calculator (Beta Version) [17] was used to estimate the equivalent screening-level health risks values for chronic HI and annual average $PM_{2.5}$ concentrations. The calculator applies similar methods used to establish the emission threshold levels for TACs reported in the BAAQMD's Regulation 2-5. The health risk screening values from the project's emergency generators were then refined based on the distance from the project to the MEIR and MEIS using the BAAQMD's Diesel Internal Combustion Engine Distance Multiplier Tool.[18] The conservative screening-level health risks to sensitive receptors associated with operation of the emergency generators are summarized and compared to the City's thresholds of significance in Table V.D-7. The estimated excess cancer risks and chronic HI for DPM and the annual average $PM_{2.5}$ concentrations from operation of the emergency generators were below the City's thresholds of significance; therefore, the project's emissions of DPM and $PM_{2.5}$ during operation of emergency generators would have a less-than-significant impact on nearby sensitive receptors for all development scenarios under the PUD/PDP.

Cumulative TAC Emissions

In addition to a project's individual TAC emissions during construction and operation, the potential cumulative health risks to sensitive receptors from existing and reasonably foreseeable future sources of TACs were evaluated. Based on the proximity to existing and future sources of TACs, cumulative health risks were estimated at the MEIR to represent the worst-case-exposure scenario. The BAAQMD's online screening tools were used to provide conservative estimates of how much existing and foreseeable future TAC

[17] Bay Area Air Quality Management District (BAAQMD), 2016a. Risk and Hazards Emissions Screening Calculator (Beta Version).

[18] Bay Area Air Quality Management District (BAAQMD), 2012b. Diesel Internal Combustion Engine Distance Multiplier Tool. Available at: http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools. Last updated June 13.

TABLE V.D-7 HEALTH RISKS TO MEIR AND MEIS FROM OPERATION OF EMERGENCY GENERATORS AT THE PROJECT SITE

	Diesel Particulate Matter		Exhaust $PM_{2.5}$
Sensitive Receptor	**Cancer Risk (per million)**	**Chronic Hazard Index**	**Annual Average Concentration (μg/m³)**
Maximally Exposed Individual Resident	2.5	<0.01	<0.01
Maximally Exposed Individual Student	2.5	<0.01	<0.01
Thresholds of Significance	10	1.0	0.3
Thresholds Exceedance?	No	No	No

Notes: μg/m³ = micrograms per cubic meter
Source: Bay Area Air Quality Management District (BAAQMD), 2016a. Risk and Hazards Emissions Screening Calculator (Beta Version).

sources would contribute to cancer risk, HI, and $PM_{2.5}$ concentrations. The individual health risks associated with each source were summed to find the cumulative health risk at the MEIR.

Based on the BAAQMD's Stationary Source Screening Analysis Tool,[19] nine existing stationary sources of TAC emissions were identified within 1,000 feet of the MEIR (Table V.D-8 and Figure V.D-1). According to the BAAQMD, one of the stationary sources (BAAQMD Plant 3927 shown on Table V.D-8 and Figure V.D-1) has been closed and does not pose potential health risks or hazards to nearby sensitive receptors. Preliminary health risk screening values at the MEIR from the stationary sources were determined using the Stationary Source Screening Analysis Tool and Risk & Hazard Stationary Source Inquiry Form.[20] The BAAQMD's Gasoline Dispensing Facility Distance Multiplier Tool[21] and the Diesel Internal Combustion Engine Distance Multiplier Tool were used to refine the screening values associated with six of the existing stationary sources to represent the

[19] Bay Area Air Quality Management District (BAAQMD), 2012c. Stationary Source Screening Analysis Tool. Available at: http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools. Last updated May 30.

[20] Bay Area Air Quality Management District (BAAQMD), 2016b. Risk & Hazard Stationary Source Inquiry Form. Data requests submitted to Allison Kirk of the BAAQMD on April 4, April 22, and December 13, 2016.

[21] Bay Area Air Quality Management District (BAAQMD), 2012d. Gasoline Dispensing Facility Distance Multiplier Tool. Available at: http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools. Last updated June 13.

attenuated health risks that can be expected with increasing distance from gas stations and diesel engines, respectively.

Based on the traffic analysis for the project,[22] there are three major roadways (West Grand Avenue, Telegraph Avenue, and Broadway) with estimated annual daily traffic (AADT) volumes greater than 10,000 vehicles per day within 1,000 feet of the project site (Table V.D-8 and Figure V.D-1). The maximum potential health risks at the MEIR from mobile emissions along the major roadways were estimated using the BAAQMD's Roadway Screening Analysis Calculator.[23]

There are eight proposed residential and/or office developments within 1,000 feet of the MEIR, which could involve the operation of emergency diesel generators (Table V.D-8 and Figure V.D-1). The BAAQMD does not issue stationary source permits for projects that result in an excess cancer risk greater than 10 in 1 million or a chronic HI greater than 1.0. Conservatively assuming each proposed generator would result in a maximum excess cancer risk of 10 in 1 million due to emissions of DPM, the BAAQMD's Risk and Hazards Emissions Screening Calculator (Beta Version) was used to estimate the equivalent screening-level health risks values for chronic HI and annual average $PM_{2.5}$ concentrations. The health risk screening values from the future generators were then refined based on the distance from each source to the MEIR using the BAAQMD's Diesel Internal Combustion Engine Distance Multiplier Tool.

Estimates of the cumulative health risks at the MEIR are summarized and compared to the City's cumulative thresholds of significance in Table V.D-8. The excess cancer risk and chronic HI from DPM emissions and annual average $PM_{2.5}$ concentrations at the MEIR were below the City's cumulative thresholds both before and after applying the City's Tier 4 engine requirements to control construction emissions under SCA-AIR-1: Construction-Related Air Pollution Controls (Dust and Equipment Emissions) (#19). As discussed above, the use of Tier 4 engines would reduce DPM emissions and associated health risks by about 95 percent during construction. Therefore, the cumulative impact to nearby sensitive receptors from TAC emissions during construction and operation of the project would be less than significant for all development options under the PUD/PDP.

(4) Exposure to Existing Toxic Air Contaminants (Criterion 5)

Future residents of the project site, except under the non-residential scenario, could be exposed to existing and reasonably foreseeable future sources of TAC emissions. While

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[22] Fehr & Peers, 2017. AADT estimates.

[23] Bay Area Air Quality Management District (BAAQMD), 2015. Roadway Screening Analysis Calculator. April 16.

TABLE V.D-8 SUMMARY OF CUMULATIVE HEALTH RISKS AT THE MEIR

Source	Source Type	Cancer Risk (10^{-6})	Chronic Hazard Index	$PM_{2.5}$ ($\mu g/m^3$)
Project				
Emissions without SCA-AIR-1	Diesel Exhaust	16.7	0.01	0.06
Emissions with SCA-AIR-1	Diesel Exhaust	0.8	<0.01	<0.01
Emergency Generators	Diesel Generator	2.5	<0.01	<0.01
Future Stationary Sources				
459 23rd Street	Diesel Generator	3.1	<0.01	0.01
2270 Broadway	Diesel Generator	1.5	<0.01	<0.01
2305 Webster Street	Diesel Generator	0.9	<0.01	<0.01
2401 Broadway	Diesel Generator	0.6	<0.01	<0.01
2315 Valdez Street	Diesel Generator	0.5	<0.01	<0.01
2016 Telegraph Avenue	Diesel Generator	0.5	<0.01	<0.01
2015 Telegraph Avenue	Diesel Generator	0.4	<0.01	<0.01
2 Kaiser Plaza	Diesel Generator	0.4	<0.01	<0.01
Existing Stationary Sources				
Hanzel Auto Body Works (3927)	Facility Closed	NA	NA	NA
Chevron Inc. (G11475)	Gas Station	1.0	<0.01	NA
State of California Department of Transportation (14195)	Diesel Generator	4.4	<0.01	0.01
Q & S Automotive (12434)	Not Reported	<0.1	<0.01	<0.01
Oakland Valero Service Center (G10551)	Gas Station	0.7	<0.01	NA
Oakland Center 21 (19514)	Diesel Generator	0.1	<0.01	<0.01
Essex Portfolio LLC DBA The Grand Apartments (19971)	Diesel Generator	1.0	<0.01	<0.01
Pacific Bell Telephone Co (19999)	Diesel Generator	0.8	<0.01	<0.01
Weatherford BMW (5385)	Not Reported	<0.1	<0.01	0.04

TABLE V.D-8 SUMMARY OF CUMULATIVE HEALTH RISKS AT THE MEIR

Source	Source Type	Cancer Risk (10^{-6})	Chronic Hazard Index	$PM_{2.5}$ (µg/m^3)
Existing Mobile Sources				
West Grand Avenue (16,070 AADT)	Major Roadway	12.6	NA	0.25
Telegraph Avenue (10,660 AADT)	Major Roadway	1.9	NA	0.04
Broadway (11,020 AADT)	Major Roadway	1.9	NA	0.03
	Cumulative Health Risks without SCA-AIR-1	51	<0.1	0.4
	Cumulative Health Risks with SCA-AIR-1	36	<0.1	0.4
	Cumulative Thresholds of Significance	100	10.0	0.8
	Threshold Exceedance?	No	No	No

Notes: µg/m^3 = micrograms per cubic meter; NA = not applicable
Cumulative health risks at the MEIR represent the worst-case-exposure scenario.
Sources: Health risk screening values derived from the BAAQMD's Tools and Methodologies. Available at: http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools, accessed January 2017.
Fehr & Peers, 2017. AADT estimates.

CEQA does not require the analysis or mitigation of potential effects the existing environment may have on a project (with certain exceptions), an analysis of the potential effects existing TAC sources may have on the future receptors at the project site was performed to provide information to the public and decision makers. The health risks posed to the closest residential receptor on the project site to each TAC source were considered to conservatively analyze cumulative health risks to all future receptors on the project site.

The approach for assessing the cumulative health risks to future sensitive receptors on the project site was the same as the methods described above to determine potential health risks to existing sensitive receptors. Existing sources of TAC emissions identified within 1,000 feet of the project included 15 stationary sources and three major roadways. According to the BAAQMD, three of the stationary sources (BAAQMD Plant 3927, G11348, and G9132, shown on Table V.D-9 and Figure V.D-1) have been closed and do not pose potential health risks or hazards to nearby sensitive receptors. Reasonably foreseeable future sources of TAC emissions include 12 residential and/or office building developments (including the project site) that could operate emergency diesel generators (see Table V.D-9 and Figure V.D-1).

TABLE V.D-9 SUMMARY OF CUMULATIVE HEALTH RISKS AT THE PROJECT SITE

Source	Source Type	Cancer Risk (10^{-6})	Chronic Hazard Index	$PM_{2.5}$ ($\mu g/m^3$)
Project				
Emergency Generators	Diesel Generator	10.0	<0.01	0.02
Future Stationary Sources				
2016 Telegraph Avenue	Diesel Generator	3.1	<0.01	0.01
2015 Telegraph Avenue	Diesel Generator	3.1	<0.01	0.01
459 23rd Street	Diesel Generator	1.5	<0.01	<0.01
2270 Broadway	Diesel Generator	1.2	<0.01	<0.01
Uptown Station	Diesel Generator	1.2	<0.01	<0.01
585 22nd Street	Diesel Generator	1.0	<0.01	<0.01
Uptown Parcel 4	Diesel Generator	0.8	<0.01	<0.01
2305 Webster Street	Diesel Generator	0.8	<0.01	<0.01
2 Kaiser Plaza	Diesel Generator	0.7	<0.01	<0.01
1900 Broadway	Diesel Generator	0.6	<0.01	<0.01
2315 Valdez Street	Diesel Generator	0.5	<0.01	<0.01
Existing Stationary Sources				
Chevron Inc. (G11475)	Gas Station	8.5	0.01	NA
Oakland Valero Service Center (G10551)	Gas Station	4.4	0.01	NA
State of California Department of Transportation (14195)	Diesel Generator	3.3	<0.01	0.01
Oakland Center 21 (19514)	Diesel Generator	0.3	<0.01	<0.01
Sears #1039 (16802)	Not Reported	<0.1	<0.01	0.01
Hanzel Auto Body Works (3927)	Facility Closed	NA	NA	NA
Weatherford BMW (5385)	Not Reported	<0.1	<0.01	0.04
Pacific Bell Telephone Co (19999)	Diesel Generator	1.4	<0.01	<0.01

TABLE V.D-9 SUMMARY OF CUMULATIVE HEALTH RISKS AT THE PROJECT SITE

Source	Source Type	Cancer Risk (10^{-6})	Chronic Hazard Index	$PM_{2.5}$ ($\mu g/m^3$)
Essex Portfolio LLC DBA The Grand Apartments (19971)	Diesel Generator	1.1	<0.01	<0.01
Q&S Automotive (12434)	Not Reported	<0.1	<0.01	<0.01
AT&T Corp (18668)	Diesel Generator	3.0	<0.01	<0.01
Kaiser Permanente (G11348)	Facility Closed	NA	NA	NA
Kaiser Foundation Health Plan (G9132)	Facility Closed	NA	NA	NA
CIM Group/Ordway (20095)	Diesel Generator	0.8	<0.01	<0.01
Brandywine Realty Trust (19467)	Diesel Generator	0.8	<0.01	<0.01
Existing Mobile Sources				
West Grand Avenue (16,070 AADT)	Major Roadway	3.0	NA	0.06
Telegraph Avenue (10,660 AADT)	Major Roadway	11.5	NA	0.23
Broadway (11,020 AADT)	Major Roadway	8.1	NA	0.15
	Cumulative Health Risks	71	<0.1	0.5
	Cumulative Thresholds of Significance	100	10.0	0.8
	Threshold Exceedance?	No	No	No

Notes: $\mu g/m^3$ = micrograms per cubic meter; NA = not applicable
Sources: Health risk screening values derived from the BAAQMD's Tools and Methodologies. Available at: http://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/ceqa-tools, accessed January 2017.
Fehr & Peers, 2017. AADT estimates.

As shown in Table V.D-9, the estimated cumulative excess cancer risk and chronic HI from DPM emissions and annual average $PM_{2.5}$ concentrations at the project site would be below the City's cumulative threshold of significance. Therefore, the project would not be required to implement health risk reduction measures under SCA-AIR-2: Exposure to Air Pollution (Toxic Air Contaminants) (#20), and the cumulative impact to future receptors on the project site from existing and future foreseeable TAC emissions would be less than significant for all development scenarios analyzed under the PUD/PDP.

(5) Odors (Criterion 6)

As a mixed-use development, the project would not be expected to generate significant odors. Land uses surrounding the project site include mixed residential and commercial land uses, which would also not be expected to generate significant odors. Therefore, project impacts related to odors would be less than significant for all development scenarios under the PUD/PDP.

d. Significant Air Quality Impacts

Implementation of the project would result in the potentially significant air quality impacts described below.

(1) Criteria Air Pollutants During Operation (Criterion 2)

Project operation would generate criteria air pollutant emissions that could affect regional air quality. Pollutant emissions were estimated in CalEEMod for existing conditions and the Residential/Office Mix Scenario, Maximum Residential Scenario, Maximum Office Scenario, and All Office Scenario. A copy of the CalEEMod report for the project, which summarizes the input parameters, assumptions, and findings, is provided in Appendix D.

Impact AIR-1: **Operation of the project, under the Maximum Office Scenario, would generate criteria air pollutants that could violate an air quality standard or contribute substantially to an existing or projected air quality violation. (S)**

The primary pollutant emissions of concern during project operation would be ROG, NO_x, and exhaust PM_{10}, and $PM_{2.5}$ from mobile sources, energy use, area sources (e.g., consumer products, architectural coatings, and landscape maintenance equipment), and stationary sources. Project emissions were estimated for 2020, which is the earliest expected year of operation. Because Statewide vehicle emission standards are required to improve over time in accordance with the Pavley (AB 1493) and Low-Emission Vehicle regulations (Title 13, California Code of Regulations, Section 1961.2), estimating emissions for the earliest year of operation provides the maximum annual emissions. Additional project-specific information used to calculate operation emissions in CalEEMod, including changes to default data, is summarized in Table V.D-10.

The City has adopted a Green Building Ordinance for private development projects. In accordance with the Green Building Ordinance, the project must implement mandatory measures from the Statewide CALGreen Code and complete a Green Building Compliance

TABLE V.D-10 SUMMARY OF OPERATION INPUT PARAMETERS FOR CALEEMOD

CalEEMod Input Category	Operation Assumptions and Changes to Default Data
Vehicle Trip Rates	Daily trip rates for each type of land use were adjusted according to the project traffic analysis by Fehr & Peers.[a] These trip estimates account for a 43-percent trip reduction based on the City's Transportation Impact Study Guidelines data for development in an urban environment within ½ mile of a BART station, and an additional 20-percent trip reduction based on SCA-AIR-5.
Vehicle Trip Lengths	Average trip distances for each land use were adjusted based on 2015 results from the MTC travel model for residents and workers located in the project vicinity (Transportation Analysis Zone 970).
Fleet Mix	Because the project is not expected to generate new bus or mobile home trips, these vehicle types were removed from the fleet mix. It was also assumed that home-based trips would not include medium heavy-duty or heavy heavy-duty trucks. Based on these assumptions, the default ratio of vehicle types representing each land use were maintained and scaled up.
Exterior Paints	Exterior paints will not be used.
Consumer Products	The default emission factor for ROG from consumer products is based on CARB's 2008 Statewide emissions inventory of volatile organic compound (VOC) emissions from consumer products, which was 239.6 tons VOCs/day. According to CARB's most recent 2012 Statewide emissions inventory, VOC emissions from consumer products have reduce by about 14.6 percent to 204.7 tons VOCs/day. Therefore, the default emission factor for ROG from consumer products was reduced by 14.6 percent.
Stationary Sources	In accordance with the California Building Code, emergency generator(s) would be required for the project. It was assumed that the project would operate one 1,500 kilowatt (kW) generator and one 500-kW generator for the Residential/Office Mix Scenario; a 1,500-kW generator for the Maximum Residential Scenario; and two 2,500-kW generators for both the Maximum Office Scenario and the All Office Scenario. The generators would be powered by diesel and used for non-emergency operation up to 50 hours per year (for routine testing and maintenance).

Notes: Default CalEEMod data used for all other parameters not described.
[a] Fehr & Peer, 2017. Draft Memorandum; 2100 Telegraph Avenue – Preliminary Transportation Assessment. January 6.
Source: CalEEMod (Appendix D).

Checklist (e.g., LEED or GreenPoint Rater).[24] While implementation of the CALGreen Code could result in additional reductions in energy use, these potential reductions are not known at this time, and therefore were not included in the analysis to estimate unmitigated emissions of criteria pollutants for the project.

[24] Rating system and checklist determined by City of Oakland Planning Department based on square footage of each land use.

Estimated emissions from the existing land uses on the project site were subtracted from the estimated maximum annual and average daily emissions during the operational phase of each development scenario to determine the project's net increase in emissions (Table V.D-11). Under the Residential/Office Mix Scenario, the Maximum Residential Scenario, and the All Office Scenario, the estimated emissions of ROG, NO_x, and exhaust PM_{10} and $PM_{2.5}$ were below the applicable thresholds of significance; therefore, operation of the Residential/Office Mix Scenario, the Maximum Residential Scenario, and the All Office Scenario would result in a less-than-significant impact on regional air quality standards.

Under the Maximum Office Scenario, the estimated emissions of exhaust PM_{10} and $PM_{2.5}$ are below the applicable thresholds of significance; however, the estimated emissions of ROG and NO_x exceed the applicable thresholds. Approximately 71 percent of the estimated ROG emissions are from consumer products (e.g., cleaning supplies) and 76 percent of the estimated NO_x emissions are from vehicle exhaust.

Consumer products have been regulated by the CARB in numerous rulemakings since 1989. While the CARB can set ROG limits for specific categories of consumer products, the purchase and use of consumer products cannot be feasibly mitigated on a project by project basis. Therefore, emissions of ROG during operation of the Maximum Office Scenario would result in a significant and unavoidable impact on regional air quality standards.

The estimated emissions of NO_x from vehicle trips generated by the project does not take into account the potential benefits an infill project can have on regional travel. Based on the MTC Travel Model, the estimated average VMT per worker in the Bay Area is 21.8 miles per day under 2020 conditions. The estimated average VMT per worker in the project vicinity (Transportation Analysis Zone 970) is 12.5 miles per day under 2020 conditions,[25] which is about 43 percent lower than the regional average VMT for the Bay Area. Therefore, vehicle trips generated by the Maximum Office Scenario would be expected to reduce the average VMT per worker in the Bay Area, which would thereby reduce the regional vehicle emissions of NO_x from worker vehicle trips. Because the City's project-level threshold of significance for NO_x is based on total emissions instead of emissions per worker, the emissions of NO_x during operation of the Maximum Office Scenario would conservatively remain a significant and unavoidable impact on regional air quality standards.

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[25] MTC and ABAG, 2016. Plan Bay Area; Interactive Simulated VMT per Worker by Place of Employment. http://analytics.mtc.ca.gov/foswiki/Main/PlanBayAreaVmtPerWorker, February 3.

TABLE V.D-11 ESTIMATED UNMITIGATED OPERATION EMISSIONS

Emissions Scenario	Maximum Annual Emissions (Tons)				Average Daily Emissions (Pounds)			
	ROG	NO_x	Exhaust PM_{10}	Exhaust $PM_{2.5}$	ROG	NO_x	Exhaust PM_{10}	Exhaust $PM_{2.5}$
Existing Emissions	0.40	1.17	0.01	0.01	2.17	6.39	0.05	0.05
Residential/Office Mix Scenario								
Area	5.15	0.03	0.02	0.02	28.25	0.19	0.09	0.09
Energy	0.12	1.08	0.08	0.08	0.66	5.92	0.46	0.46
Mobile	1.52	7.30	0.04	0.04	8.34	40.02	0.21	0.19
Generator	0.11	0.45	0.02	0.02	0.60	2.44	0.09	0.09
Project Emissions	6.91	8.86	0.15	0.15	37.84	48.57	0.84	0.83
Net Emissions	6.5	7.7	0.1	0.1	35.7	42.2	0.8	0.8
Maximum Residential Scenario								
Area	7.22	0.13	0.06	0.06	39.58	0.74	0.35	0.35
Energy	0.10	0.87	0.07	0.07	0.56	4.78	0.39	0.39
Mobile	1.72	4.82	0.03	0.03	9.42	26.39	0.19	0.18
Generator	0.08	0.37	0.01	0.01	0.45	2.02	0.07	0.07
Project Emissions	9.13	6.19	0.18	0.18	50.02	33.93	0.99	0.98
Net Emissions	8.7	5	0.2	0.2	47.9	27.5	0.9	0.9
Maximum Office Scenario								
Area	10.35	<0.01	<0.01	<0.01	56.72	<0.01	<0.01	<0.01
Energy	0.28	2.58	0.20	0.20	1.56	14.13	1.07	1.07
Mobile	2.17	12.20	0.06	0.06	11.87	66.87	0.32	0.30
Generator	0.28	1.23	0.04	0.04	1.51	6.74	0.22	0.22
Project Emissions	13.08	16.01	0.30	0.29	71.66	87.75	1.62	1.60
Net Emissions	**12.7**	**14.8**	0.3	0.3	**69.5**	**81.4**	1.6	1.6
All Office Scenario								
Area	5.71	<0.01	<0.01	<0.01	31.31	<0.01	<0.01	<0.01
Energy	0.15	1.40	0.11	0.11	0.84	7.66	0.58	0.58
Mobile	1.40	7.84	0.04	0.04	7.66	42.98	0.20	0.19
Generator	0.28	1.23	0.04	0.04	1.51	6.74	0.22	0.22

TABLE V.D-11 ESTIMATED UNMITIGATED OPERATION EMISSIONS

	Maximum Annual Emissions (Tons)				Average Daily Emissions (Pounds)			
Emissions Scenario	**ROG**	**NO_x**	**Exhaust PM_{10}**	**Exhaust $PM_{2.5}$**	**ROG**	**NO_x**	**Exhaust PM_{10}**	**Exhaust $PM_{2.5}$**
Project Emissions	7.54	10.47	0.18	0.18	41.33	57.39	1.01	1.00
Net Emissions	7.1	9.3	0.2	0.2	39.2	51.0	1.0	1.0
Thresholds of Significance	10	10	15	10	54	54	82	54

Notes: **Bold text and gray shading** indicates that estimated emissions exceed the threshold of significance.
Source: CalEEMod (Appendix D).

e. Cumulative Impacts

The projects cumulative impacts are described below.

(1) Criteria Pollutants (Criteria 1 & 2 Cumulative)

According to the BAAQMD, regional air pollution is largely a cumulative impact. No single project is sufficient in size to independently create regional nonattainment of ambient air quality standards. If a project does not exceed the thresholds of significance adopted by the City, its emissions would not be considered cumulatively considerable, resulting in a less-than-significant cumulative air quality impact relative to existing conditions. As shown in Tables V.D-4 and V.D-11, implementation of the Residential/Office Mix Scenario, the Maximum Residential Scenario, and the All Office Scenario would not result in an exceedance of the construction or operational thresholds for criteria air pollutants; therefore, the Residential/Office Mix Scenario, the Maximum Residential Scenario, and the All Office Scenario would not result in a cumulatively significant impact related to regional air quality standards. Implementation of the Maximum Office Scenario would not result in an exceedance of the construction thresholds for criteria air pollutants, but would result in an exceedance of the operational thresholds; therefore, the Maximum Office Scenario would result in a cumulatively significant and unavoidable impact related to regional air quality standards as identified in Impact AIR-1 above.

(2) Carbon Monoxide (Criterion 3 Cumulative)

According to the BAAQMD CEQA Guidelines, the cumulative impact of a project's contribution to local CO concentrations should be estimated for one or more of the following conditions: (a) project-generated traffic would conflict with an applicable congestion management program; (b) project-generated traffic would increase traffic volumes at affected intersections to more than 44,000 vehicles per hour, or more than 24,000 vehicles per hours where atmospheric mixing is substantially limited. As noted in Section 3.a, *Significance Criteria*, only the MacArthur Maze portion of Interstate 580 exceeds the 44,000 vehicles per hour screening criteria in Oakland. Furthermore, the project is not located in an area where vertical or horizontal mixing is limited by tunnels, underpasses, and other features. The design features of the project, such as its proximity to public transit and implementation of Transportation and Parking Demand Management measures, would not result in any conflict with an existing congestion management program. Therefore, cumulative impacts of CO emissions would be less than significant for all development scenarios under the PUD/PDP.

(3) Toxic Air Contaminants (Criterion 4 & 5 Cumulative)

As previously discussed, the potential health risks to existing sensitive receptors near the project site and future receptors on the project site from existing and future foreseeable TAC emissions are below the cumulative health and hazard thresholds for all development scenarios under the PUD/PDP (Tables V.D-8 and V.D-9, respectively). Therefore, the cumulative impact to existing sensitive receptors near the project site and future receptors on the project site would be less than significant for all development scenarios under the PUD/PDP.

(4) Odors (Criteria 6 Cumulative)

The proposed land uses of the project are multi-family residential, retail, and/or commercial. The project would be located in an area where these types of land uses are existing conditions. The land uses associated with the proposed project and existing land uses near the project are not significant sources of odors. Therefore, cumulative impacts related to odors would be less than significant for all development scenarios under the PUD/PDP.

E. GREENHOUSE GAS EMISSIONS

This section describes the existing conditions with respect to greenhouse gas (GHG) emissions in the vicinity of the project site; discusses the federal, State, and local regulations and policies pertinent to GHG emissions; assesses the potentially significant impacts to the environment as a result of GHG emissions generated by the Eastline project; and provides, where appropriate, mitigation measures and SCAs to address those impacts. The potential impacts assessed include increases in GHG emissions during both the construction and operational phases of the project.

The analysis in this section was prepared in accordance with the Bay Area Air Quality Management District (BAAQMD) CEQA Air Quality Guidelines (CEQA Guidelines).[1]

1. Setting

a. Climate Change and GHG Emissions

Existing GHGs allow about two-thirds of the visible and ultraviolet light from the sun to pass through the atmosphere and be absorbed by the Earth's surface. To balance the absorbed incoming energy, the surface radiates thermal energy back to space at longer wavelengths, primarily in the infrared part of the spectrum. Much of the thermal radiation emitted from the surface is absorbed by the GHGs in the atmosphere and is re-radiated in all directions. Because part of the re-radiation is back toward the surface and the lower atmosphere, global surface temperatures are elevated above what they would be in the absence of GHGs. This process of trapping heat in the lower atmosphere is known as the greenhouse effect.

An increase of GHGs in the atmosphere affects the energy balance of the Earth and results in a global warming trend. Increases in global average temperatures have been observed since the mid-20th century, and have been linked to observed increases in GHG emissions from anthropogenic sources. The primary GHG emissions of concern are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Other GHGs of concern include hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6), but their contribution to climate change is less than 1 percent of the total by well-mixed[2]

[1] Bay Area Air Quality Management District (BAAQMD), 2017b. California Environmental Quality Act Air Quality Guidelines, May.

[2] GHGs that have atmospheric lifetimes long enough to be relatively homogeneously mixed in the troposphere.

GHGs.[3] Each GHG has a different global warming potential (GWP); for instance, CH_4 traps about 21 times more heat per molecule than does CO_2. Therefore, emissions of GHGs are reported in terms of metric tons of carbon dioxide equivalents (CO_2e), wherein each GHG is weighted by its GWP relative to CO_2.

Due to anthropogenic sources, the atmospheric concentrations of CO_2, CH_4, and N_2O have increased to levels unprecedented in at least the past 800,000 years. In 2010, concentrations of CO_2, CH_4, and N_2O exceeded the pre-industrial era (before 1750) by about 39, 158, and 18 percent, respectively.[4] The Earth's mean surface temperature in the Northern Hemisphere from 1983 to 2012 was likely the warmest 30-year period over the past 1,400 years.[5] The first 6 months of 2016 also ranked as the Earth's warmest period on record since 1880.[6]

The global increases in CO_2 concentrations are due primarily to fossil fuel combustion, cement production, and land use changes (e.g., deforestation). The dominant anthropogenic sources of CH_4 are ruminant livestock, fossil fuel extraction and use, rice paddy agriculture, and landfills, while the dominant anthropogenic sources of N_2O are ammonia for fertilizer and industry.[7] No emissions of HFCs, PFCs, and SF_6 are naturally occurring; they all originate from industrial processes such as semiconductor manufacturing, their use as refrigerants and other products, and electric power transmission and distribution.[8]

b. Existing GHG Emissions and Projections

In 2011, the California Air Resources Board (CARB) estimated that transportation was responsible for about 37 percent of California's GHG emissions, followed by industrial

[3] Intergovernmental Panel on Climate Change, 2013. Climate Change 2013; the Physical Science Basis; Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.

[4] Bay Area Air Quality Management District (BAAQMD), 2015. Bay Area Emissions Inventory Summary Report: Greenhouse Gases, Base Year 2011, January.

[5] Intergovernmental Panel on Climate Change, 2013. Climate Change 2013; the Physical Science Basis; Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.

[6] National Aeronautics and Space Administration (NASA), 2016. 2016 Climate Trends Continue to Break Records. Available at https://www.nasa.gov/feature/goddard/2016/climate-trends-continue-to-break-records. Last updated July 16.

[7] Intergovernmental Panel on Climate Change, 2013. Climate Change 2013; the Physical Science Basis; Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.

[8] Bay Area Air Quality Management District (BAAQMD), 2015. Bay Area Emissions Inventory Summary Report: Greenhouse Gases, Base Year 2011, January.

sources and electrical power generation at about 20 percent each.[9] In 2011, 86.6 million metric tons of CO_2e was emitted from anthropogenic sources within the San Francisco Bay Area Air Basin (SFBAAB). Emissions of CO_2 dominate the GHG inventory in the SFBAAB, accounting for about 90 percent of the total CO_2e emissions reported.[10] The 2011 GHG emissions in the SFBAAB are summarized in Table V.E-1.

In the absence of policy changes (also referred to as a "business as usual" scenario), the BAAQMD estimated that the 2011 SFBAAB GHG emissions would increase by an average of 0.5 percent per year based on projected population growth and economic expansion (Table V.E-2).

c. Effects of GHG Emissions

Some of the potential effects of increased GHG emissions and associated climate change may include loss of snow pack (affecting water supply), more frequent extreme weather events, more large forest fires, more drought years, and sea level rise. In addition, climate change may increase electricity demand for cooling, decrease the availability of hydroelectric power, and affect regional air quality and public health.[11]

2. Regulatory Setting

a. Federal Regulations

The United States (U.S.) participates in the United Nations Framework Convention on Climate Change. In 1998 under the Clinton administration, the U.S. signed the Kyoto Protocol, which would have required reductions in GHGs; however, the protocol did not become binding in the U.S. as it was never ratified by Congress. Instead, the federal government chose voluntary and incentive-based programs to reduce emissions, and has established programs to promote climate technology and science. In 2002, the U.S. announced a strategy to reduce the GHG intensity of the American economy by 18 percent over a 10-year period from 2002 to 2012. In 2015, the U.S. submitted its "intended nationally determined contribution" to the framework convention, which targets to cut net GHG emissions by 26 to 28 percent below 2005 levels by 2025.

[9] California Air Resources Board (CARB), 2015. California Greenhouse Gas Emissions for 2000 to 2013 – Trends of Emissions and Other Indicators, June 16.

[10] Bay Area Air Quality Management District (BAAQMD), 2010a. Bay Area 2010 Clean Air Plan, September 15.

[11] Bay Area Air Quality Management District (BAAQMD), 2010a. Bay Area 2010 Clean Air Plan, September 15.

TABLE V.E-1 SAN FRANCISCO BAY AREA 2011 GHG EMISSIONS INVENTORY

Pollutant	Percent	CO_2e (MMT/Year)
Carbon Dioxide	90.3	78.2
Methane	3.0	2.6
Nitrous Oxide	1.7	1.5
Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride	4.9	4.3
Total	**100**	**86.6**

Note: MMT = million metric tons
Source: Bay Area Air Quality Management District (BAAQMD), 2015. Bay Area Emissions Inventory Summary Report: Greenhouse Gases, Base Year 2011, January.

TABLE V.E-2 SAN FRANCISCO BAY AREA GHG EMISSIONS TRENDS (MILLION METRIC TONS CO2E)

Category	2011	2014	2017	2020	2023	2026	2029
Transportation	34.3	33.9	32.5	30.4	30.8	30.8	31.2
Industrial/Commercial	31	32.6	34.3	36	37.6	39.3	40.8
Electricity/Cogeneration	12.1	12.9	12.6	12.3	12.4	12.5	12.7
Residential Fuel	6.6	6.7	6.8	6.9	7	7.1	7.2
Off-Road Equipment	1.3	1.3	1.4	1.3	1.4	1.5	1.6
Agriculture	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Total	**86.6**	**88.7**	**88.8**	**88.2**	**90.5**	**92.4**	**94.8**

Note: Emissions reported are based on a "business as usual" projection.
Source: Bay Area Air Quality Management District (BAAQMD), 2015. Bay Area Emissions Inventory Summary Report: Greenhouse Gases, Base Year 2011, January.

The U.S. Environmental Protection Agency (EPA) is responsible for enforcing the federal Clean Air Act and the 1990 amendments to it. On April 2, 2007, the U.S. Supreme Court ruled that CO_2 is an air pollutant as defined under the Clean Air Act, and that the EPA has the authority to regulate emissions of GHGs.[12] The EPA made two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act, as follows:

[12] Massachusetts, et al. v. U.S. Envtl. Prot. Agency, et al. (2007) 549 U.S. 497.

- **Endangerment Finding:** The current and projected concentrations of the six key well-mixed GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

These findings do not themselves impose any requirements on industry or other entities. However, they were a prerequisite for implementing GHG emissions standards for vehicles. In collaboration with the National Highway Traffic Safety Administration, the EPA finalized emissions standards for light-duty vehicles (2012–2016 model years) in May 2010 and heavy-duty vehicles (2014–2018 model years) in August 2011.

b. State Regulations and Policies

(1) Pavley Regulations – Assembly Bill 1493

In 2002, the California Legislature adopted Assembly Bill (AB) 1493, referred to as the "Pavley regulations," which required the CARB to develop and adopt regulations that achieve the maximum feasible and cost-effective reductions in GHG emissions from new passenger vehicles. To meet the requirements of AB 1493, the CARB approved amendments to the California Code of Regulations in 2004 that added GHG emissions standards to California's existing standards for motor vehicle emissions. In 2009, the CARB adopted amendments to the Pavley regulations that reduce GHG emissions in new passenger vehicles from 2009 through 2016. These regulations are expected to reduce GHG emissions from California passenger vehicles by 30 percent through 2016.

(2) Renewable Portfolio Standard – Senate Bills 1078, 107, X1-2, and 350

In 2002, under Senate Bill (SB) 1078, the State enacted the Renewable Portfolio Standard (RPS) program, which aims to increase the percentage of renewable energy in California's electricity mix to 20 percent of retail sales by 2017. The RPS timeline was accelerated in 2006 under SB 107 and expanded in 2011 and 2015 under SB X1-2 and SB 350, respectively. The RPS program currently requires investor-owned utilities, electric service providers, and community choice aggregators to increase procurement from eligible renewable energy resources to 33 percent by 2020 and to 50 percent by 2030.

(3) Executive Order S-3-05

In 2005, Governor Schwarzenegger issued Executive Order S-3-05, which states that California is vulnerable to the effects of climate change, including reduced snowpack in the Sierra Nevada Mountains, exacerbation of California's existing air quality problems, and sea level rise. To address these concerns, the executive order established the following statewide GHG emissions reduction targets:

- By 2010, reduce GHG emissions to 2000 levels.
- By 2020, reduce GHG emissions to 1990 levels.
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

It should be noted that executive orders are legally binding only on State agencies and have no direct effect on local government or private actions.

(4) California Global Warming Solutions Act of 2006 – AB 32

In 2006, Governor Schwarzenegger signed AB 32, the California Global Warming Solutions Act, which requires California to reduce statewide GHG emissions to 1990 levels by 2020. In December 2008, the CARB adopted the AB 32 Scoping Plan, which outlines a statewide strategy to achieve AB 32 goals. At the regional level, in response to SB 375 (see below), the Bay Area and other major metropolitan areas in California have developed sustainable communities strategies (SCSs) to integrate land use and transportation planning in order to reduce future motor vehicle travel and decrease GHG emissions. In addition, the BAAQMD is implementing a wide range of programs that promote energy efficiency, reduce vehicle miles traveled (VMTs), and develop alternative sources of energy.

(5) Low-Carbon Fuel Standard – Executive Order S-1-07

In 2007, Governor Schwarzenegger issued Executive Order S-1-07 to enact a low-carbon fuel standard (LCFS). The LCFS calls for a reduction of at least 10 percent in the carbon intensity of California's transportation fuels by 2020.

(6) California Environmental Quality Act and Senate Bill 97

In 2007, under SB 97, the State acknowledged that climate change is a prominent environmental issue requiring analysis under the California Environmental Quality Act (CEQA). SB 97 directed the Governor’s Office of Planning and Research to prepare, develop, and transmit to the California Natural Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA. In 2009, the Natural Resources Agency adopted the State CEQA Guidelines amendments, which provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in CEQA documents. The amendments became effective in March 2010. The amendments added Sections 15126.4(c) and 15064.4 (discussed further below) to the CEQA Guidelines, which specifically pertain to the significance of GHG emissions, and provide guidance on measures to mitigate GHG emissions when such emissions are found to be significant.

(7) Sustainable Communities Strategy – SB 375

In 2008, Governor Schwarzenegger signed SB 375, which aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocations to reduce vehicle emissions and help California meet the GHG reduction goals established in AB 32. Under SB 375, metropolitan planning organizations are required to incorporate an SCS into their regional transportation plans. The goal of the SCS is to reduce regional VMTs and associated GHG emissions through land use planning strategies, such as promoting compact, mixed-use commercial and residential development near public transportation hubs. In accordance with SB 375, the Metropolitan Transportation Commission and Association of Bay Area Governments adopted Plan Bay Area in 2013.[13] The plan incorporates the SCS and the regional transportation plan for the Bay Area.

(8) Low-Emission Vehicle Program

In 2012, the CARB adopted amendments to the low-emission vehicle regulations, which established more stringent emissions reduction standards for GHGs and criteria air pollutants from 2015 and subsequent model year passenger cars, light-duty trucks, and medium-duty vehicles. The low-emission vehicle program essentially expands the scope of the GHG emissions standards established under the Pavley regulations.

(9) Executive Order B-30-15 and SB 32

In 2015, Governor Brown issued Executive Order B-30-15, which set a statewide GHG emissions reduction target of 40 percent below 1990 levels by 2030. This target is in addition to the previous GHG emissions reduction targets established in Executive Order S-3-05 for 2010, 2020, and 2050. The executive order also requires the CARB to update the AB 32 Scoping Plan to identify measures to meet the 2030 target. The CARB is currently in the process of drafting an update to the AB 32 Scoping Plan to reflect the 2030 target. The update to the AB 32 Scoping Plan will continue to rely on the initiatives used for achieving 2020 targets, such as implementation of SCSs, LCFS, and RPS.

In September 2016, Governor Brown signed SB 32, which expands on the mandate set forth by AB 32 to reduce statement emissions of GHGs to 1990 levels by 2020 by requiring California to reduce GHG emissions to 40 percent below 1990 levels by 2030. This mandate is also consistent with the GHG emissions reduction target established under Executive Order B-30-15.

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[13] Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), 2013. Plan Bay Area, Strategy for a Sustainable Region. Available at http://www.planbayarea.org/news/story/Plan-Bay-Area-Adopted.html. Adopted July.

(10) Title 24 Building Efficiency Standards

The State regulates energy consumption under Title 24 Building Standards Code, Part 6 of the California Code of Regulations (also known as the California Energy Code). The Title 24 Building Energy Efficiency Standards were developed by the California Energy Commission and apply to energy consumed for heating, cooling, ventilation, water heating, and lighting in new residential and nonresidential buildings. The California Energy Commission has estimated that the 2016 Building Energy Efficiency Standards, which took effect on January 1, 2017, will reduce energy consumption by about 46 percent for residential buildings and 33.5 percent for nonresidential buildings on average compared to the 2008 Building Energy Efficiency Standards.[14,15]

(11) Title 24 California Green Building Standards Code

Title 24 Building Standards Code, Part 11 of the California Code of Regulations is referred to as the California Green Building Standards Code (CALGreen Code). The purpose of the CALGreen Code is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a positive environmental impact and encouraging sustainable construction practices in the following categories: (1) planning and design; (2) energy efficiency; (3) water efficiency and conservation; (4) material conservation and resource efficiency; and (5) environmental air quality.

c. Local Regulations

(1) Bay Area Air Quality Management District

The BAAQMD is the regional government agency that regulates sources of air pollution within the nine Bay Area counties. The BAAQMD regulates GHG emissions through the plans, programs, and guidelines outlined below.

Regional Clean Air Plans

The BAAQMD and other air districts prepare clean air plans in accordance with the State and federal Clean Air Acts. In April 2017, the BAAQMD adopted the *2017 Clean Air Plan: Spare the Air, Cool the Climate* (2017 CAP), which is a comprehensive plan to improve Bay

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[14] California Energy Commission, 2014. News Release: New Title 24 Standards Will Cut Residential Energy Use by 25 Percent, Save Water, and Reduce Greenhouse Gas Emissions. Available at: http://www.energy.ca.gov/releases/2014_releases/2014-07-01_new_title24_standards_nr.html, accessed November 15, 2016.

[15] California Energy Commission, 2015. Adoption Hearing: 2016 Building Energy Efficiency Standards, June 10.

Area air quality and protect public health through implementation of a control strategy designed to reduce emissions and ambient concentrations of harmful pollutants. The 2017 CAP also includes measures designed to reduce GHG emissions.

BAAQMD Climate Protection Program

The BAAQMD established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality in the SFBAAB. The climate protection program includes measures that promote energy efficiency, reduce VMTs, and develop alternative sources of energy, all of which assist in reducing emissions of GHGs and in reducing air pollutants that affect the health of residents. The BAAQMD also seeks to support current climate protection programs in the region and to stimulate additional efforts through public education and outreach, technical assistance to local governments and other interested parties, and promotion of collaborative efforts among stakeholders.

In June 2010, the BAAQMD adopted GHG thresholds of significance[16] to assist lead agencies in evaluating and mitigating air quality impacts under CEQA; the City of Oakland (City) has adopted these thresholds. The scientific soundness of the thresholds is supported by substantial evidence presented in the BAAQMD's Revised Draft Options and Justification Report.[17]

(2) City of Oakland Energy and Climate Action Plan

In December 2012, the City adopted the Energy and Climate Action Plan (ECAP). The purpose of the ECAP is to identify and prioritize actions for reducing energy consumption and GHG emissions associated with the City. The ECAP outlines a 10-year plan that includes more than 150 actions to the City to achieve a 36-percent reduction in GHG emissions below 2005 level by 2020.[18] This goal can be accomplished goal by 2020 through the following:

- 20-percent reduction in VMTs annually as residents, workers, and visitors meet daily needs by walking, bicycling, and using transit
- 24 million gallons of oil saved annually due to less driving and more fuel-efficient vehicles on local roads

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[16] Bay Area Air Quality Management District (BAAQMD), 2010b. Proposed Air Quality CEQA Thresholds of Significance, May 3.

[17] Bay Area Air Quality Management District (BAAQMD), 2009. Revised Draft Options and Justification Report: California Environmental Quality Act Thresholds of Significance, October.

[18] City of Oakland, 2012. Energy and Climate Action Plan, December 4.

- 32-percent decrease in electricity consumption through renewable generation, conservation, and energy efficiency
- 14-percent decrease in natural gas consumption through building retrofits, solar hot water projects, and conservation
- 62 million kilowatt-hours and 2.7 million therms annually of new renewable energy used to meet local needs
- 375,000 tons of waste diverted away from local landfills through waste reduction, reuse, recycling, and composting

(3) City of Oakland Green Building Ordinance

In October 2010, the City adopted the Green Building Ordinance for Private Development Projects. This ordinance affects a wide range of projects, including new residential developments. The minimum green building requirements described in the ordinance are designed to reduce energy use, conserve water and other natural resources, limit solid waste during construction and operation, and promote healthy indoor air quality. Requirements from both the City's local ordinance and the State's CALGreen code apply to future City developments.

(4) General Plan

The following air quality policies from the City of Oakland General Plan would relate to the project.

> **Policy CO-12.1:** Land Use Patterns Which Promote Air Quality. Promote land use patterns and densities which help improve regional air quality conditions by: (a) minimizing dependence on single passenger autos; (b) promoting projects which minimize quick auto starts and stops, such as live-work development, mixed use development, and office development with ground floor retail space; (c) separating land uses which are sensitive to pollution from the sources of air pollution; and (d) supporting telecommuting, flexible work hours, and behavioral changes which reduce the percentage of people in Oakland who must drive to work on a daily basis.

> **Policy CO-12.4:** Design of Development to Minimize Air Quality Impacts. Require that development projects be designed in a manner which reduces potential adverse air quality impacts. This may include: (a) the use of vegetation and landscaping to absorb carbon monoxide and to buffer sensitive receptors; (b) the use of low-polluting energy sources and energy conservation measures; and (c) designs which encourage transit use and facilitate bicycle and pedestrian travel.

> **Policy CO-13.3:** Construction Methods and Materials. Encourage the use of energy-efficient construction and building materials. Encourage site plans for new development which maximize energy efficiency.

Policy CO-13.4: Alternative Energy Sources. Accommodate the development and use of alternative energy resources, including solar energy and technologies which convert waste or industrial byproducts to energy, provided that such activities are compatible with surrounding land uses and regional air and water quality requirements.

(5) City of Oakland Municipal Code

Chapter 15.34 of Oakland's Municipal Code requires new construction projects to submit a Waste Reduction and Recycling Plan to the City's Building Official for review and approval. The intent of the provisions are to divert (e.g., reuse on site) at least 50 percent of construction and demolition debris from landfills. The purpose of these provisions is to prescribe requirements designed to meet and further the goals of the California Integrated Waste Management Act of 1989 (AB 939) and the Alameda County Waste Reduction and Recycling Act of 1990 (Measure D).

(6) Standard Conditions of Approval

The City's Uniformly Applied Development Standards would be incorporated into the project as Standard Conditions of Approval (SCAs). SCA-TRANS-4: Transportation and Parking Demand Management (#71) would provide further incentives that encourage walking, biking, and transit and reduce private automobile trips. SCA-UTL-3: Construction and Demolition Waste Reduction and Recycling (#74) would require the project to divert construction and demolition debris waste from landfill disposal in accordance with current City requirements and SCA-UTL-6: Green Building Requirements (#77) would require the project to comply with the requirements of the California Green Building Standards (CALGreen) mandatory measures and the applicable requirements of the City of Oakland Green Building Ordinance. Additionally, the following SCA would apply to the project.

SCA-GHG-1: Greenhouse Gas (GHG) Reduction Plan (#38)

a. Greenhouse Gas (GHG) Reduction Plan Required

Requirement: The project applicant shall retain a qualified air quality consultant to develop a Greenhouse Gas (GHG) Reduction Plan for City review and approval and shall implement the approved GHG Reduction Plan.

The requirement for a Greenhouse Gas Reduction Plan, would apply under any of the following scenarios:

Scenario A: Projects which (a) involve a land use development (i.e., a project that does not require a permit from the Bay Area Air Quality Management District (BAAQMD) to operate), (b) exceed the greenhouse gas (GHG) emissions screening criteria contained in the BAAQMD CEQA Guidelines, AND (c) after a GHG analysis is prepared would produce total GHG emissions of more than 1,100 metric tons of CO_2e annually AND more than 4.6 metric tons of CO_2e per service population annually (with "service population" defined as the total number of employees and residents of the project).

Scenario B: Projects which (a) involve a land use development, (b) exceed the GHG emissions screening criteria contained in the BAAQMD CEQA Guidelines, (c) after a GHG analysis is prepared would exceed at least one of the BAAQMD Thresholds of Significance (more than 1,100 metric tons of CO_2e annually OR more than 4.6 metric tons of CO_2e per service population annually), AND (d) are considered to be "Very Large Projects."[19]

Scenario C: Projects which (a) involve a stationary source of GHG (i.e., a project that requires a permit from BAAQMD to operate) AND (b) after a GHG analysis is prepared would produce total GHG emissions of more than 10,000 metric tons of CO_2e annually.

The goal of the GHG Reduction Plan shall be to increase energy efficiency and reduce GHG emissions to below [INCLUDE THIS LANGUAGE IF SCENARIO A OR B:] at least one of the Bay Area Quality Management District's (BAAQMD's) CEQA Thresholds of Significance (1,100 metric tons of CO2e per year or 4.6 metric tons of CO2e per year per service population) [INCLUDE THIS LANGUAGE IF SCENARIO C:] the Bay Area Quality Management District's (BAAQMD's) CEQA Thresholds of Significance (10,000 metric tons of CO2e per year) [INCLUDE THIS LANGUAGE IF SCENARIO B] AND to reduce GHG emissions by 36 percent below the project's "business-as-usual" scenario (as explained below) to help achieve the City's goal of reducing GHG emissions. The GHG Reduction Plan shall include, at a minimum, (a) a detailed GHG emissions inventory for the project under a "business-as-usual" scenario with no consideration of project design features, or other energy efficiencies, (b) an "adjusted" baseline GHG emissions inventory for the project, taking into consideration energy efficiencies included as part of the project (including the City's Standard Conditions of Approval, proposed mitigation measures, project design features, and other City requirements), (c) a comprehensive set of quantified additional GHG reduction measures available to further reduce GHG emissions beyond the adjusted GHG emissions, and (d) requirements for ongoing monitoring and reporting to demonstrate that the additional

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[19] A "Very Large Project" is defined as any of the following:

(A) Residential development of more than 500 dwelling units;

(B) Shopping center or business establishment employing more than 1,000 persons or encompassing more than 500,000 square feet of floor space;

(C) Commercial office building employing more than 1,000 persons or encompassing more than 250,000 square feet of floor space;

(D) Hotel/motel development of more than 500 rooms;

(E) Industrial, manufacturing, processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or encompassing more than 650,000 square feet of floor area; or

(F) Any combination of smaller versions of the above that when combined result in equivalent annual GHG emissions as the above.

GHG reduction measures are being implemented. If the project is to be constructed in phases, the GHG Reduction Plan shall provide GHG emissions scenarios by phase.

Potential GHG reduction measures to be considered include, but are not be limited to, measures recommended in BAAQMD's latest CEQA Air Quality Guidelines, the California Air Resources Board Scoping Plan (December 2008, as may be revised), the California Air Pollution Control Officers Association (CAPCOA) Quantifying Greenhouse Gas Mitigation Measures (August 2010, as may be revised), the California Attorney General's website, and Reference Guides on Leadership in Energy and Environmental Design (LEED) published by the U.S. Green Building Council.

The types of allowable GHG reduction measures include the following (listed in order of City preference): (1) physical design features; (2) operational features; and (3) the payment of fees to fund GHG-reducing programs (i.e., the purchase of "carbon credits") as explained below.

The allowable locations of the GHG reduction measures include the following (listed in order of City preference): (1) the project site; (2) off site within the city of Oakland; (3) off site within the SFBAAB; (4) off site within the state of California; then (5) elsewhere in the U.S.

As with preferred locations for the implementation of all GHG reductions measures, the preference for carbon credit purchases include those that can be achieved as follows (listed in order of City preference): (1) within the city of Oakland; (2) within the SFBAAB; (3) within the state of California; then (4) elsewhere in the U.S. The cost of carbon credit purchases shall be based on current market value at the time purchased and shall be based on the project's operational emissions estimated in the GHG Reduction Plan or subsequent approved emissions inventory, which may result in emissions that are higher or lower than those estimated in the GHG Reduction Plan.

For physical GHG reduction measures to be incorporated into the design of the project, the measures shall be included on the drawings submitted for construction-related permits.
When Required: Prior to approval of construction-related permit
Initial Approval: Bureau of Planning
Monitoring/Inspection: N/A

b. GHG Reduction Plan Implementation During Construction
Requirement: The project applicant shall implement the GHG Reduction Plan during construction of the project. For physical GHG reduction measures to be incorporated into the design of the project, the measures shall be implemented during construction. For physical GHG reduction measures to be incorporated into off-site projects, the project applicant shall obtain all necessary permits/approvals and the measures shall be included on drawings and submitted to the City Planning Director or his/her designee for review and approval. These off-site improvements shall be

installed prior to completion of the subject project (or prior to completion of the project phase for phased projects). For GHG reduction measures involving the purchase of carbon credits, evidence of the payment/purchase shall be submitted to the City for review and approval prior to completion of the project (or prior to completion of the project phase, for phased projects).
When Required: During construction
Initial Approval: Bureau of Planning
Monitoring/Inspection: Bureau of Building

c. GHG Reduction Plan Implementation After Construction
Requirement: The project applicant shall implement the GHG Reduction Plan after construction of the project (or at the completion of the project phase for phased projects). For operational GHG reduction measures to be incorporated into the project or off-site projects, the measures shall be implemented on an indefinite and ongoing basis.

The project applicant shall satisfy the following requirements for ongoing monitoring and reporting to demonstrate that the additional GHG reduction measures are being implemented. The GHG Reduction Plan requires regular periodic evaluation over the life of the project (generally estimated to be at least 40 years) to determine how the Plan is achieving required GHG emissions reductions over time, as well as the efficacy of the specific additional GHG reduction measures identified in the Plan.

Annual Report. Implementation of the GHG reduction measures and related requirements shall be ensured through compliance with Conditions of Approval adopted for the project. Generally, starting two years after the City issues the first Certificate of Occupancy for the project, the project applicant shall prepare each year of the useful life of the project an Annual GHG Emissions Reduction Report ("Annual Report"), for review and approval by the City Planning Director or his/her designee. The Annual Report shall be submitted to an independent reviewer of the City's choosing, to be paid for by the project applicant.

The Annual Report shall summarize the project's implementation of GHG reduction measures over the preceding year, intended upcoming changes, compliance with the conditions of the Plan, and include a brief summary of the previous year's Annual Report results (starting the second year). The Annual Report shall include a comparison of annual project emissions to the baseline emissions reported in the GHG Plan.

The GHG Reduction Plan shall be considered fully attained when project emissions are less than either applicable numeric BAAQMD CEQA Thresholds [INCLUDE THIS LANGUAGE IF SCENARIO B:] AND GHG emissions are 36 percent below the project's "adjusted" baseline GHG emissions, as confirmed by the City through an established monitoring program. Monitoring and reporting activities will continue at the City's discretion, as discussed below.

Corrective Procedure. If the third Annual Report, or any report thereafter, indicates that, in spite of the implementation of the GHG Reduction Plan, the project is not achieving the GHG reduction goal, the project applicant shall prepare a report for City review and approval, which proposes additional or revised GHG measures to better achieve the GHG emissions reduction goals, including without limitation, a discussion on the feasibility and effectiveness of the menu of other additional measures ("Corrective GHG Action Plan"). The project applicant shall then implement the approved Corrective GHG Action Plan.

If, one year after the Corrective GHG Action Plan is implemented, the required GHG emissions reduction target is still not being achieved, or if the project applicant fails to submit a report at the times described above, or if the reports do not meet City requirements outlined above, the City may, in addition to its other remedies, (a) assess the project applicant a financial penalty based upon actual percentage reduction in GHG emissions as compared to the percent reduction in GHG emissions established in the GHG Reduction Plan; or (b) refer the matter to the City Planning Commission for scheduling of a compliance hearing to determine whether the project's approvals should be revoked, altered or additional conditions of approval imposed.

The penalty as described in (a) above shall be determined by the City Planning Director or his/her designee and be commensurate with the percentage GHG emissions reduction not achieved (compared to the applicable numeric significance thresholds) or required percentage reduction from the "adjusted" baseline.

In determining whether a financial penalty or other remedy is appropriate, the City shall not impose a penalty if the project applicant has made a good faith effort to comply with the GHG Reduction Plan.

The City would only have the ability to impose a monetary penalty after a reasonable cure period and in accordance with the enforcement process outlined in Planning Code Chapter 17.152. If a financial penalty is imposed, such penalty sums shall be used by the City solely toward the implementation of the GHG Reduction Plan.

Timeline Discretion and Summary. The City shall have the discretion to reasonably modify the timing of reporting, with reasonable notice and opportunity to comment by the applicant, to coincide with other related monitoring and reporting required for the project.
<u>When Required</u>: Ongoing
<u>Initial Approval</u>: Bureau of Planning

Monitoring/Inspection: Bureau of Planning

3. Impacts, Standard Conditions of Approval, and Mitigation Measures

This section describes environmental impacts related to GHG emissions that could result from implementation of the Eastline project. The section begins with the criteria of significance that establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the project and identifies SCAs and/or mitigation measures to address these impacts as needed.

a. Significance Criteria

The City has established CEQA Thresholds of Significance Guidelines to help clarify and standardize analysis and decision making in the environmental review process. As presented below, the City's GHG thresholds establish levels at which emissions of GHGs could cause significant climate change impacts. These thresholds are supported by substantial evidence presented in the BAAQMD's Revised Draft Options and Justification Report.[20]

GHG impacts are, by their nature, cumulative impacts because one project by itself cannot cause global climate change. The City's GHG thresholds pertain to a project's contribution to cumulative impacts.

Implementation of the Eastline project would have a significant impact related to GHG emissions if it would result in the following:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, specifically:
   - For a project involving a stationary source, produce total emissions of more than 10,000 metric tons of CO_2e annually *[**NOTE:** Stationary sources are projects that require a BAAQMD permit to operate.].*
   - For a project involving a land use development, produce total emissions of more than 1,100 metric tons of CO_2e annually **AND** more than 4.6 metric tons of CO_2e per service population annually *[**NOTE:** Land use developments are projects that do not require a BAAQMD permit to operate. The service population includes both the residents and the employees of the project. The project's impact would be considered significant if the emissions exceed **BOTH** the 1,100 metric tons*

[20] Bay Area Air Quality Management District (BAAQMD), 2009. Revised Draft Options and Justification Report: California Environmental Quality Act Thresholds of Significance, October.

*threshold and the 4.6 metric tons threshold. Accordingly, the impact would be considered less than significant if the project's emissions are below **EITHER** of these thresholds.]*

NOTE: The project's expected GHG emissions during construction should be annualized over a period of 40 years and then added to the expected emissions during operation for comparison to the threshold. A 40-year period is used because 40 years is considered the average life expectancy of a building before it is remodeled with considerations for increased energy efficiency. The thresholds are based on the BAAQMD thresholds. The BAAQMD thresholds were originally developed for project operation impacts only. Therefore, combining both the construction emissions and operation emissions for comparison to the threshold represents a conservative analysis of potential GHG impacts.

2. Fundamentally conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing GHGs.

The City's GHG thresholds are based on the BAAQMD's thresholds and were developed to evaluate whether a land-use-sector project would comply with the goals of AB 32, which are to reduce GHG emissions to 1990 levels by 2020.

b. Analysis Approach

The Planned Unit Development and Preliminary Development Plan (PUD/PDP), which is the key component of the proposed project allows the site to be developed, illustrates the range of development scenarios that could occur under the PUD/PDP: the Maximum Residential Scenario, the Residential/Office Mix Scenario, the All Office Scenario, and the Maximum Office Scenario. Construction and operation of each of these scenarios could result in different GHG impacts. For GHG impacts found to be less than significant, only the results for the development scenario considered representative of the worst-case scenario are presented. For impacts found to be potentially significant, the results for all four development options are presented to demonstrate the full range of potential air quality impacts.

c. Less-Than-Significant Impacts

Implementation of the Eastline project would result in the less-than-significant impacts described below. Because implementation of the Eastline project would not exceed the significance criteria described above, the project's impacts would not be considered significant and no mitigation measures are needed.

(1) Greenhouse Gas Emissions

The BAAQMD recommends using the most current version of the California Emissions Estimator Model (CalEEMod versions 2016.3.1) to estimate construction and operation emissions of GHGs for a proposed project. CalEEMod uses widely accepted models for emissions estimates combined with appropriate default data for a variety of land use projects that can be used if site-specific information is not available. The default data used in the model (e.g., vehicle emissions factors) are supported by substantial evidence provided by regulatory agencies and a combination of statewide and regional surveys of existing land uses. The primary input data used to estimate emissions associated with construction and operation of the Eastline project are summarized in Table V.E-3. A copy of the CalEEMod report for the project, which summarizes the input parameters, assumptions, and findings, is provided in Appendix D.

Project emissions were estimated for 2020, which is the earliest expected year of operation. Because statewide vehicle emissions standards are required to improve over time in accordance with the Pavley (AB 1493) and low-emission vehicle regulations (Title 13, California Code of Regulations, Section 1961.2), estimating emissions for the earliest year of operation provides the maximum annual emissions. Additional information used to calculate GHG emissions in CalEEMod, including changes to default data applicable to all development scenarios and scenario-specific features, is summarized in Table V.E-4.

As shown in Table V.E-4, the City has adopted a Green Building Ordinance for private development projects. In accordance with the Green Building Ordinance, the project must implement mandatory measures from the statewide CALGreen Code and complete a Green Building Compliance Checklist (e.g., LEED or GreenPoint Rated).[21] While the project would have to comply with the mandatory measures described under the current CALGreen Code, which would reduce indoor water use by approximately 20 percent, implementation of voluntary building efficiency measures that could result in additional GHG reductions were not accounted for in the GHG analysis using CalEEMod. In addition, potential GHG reductions associated with implementation of the 2016 Building Energy Efficiency Standards were not accounted for in the GHG analysis using CalEEMod. Therefore, the analysis of GHG impacts for the project is conservative.

[21] Rating system and checklist determined by City of Oakland Planning Department based on square footage of each land use.

TABLE V.E-3 SUMMARY OF LAND USE INPUT PARAMETERS FOR CALEEMOD

Land-Use Type	CalEEMod Land-Use Type	Unit	Amount
Existing Conditions			
Space Burger	Fast-food restaurant	square feet	4,300
Bank	Bank (with drive-through)	square feet	10,200
Retail	Regional shopping center	square feet	24,000
Parking Garage	Unenclosed parking structure	spaces	351
Residential/Office Mix Scenario			
Residential	Apartments high-rise	Dwelling Units	395
		square feet	359,720
Office	General office building	square feet	880,550
Retail	Regional shopping center	square feet	85,000
Community Space	Daycare center	square feet	19,000
Parking Garage	Enclosed parking with elevator	spaces	1,821
Maximum Residential Scenario			
Residential	Apartments high-rise	Dwelling Units	1,556
		square feet	1,652,385
Retail	Regional shopping center	square feet	99,220
Community Space	Daycare center	square feet	37,000
Parking Garage	Enclosed parking with elevator	spaces	2,130
Maximum Office Scenario			
Office	General office building	square feet	2,689,000
Retail	Regional shopping center	square feet	87,000
Parking Garage	Enclosed parking with elevator	spaces	3,238
All Office Scenario			
Office	General office building	square feet	1,450,000
Retail	Regional shopping center	square feet	80,000
Parking Garage	Enclosed parking with elevator	Spaces	2,050

Note: The project footprint would be about 3.21 acres.
Source: CalEEMod (Appendix D).

TABLE V.E-4 SUMMARY OF OPERATION INPUT PARAMETERS FOR CALEEMOD

CalEEMod Input Category	Operation Assumptions and Changes to Default Data
Construction Phase	The default construction duration was modified to 650 work days (about 30 months) with work scheduled to begin in mid-2017. A crane (for shoring), drill rig (for pile driving), and forklift (for general construction) were added to the default construction equipment list.
Material Movement	Approximately 66,000 cubic yards of soil is expected to be hauled off site.
Demolition	Approximately 99,268 tons of demolition debris is expected to be hauled off site.
Vendor Trips	Based on the development scenario, the default vendor truck trip rates were equivalent to about 1 truck arriving every 45 to 90 seconds throughout an 8-hour work day, which is not practical based on the limited area of the project footprint. Therefore, the default vendor truck rates were modified to a more practical estimate of 1 vendor truck arriving every 5 minutes throughout an 8-hour work day (96 trips per day).
Utility Provider	The default CO_2 intensity factor reported for 2008 was updated to the most recent CO_2 intensity factor verified by a third party in 2013.[a]
Vehicle Trip Rates	Daily trip rates for each type of land use were adjusted according to the project traffic analysis by Fehr & Peers.[b] These trip estimates account for a 43-percent trip reduction based on the City's Transportation Impact Study Guidelines data for development in an urban environment within 0.5-mile of a BART Station, and another 20-percent trip reduction based on SCA-TRANS-4.
Vehicle Trip Lengths	Average trip distances for each land use were adjusted based on 2015 results from the Metropolitan Transportation Commission's Travel Model for residents and workers located in the project vicinity (Transportation Analysis Zone 970).
Fleet Mix	Because the project is not expected to generate new bus or mobile home trips, these vehicle types were removed from the fleet mix. It was also assumed that home-based trips would not include medium heavy-duty or heavy heavy-duty trucks. Based on these assumptions, the default ratio of vehicle types representing each land use were maintained and scaled up.
Fireplaces and Woodstoves	It was assumed that there would be no fireplaces or woodstoves.
Wastewater	Based on the design of the East Bay Municipal Utility District's Wastewater Treatment Plant, emissions estimated from wastewater treatment assumed a process with 100-percent aerobic biodegradation and 100-percent anaerobic digestion with cogeneration.
Water Use	In accordance with the City's Green Building Ordinance, the project would implement mandatory measures from the statewide CALGreen Code to reduce indoor water use by approximately 20 percent.
Stationary Sources	In accordance with the California Building Code, emergency generator(s) would be required for the project. It was assumed that the project would operate a 1,500-kW generator and 500-kW generator for the Residential/Office Mix Scenario; a 1,500-kW generator for the Maximum Residential Scenario; and two 2,500-kW generators for the Maximum Office Scenario and the All Office Scenario. The generators would be powered by diesel and used for non-emergency operation up to 50 hours per year (for routine testing and maintenance).

Notes: kW = kilowatts
Default CalEEMod data used for all other parameters not described.
[a] Pacific Gas and Electric Company, 2015. Greenhouse Gas Emission Factors: Guidance for PG&E Customers.
[b] Fehr & Peer, 2017. Draft Memorandum: 2100 Telegraph Avenue – Preliminary Transportation Assessment. January 6.
Source: CalEEMod (Appendix D).

In accordance with the City's CEQA guidance for evaluating the GHG thresholds of significance, the construction CO_2e emissions were annualized over a period of 40 years and then added to the expected CO_2e emissions during operation. For this analysis, the service population was estimated for each development scenario based on the following assumptions:

- 2.1 persons per residential unit
- 3 persons per 1,000 square feet of office
- 2.5 persons per 1,000 square feet of retail

According to the CEQA streamlining provisions described under SB 375, certain "mixed-use residential projects" that are consistent with the general use designation, density, building intensity, and applicable policies specified in an SCS are not required to analyze climate change impacts resulting from cars and light-duty trucks. As defined in Public Resources Code (PRC) Section 21159.28(d), a mixed-use residential project is a project where at least 75 percent of the total building square footage of the project consists of residential use or a "transit priority project" as defined in PRC Section 21155(b). A transit priority project must contain the following:

- At least 50 percent residential use based on total building square footage, and, if the project contains between 26 and 50 percent non-residential uses, a floor area ratio of no less than 0.75.
- A minimum net density of at least 20 dwelling units per acre.
- Located within ½-mile of a major transit stop or high-quality transit corridor[22] included in a regional transportation plan.

Because the Maximum Office Scenario and All Office Scenario do not include residential uses and the Residential/Office Mix Scenario has less than 50 percent residential use based on total building square footage, these scenarios would not qualify for CEQA streamlining under SB 375. Under the Maximum Residential Scenario, there would be 76 percent residential based on total building square footage, about 485 residential units per acre, and a BART station within 0.5-mile. According to PRC Section 21159.28[d], the Maximum Residential Scenario meets the definition of a mixed-use residential project per PRC Section 21159.28[d].

The adopted Plan Bay Area[23] serves as the SCS for the Bay Area. As defined by Plan Bay Area, priority development areas (PDAs) are areas where new development would support

[22] A high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

the needs of residents and workers in a pedestrian-friendly environment served by transit. According to the Metropolitan Transportation Commission, the project is located within a PDA.[24] Furthermore, the project is permitted in the zoning district where the project site is located, and is consistent with the bulk, density, and land uses envisioned for the site. Therefore, because the Maximum Residential Scenario qualifies as a mixed-use residential project pursuant to PRC Section 21159.28(d) and is consistent with the applicable provisions of Plan Bay Area, the estimated GHG emissions from cars and light-duty trucks are excluded from the GHG analysis of this development scenario.

The total average annual CO_2e emissions and the total average annual CO_2e emissions per service population estimates for the project are compared to the City's GHG thresholds of significance in Table V.E-5. The estimated unmitigated CO_2e emissions are above the City's annual emissions threshold, but below the GHG efficiency threshold for each development scenario. As detailed above under Significance Criteria, a project's impact are considered significant if the emissions exceed **BOTH** the 1,100 metric tons threshold and the 4.6 metric tons threshold. Therefore, construction and operation of the project would have a less-than-significant impact on global climate change for all development scenarios under the PUD/PDP.

As shown in Table V.E-4, the project would be required to operate emergency generators for the elevator system. It was assumed the diesel generators would be used for non-emergency operation up to 50 hours per year (for routine testing and maintenance). As shown in Table V.E-6, the emissions of CO_2e from the emergency diesel generators are below the City's threshold for stationary sources. Therefore, routine testing and maintenance of the emergency generators would have a less-than-significant impact on global climate change for all development scenarios under the PUD/PDP.

(2) Conflict with Applicable Greenhouse Gas Plan, Policy, or Regulation

The BAAQMD's GHG quantitative thresholds, which were adopted by the City, were designed to ensure compliance with the State's AB 32 GHG reduction goals for 2020, as set forth in the CARB's Climate Change Scoping Plan. Because GHG emissions from the project would be below the BAAQMD's thresholds (Tables V.E-5 and V.E-6), it can be assumed that the project is consistent and not in fundamental conflict with the goals of

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[23] Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), 2013. Plan Bay Area, Strategy for a Sustainable Region. Available at: http://www.planbayarea.org/news/story/Plan-Bay-Area-Adopted.html. Adopted July 18, 2013.

[24] Metropolitan Transportation Commission (MTC), 2016. Priority Development Area (PDA) and Transit Priority Area (TPA) Map for CEQA Streamlining. Available at: http://planbayarea.org/misc/Map-CEQA-Streamlining.html, accessed on November 18.

TABLE V.E-5 SUMMARY OF AVERAGE GHG EMISSIONS

Emissions Scenario	CO_2e (MT/year)	CO_2e (MT/year/SP)
Existing Emissions	676	--
Residential/Office Mix Scenario		
Construction[a]	80	0.02
Operation – Area	5	<0.01
Operation – Energy	4,888	1.33
Operation – Mobile	3,534	0.96
Operation – Waste	561	0.15
Operation – Water	318	0.09
Project Emissions	9,385	2.55
Net Emissions	**8,709**	2.4
Maximum Residential Scenario		
Construction[a]	101	0.03
Operation – Area	19	0.01
Operation – Energy	3,742	1.06
Operation – Mobile[b]	1,189	0.34
Operation – Waste	437	0.12
Operation – Water	188	0.05
Project Emissions	5,676	1.61
Net Emissions	**5,000**	1.4
Maximum Office Scenario		
Construction[a]	98	0.01
Operation – Area	0.1	<0.01
Operation – Energy	11,397	1.38
Operation – Mobile	5,410	0.65
Operation – Waste	1,304	0.16
Operation – Water	811	0.10
Project Emissions	19,020	2.30
Net Emissions	**18,343**	2.2

TABLE V.E-5 SUMMARY OF AVERAGE GHG EMISSIONS

Emissions Scenario	**CO_2e (MT/year)**	**CO_2e (MT/year/SP)**
All Office Scenario		
Construction[a]	77	0.02
Operation – Area	0.1	<0.01
Operation – Energy	6,383	1.40
Operation – Mobile	3,421	0.75
Operation – Waste	720	0.16
Operation – Water	441	0.10
Project Emissions	11,043	2.43
Net Emissions	**10,367**	2.28
Thresholds of Significance	1,100	4.6

Notes: MT = metric tons; SP = service population; "--" = not applicable
Shaded and bold values exceed the threshold of significance.
[a] In accordance with the City's CEQA guidance, GHG emissions during construction are amortized over 40 years.
[b] In accordance with SB 375 CEQA streamlining provisions, GHG emissions during operation exclude vehicle trips from cars and light-duty trucks.
Source: CalEEMod (Appendix D).

TABLE V.E-6 SUMMARY OF AVERAGE GHG EMISSIONS FROM EMERGENCY GENERATOR

Stationary Source	**CO_2e (MT/year)**
Residential/Office Mix Scenario Generators	51
Maximum Residential Scenario Generator	38
Maximum Office Scenario Generators	128
All Office Scenario Generators	128
Threshold of Significance	10,000

Notes: MT = metric tons
Source: CalEEMod (Appendix D).

AB 32. Moreover, the project is located in a PDA as defined by Plan Bay Area,[25] which is the regional SCS for the Bay Area. By focusing new development within PDAs, Plan Bay Area establishes a preferred development scenario, the buildout of which would achieve the plan's GHG reduction targets. Because the project would be constructed within a PDA with land use density and intensity that meets or exceeds Plan Bay Area recommendations (e.g., more than 20 dwelling units per acre; floor area ratio of 0.75), the project would further and not be in conflict with Plan Bay Area's GHG reduction targets.

The project is also consistent with and would not hinder the GHG reduction goals set forth in the ECAP and the green planning policies of the General Plan because it would promote land use patterns and densities that help improve regional air quality conditions, as demonstrated by its compliance with Plan Bay Area's preferred development scenario. The project would also be required to comply with the City's Green Building Ordinance, which supports the goals, policies, and actions of the ECAP and General Plan.

The project is subject to the City's SCAs, some of which reduce GHG emissions. These include but are not limited to preparation and implementation of SCA-TRANS-4: Transportation and Parking Demand Management (#71) and SCA-UTL-3: Construction and Demolition Waste Reduction and Recycling (#74). The project would also be subject to a GHG Reduction Plan under Scenario B of SCA-GHG-1, because each development scenario is considered a very large project (as defined be SCA-GHG-1) and estimated GHG emissions were above the City's annual GHG threshold (1,100 metric tons CO_2e per year) for each development scenario (Table V.E-5). Overall, the project would not conflict with applicable GHG plans, policies, or regulations, and this impact would be less than significant.

d. Significant Impacts

No significant impacts related to GHG emissions would result from implementation of the project.

e. Cumulative Impacts

GHG impacts are, by their nature, cumulative impacts because one project by itself cannot significantly contribute to or cause global climate change. The City's GHG thresholds pertain to a project's contribution to cumulative impacts and whether the project's contribution is cumulatively considerable. See above for more discussion.

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[25] Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), 2013. Plan Bay Area, Strategy for a Sustainable Region. Available at http://www.planbayarea.org/news/story/Plan-Bay-Area-Adopted.html. Adopted July 18, 2013.

F. SOILS, GEOLOGY, AND SEISMICITY

This section describes the soil, geologic, and seismic environment in the vicinity of the project site; discusses the State and local regulations pertinent to soils, geology, and seismicity; assesses the potentially significant impacts from strong seismic ground shaking, differential settlement, seismic-related ground failure, and unstable or expansive soils as a result of project implementation; and identifies mitigation measures, where appropriate, to address those impacts.

The evaluation in this section is based on information obtained from (1) a 2016 geotechnical memorandum by Langan Treadwell Rollo[1]; (2) a 2015 subsurface environmental investigation by Essel Environmental Consulting[2]; and (3) geologic reports and maps from the United States Geological Survey (USGS), California Geological Survey (CGS), City of Oakland (City), among others.

1. Setting

The existing soil, geologic, and seismic conditions at the project site and vicinity are discussed below. Unless otherwise noted, all information provided in this subsection is based on the 2016 geotechnical memorandum.

a. Geologic Conditions

(1) Topography

The roughly 3.21-acre project site is located within an urbanized area of Oakland. The project site gently slopes toward the southwest. The existing ground surface elevation is approximately 20 feet above the North American Vertical Datum of 1988.[3] The nearest surface water body, Lake Merritt, is approximately 1,500 feet east of the project site.

(2) Regional and Site-Specific Geology

The project site is located within the Coast Ranges geomorphic province, a relatively geologically young and seismically active region.[4,5] The Coast Ranges extend from near

[1] Langan Treadwell Rollo, 2016. Preliminary Geotechnical Recommendations Memorandum for 2100 Telegraph Avenue, Oakland, California, July 5.

[2] Essel Environmental Consulting, 2015d. Report: Preliminary Subsurface Environmental Investigation. Property at 2100 Telegraph Avenue, Oakland, California 94612, September 30.

[3] United States Geological Survey (USGS), 2015. Oakland West Quadrangle, California, 7.5-Minute Series.

[4] California Geological Survey (CGS), 2002. California Geomorphic Provinces, Note 36.

the Oregon border to southern California. The only major break in the Coast Range mountains is the depression containing San Francisco Bay; the project site is located within this region. Based on USGS regional mapping of the San Francisco Bay region, the west and central portions of the project site are underlain by beach and dune sand, and the east portion is underlain by marine terrace deposits and alluvium.[6,7] Though not shown on regional mapping, many areas of downtown Oakland are also underlain by imported fill.

An important subsurface feature at the project site (which would affect any proposed development) is the underlying Bay Area Rapid Transit (BART) tunnels. The boundary of the subsurface BART easement right-of-way is shown on Figure V.F-1. Within the easement are three sets of underground rail lines that are contained within reinforced concrete box tunnels. Two of the tunnels are side by side, and the third tunnel is generally beneath the other two. As the tunnels traverse from the southern portion of the site to the north, one tunnel shifts westward and then rises in elevation. The tops of the concrete boxes reportedly range from about 12 to 30 feet beneath the existing ground surface. The BART tunnels are shown on the idealized subsurface profiles presented in Figure V.F-1.

The geotechnical memorandum indicates that the project site (with the exception of the area above the BART tunnels) is underlain by 8 to 10 feet of undocumented fill,[8] which is generally loose to medium-dense where sandy and medium-stiff to stiff where clayey. The soil above the BART tunnels is also undocumented fill that consists of very loose to loose silty sand and/or medium-stiff to very stiff clay and sandy clay. No information is available regarding the manner in which the fill was placed over the BART tunnels; therefore, it is assumed that it was not engineered. The site-wide fill is underlain by marine/marsh deposits to a depth of about 22 to 29 feet below ground surface. Underlying the weak and compressible marine/marsh layers are interbedded layers of discontinuous clay, silt, and sand of the Alameda Formation, which is typically very stiff to hard. During drilling and sampling for the subsurface investigation in 2015, groundwater was encountered in the fine-grained sand at approximately 13 feet below surface.[9] During drilling for the

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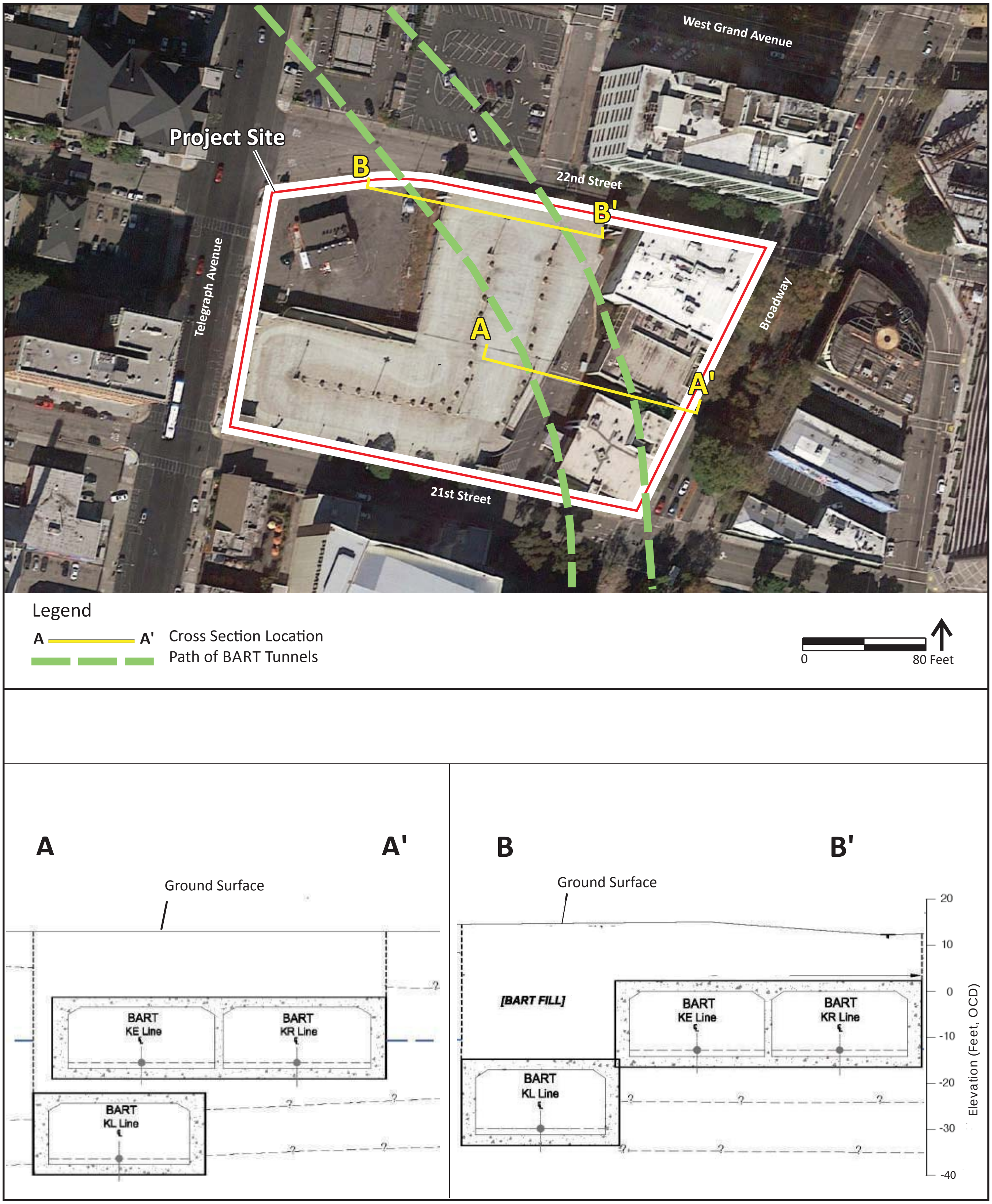
[5] Norris, Robert M. and Robert W. Webb, 1976. Geology of California, 2nd Edition. J. Wiley & Sons, Inc.

[6] Graymer et al., 2006. Geologic Map of the San Francisco Bay Region.

[7] United States Geological Survey (USGS), 2016. Available at: http://geomaps.wr.usgs.gov/sfgeo/geologic/downloads.html, accessed September 27, 2016.

[8] Undocumented fill is fill that was placed at some time in past, with no records existing as to its source or manner of placement (e.g., degreee of compaction).

[9] Essel Environmental Consulting, 2015d. Preliminary Subsurface Environmental Investigation. Property at 2100 Telegraph Avenue, Oakland, California 94612, September 30.



Source: Modified from Langan Treadwell Rollo, 2016

Figure V.F-1
Cross Sections Showing BART Tunnel in Subsurface

geotechnical investigation in 2016, groundwater was encountered at depths of 6.5 to 15.5 feet below ground surface.

(3) Soils

Regional soil mapping indicates that the project site is located within an area classified as Urban land-Danville complex, 2 to 9 percent slopes. This soil unit consists of about 60 percent urban land, 30 percent Danville and similar soils, and 10 percent minor components.[10] Urban land-Danville complex soil is characterized as well-drained, with slow permeability, high shrink-swell potential, and low strength. As described above under Regional and Site-Specific Geology, the site is highly disturbed and overlain by fill.

b. Seismic Conditions

The entire San Francisco Bay Area (Bay Area) is located within the San Andreas Fault Zone, a complex of active faults (i.e., evidence of fault rupture within the past 11,000 years). Numerous historic earthquakes have been generated in northern California by the San Andreas Fault Zone. This level of active seismicity results in relatively high seismic risk in the Bay Area. Regional active faults in the Bay Area are shown on Figure V.F-2.[11]

The Working Group on California Earthquake Probabilities and the USGS have predicted a 6.4 percent probability of a Moment Magnitude (M_w)[12] 6.7 or greater earthquake on the Northern San Andreas Fault between 2014 and 2044, a 14.3 percent chance on the Hayward Fault, and a total probability of 72 percent that an earthquake of M_w 6.7 or greater will occur on one of the regional Bay Area faults during that time.[13]

c. Seismic, Soils, and Geologic Hazards

Seismic, soils, and geologic hazards include surface rupture, ground shaking, liquefaction, lateral spreading, landslides, settlement and differential settlement, and expansive and corrosive soils. Each of these hazards is discussed below.

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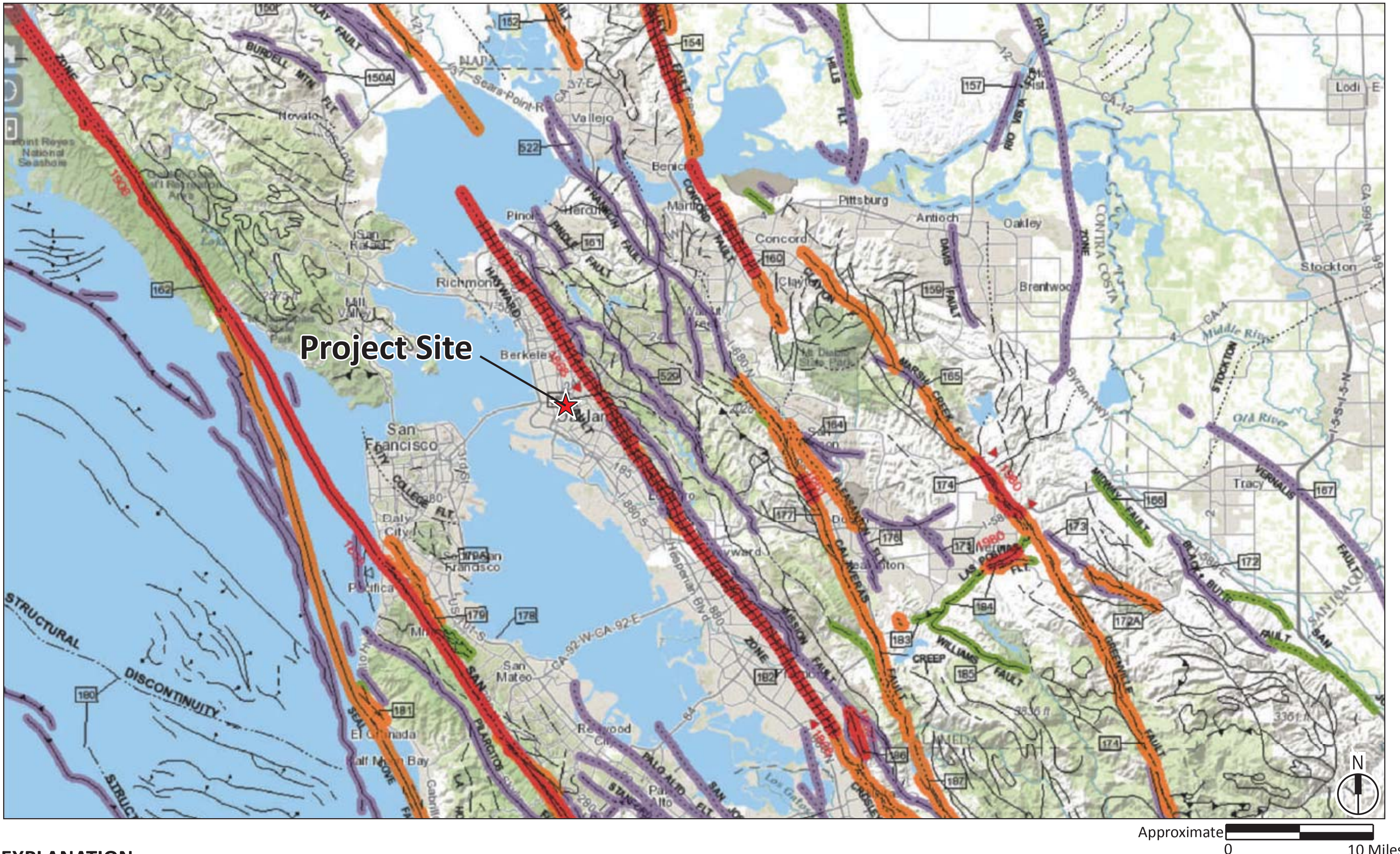
[10] Natural Resources Conservation Service, 2016. Web Soil Survey, USDA Mapping Website. Available at: http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm, accessed April 25, 2016.

[11] California Geological Survey (CGS), 2010. 2010 Fault Activity Map of California, Geologic Data Map No. 6. Available at: http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html, accessed April 25, 2016.

[12] M_w, as opposed to Richter Magnitude, is now commonly used to characterize seismic events. M_w is determined from the physical size (area) of the rupture of the fault plane, the amount of horizontal and/or vertical displacement along the fault plane, and the resistance to rupture of the rock type along the fault.

[13] Field, E.H. and 2014 Working Group on California Earthquake Probabilities, 2015. UCERF3: A New Earthquake Forecast for California's Complex Fault System, USGS Fact Sheet 2015-3009, March.



EXPLANATION

Fault traces on land are indicated by solid lines where well located, by dashed lines where approximately located or inferred, and by dotted lines where concealed by younger rocks or by lakes or bays. Fault traced are queried where continuation or existence is uncertain.

Fault Classification Color Code (Indicating Recency of Movement)

- Fault along which historic (last 200 years) displacement has occurred
- Holocene fault displacement (during past 11,700 years) without historic record
- Late Quaternary fault displacement (during past 700,000 years)
- Quaternary fault (age undifferentiated)
- Pre-Quaternary fault (older than 1.6 million years) or fault without recognized Quaternary displacement

Source: California Geological Survey, 2016. Fault Activity Map of California (2010).

Figure V.F-2
Fault Activity Map

(1) Surface Rupture

Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. Surface rupture generally can be assumed to occur along an active or potentially active major fault trace. The project site is not located within an area mapped as subject to surface rupture under the Alquist-Priolo Earthquake Fault Zoning Act, and no known active or potentially active faults cross the site.[14] The nearest Alquist-Priolo Earthquake Fault Zone is the Hayward Fault, located about 3 miles east of the project site (Figure V.F-2).[15]

(2) Ground Shaking

Ground shaking is a general term referring to all aspects of motion of the earth's surface resulting from an earthquake, and is normally the major cause of damage in seismic events. The extent of ground shaking is controlled by the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions. The Modified Mercalli Intensity Scale (MMI) is the most commonly used scale for measurement of the subjective effects of earthquake intensity (Table V.F-1). As described above, the closest active fault to the project site is the Hayward Fault, approximately 3 miles to the southwest. The Hayward Fault (both north and south segment together) is considered capable of generating an M_w 7.0 earthquake. An earthquake of this magnitude on the Hayward Fault would generate very strong (MMI VIII) ground shaking at the project site. The project site also has the potential to be subject to moderate (MMI VI) to strong (MMI VII) ground shaking generated by an earthquake on the Rodgers Creek Fault, Calaveras Fault, or San Andreas Fault.[16]

(3) Liquefaction and Lateral Spreading

Liquefaction is the temporary transformation of loose, saturated granular sediments from a solid state to a liquefied state as a result of seismic ground shaking. In the process, the soil undergoes transient loss of strength, which commonly causes ground displacement or ground failure to occur. Because saturated soils are a necessary condition for liquefaction, soil layers in areas where the groundwater table is near the surface have higher

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[14] California Department of Conservation (CDC), 1982. State of California Special Studies Zones, Oakland West Revised Official Map (In compliance with Alquist-Priolo Special Studies Zones Act). Effective January 1. Available at: http://www.quake.ca.gov/gmaps/WH/regulatorymaps.htm, accessed April 25, 2016.

[15] California Geological Survey (CGS), 2010. 2010 Fault Activity Map of California, Geologic Data Map No. 6. Available at: http://www.quake.ca.gov/gmaps/FAM/faultactivitymap.html, accessed April 25, 2016.

[16] Association of Bay Area Governments (ABAG), 2013a. Shaking Scenarios. Available at: http://resilience.abag.ca.gov/earthquakes/Alameda/, accessed April 25, 2016.

TABLE V.F-1 MODIFIED MERCALLI SCALE

I	Not felt except by a very few under especially favorable circumstances.
II	Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.
III	Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration like passing of truck. Duration estimated.
IV	During the day felt indoors by many, outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.
VII	Everybody runs outdoors. Damage negligible in building of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Board fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.
XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted.

Source: California Geology Survey, 2002. How Earthquakes and Their Effects are Measured, Note 32.

liquefaction potential than those in which the water table is located at greater depths. Lateral spreading is a form of horizontal displacement of soil toward an open channel or other “free” face, such as an excavation boundary. In a lateral spread failure, a layer of ground at the surface is carried on an underlying layer of liquefied material over a nearly flat surface toward a river channel or other bank.[17] The lateral spreading hazard tends to mirror the liquefaction hazard for a site.

USGS regional studies for the Bay Area provide information on Quaternary deposits and liquefaction susceptibility in the area.[18] Based on these regional studies, mapping by the Association of Bay Area Governments (ABAG) rates the site as a moderate liquefaction hazard area.[19] The east portion of the project site is within a liquefaction hazard zone as designated on a map prepared by the CGS.[20] However, it should be noted that this designation is based on regional mapping and may not be accurate at a parcel level. Regional studies can provide guidance for general planning and hazard potential assessment; however, site-specific studies are necessary to assess the design and engineering requirements for any particular site.

The 2016 geotechnical memorandum identified layers that were potentially liquefiable based on available subsurface data. It is estimated that the shaking-induced settlements within these layers could range from ¼ to ½ inch. With regard to lateral spreading, the project site is not susceptible to lateral spreading because the potentially liquefiable layers are discontinuous across the project site and due to the lack of downslope or free face.

(4) Landslides

Slope failure can occur as either rapid movement of large masses of soil (landslide) or slow, continuous movement (creep) on slopes of varying steepness. The project site and vicinity are relatively flat, and therefore not subject to landslides or other slope stability hazards. In addition, the project site is not included in an area deemed susceptible to earthquake-induced landslides.[21]

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[17] Assocation of Bay Area Governments (ABAG), 2001.The REAL Dirt on Liquefaction, A Guide to the Liquefaction Hazard in Future Earthquakes Affecting the San Francisco Bay Area, February.

[18] United States Geological Survey (USGS), 2006. Maps of Quaternary Deposits and Liquefaction Susceptibility in the Central San Francisco Bay Region. Available at: http://pubs.usgs.gov/of/2006/1037/.

[19] Assocation of Bay Area Governments (ABAG), 2013b. Liquefaction Susceptibility. Available at: http://resilience.abag.ca.gov/earthquakes/Alameda/, accessed April 25, 2016.

[20] California Geologic Survey (CGS), 2003. State of California Seismic Hazard Zones, Oakland West Quadrangle Official Map. Released February 14.

[21] California Geologic Survey (CGS), 2003. State of California Seismic Hazard Zones, Oakland West Quadrangle Official Map. Released February 14.

(5) Settlement, Differential Settlement, and Subsidence

Settlement is the lowering of the land surface elevation as a result of loading (i.e., placing heavy loads, typically fill or structures), which often occurs with the development of a site. Settlement or differential (e.g., unequal) settlement could occur if buildings or other improvements are built on low-strength foundation materials (including imported non-engineered fill) or if improvements straddle the boundary between different types of subsurface materials (e.g., a boundary between native material and/or new engineered fill). Although settlement generally occurs slowly enough that its effects are not dangerous to inhabitants, it can cause significant building damage over time.

The undocumented fill and soft compressible marine/marsh layer at the project site could pose a substantial differential settlement hazard to new development. In addition, cyclic densification could occur during strong ground shaking in loose, clean granular deposits above the water table, resulting in ground surface settlement. The evaluation of cyclic densification potential in areas that are not above the BART tunnels indicates 1 to 2 inches of cyclic densification, while areas directly above the BART tunnels may experience cyclic densification-induced settlements of up to 5.5 inches during a major earthquake. Subsidence can result from the removal of subsurface water, resulting in gradual depression of the surface elevation of the project site. No information on historic subsidence, if any, in downtown Oakland was identified.

(6) Expansive Soils

Expansion and contraction of soil volume can occur when expansive soils undergo alternating cycles of wetting (swelling) and drying (shrinking). During these cycles, the volume of the soil changes markedly. As a consequence of such volume changes, structural damage to buildings and infrastructure can occur if potentially expansive soils are not considered in project design and during construction. The project site is underlain by fill consisting of a mixture of sand and clay, and it is possible that these clayey soils are expansive; however, the shrink-swell potential of these soils was not specifically characterized in the 2016 geotechnical memorandum.

2. Regulatory Setting

This subsection discusses the pertinent State and local regulations related to geology, soils, and seismicity.

(1) California Building Code

The 2016 California Building Code (CBC), which refers to Part 2 of the California Building Standards Code in Title 24 of the California Code of Regulations, is based on the 2015 International Building Code, and is the most current State building code. The 2016 CBC covers grading and other geotechnical issues, building specifications, and non-building structures. The City of Oakland Municipal Code amends the most current State building codes, as indicated in Municipal Code Chapter 15.04. The City's Bureau of Building is responsible for reviewing plans, issuing building permits, and conducting field inspections.

For proposed developments of one or more buildings greater than 4,000 square feet, the 2016 CBC requires a site-specific geotechnical investigation by a licensed professional. The purpose of the geotechnical investigation is to identify seismic and geologic conditions that require project mitigation, such as ground shaking, liquefaction, and soil stability. Requirements for the geotechnical investigation are presented in Chapter 16 "Structural Design" and Chapter 18 "Soils and Foundation" of the 2016 CBC.

The geotechnical investigation report for the project would be reviewed by the Bureau of Building prior to issuance of building permits.

(2) Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed in December 1972 to mitigate the hazard of surface faulting to structures for human occupancy. The main purpose of this legislation is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. As mentioned above, the project site is not located within an area mapped as subject to surface rupture under the Alquist-Priolo Earthquake Fault Zoning Act, and no known active or potentially active faults cross the site.

(3) Seismic Hazards Mapping Act

In 1990, following the Loma Prieta earthquake, the California Legislature enacted the Seismic Hazards Mapping Act to protect the public from the effects of strong ground shaking, liquefaction, landslides, and other seismic hazards. The Seismic Hazards Mapping Act established a statewide mapping program to identify areas subject to violent shaking and ground failure; the program is intended to assist cities and counties in protecting public health and safety. The Seismic Hazards Mapping Act requires the State Geologist to delineate various seismic hazard zones, and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones. As a result, the CGS is mapping Seismic Hazards Mapping Act Zones and has completed seismic hazard mapping for the portions of California most susceptible to liquefaction, ground shaking, and landslides (primarily the Bay Area and the Los Angeles basin). Before a development permit is granted for a site within a seismic hazard zone, a geotechnical investigation must be conducted and appropriate mitigation measures incorporated into the project design. The project site is not within an earthquake-induced landslides hazard zone; however, the east portion of the site is within a liquefaction hazard zone as designated on a CGS map of the area.[22]

(4) General Plan

The following policies and action items from the Open Space, Conservation, and Recreation and Safety Elements of the City of Oakland General Plan specifically address soils, geology, and/or seismic hazards, and are applicable to the project.

Policy Statements Related to Geologic Hazards

Policy GE-1: Develop and continue to enforce and carry out regulations and programs to reduce seismic hazards and hazards from seismically triggered phenomena.

Action GE-1.2: Enact regulations requiring the preparation of site-specific geologic or geotechnical reports for development proposals in areas subject to earthquake-induced liquefaction, settlement or severe ground shaking, and conditioning project approval on the incorporation of necessary mitigation measures.

Policy GE-2: Continue to enforce ordinances and implement programs that seek specifically to reduce the landslide and erosion hazards.

Action GE-2.1: Continue to enforce provisions under the subdivision ordinance requiring that, under certain conditions, geotechnical reports be filed and soil hazards investigations be made to prevent grading from creating unstable slopes, and that any necessary corrective actions are taken.

Action GE-2.2: Continue to enforce the grading, erosion and sedimentation ordinance by requiring, under certain conditions, grading permits and plans to control erosion and sedimentation.

Policy GE-3: Continue, enhance or develop regulations and programs designed to minimize seismically related structural hazards from new and existing buildings.

Action GE-3.1: Adopt and amend as needed updated versions of the California building code so that optimal earthquake-protection standards are used in construction and renovation projects.

Action GE-3.2: Continue to enforce the unreinforced masonry ordinance to require that potentially hazardous unreinforced masonry buildings be retrofitted or be otherwise made to reduce the risk of death and injury from their collapse during an earthquake.

Action GE-3.3: Continue to enforce the earthquake-damaged structures ordinance to ensure that buildings damaged by earthquakes are repaired to the extent practicable.

[22] California Geologic Survey (CGS), 2003. State of California Seismic Hazard Zones, Oakland West Quadrangle Official Map. Released February 14.

Policy GE-4: Work to reduce potential damage from earthquakes to "lifeline" utility and transportation systems.

Action GE-4.4: Continue to designate underground utility districts for the purpose of replacing aboveground electric and phone wires and other structures with underground facilities, and use the planning-approval process to ensure that all new utility lines will be installed underground from the start.

Policy Statements Related to Soils

Policy CO-1.1: Soil loss in new development. Regulate development in a manner which protects soil from degradation and misuse or other activities which significantly reduce its ability to support plant and animal life. Design all construction to ensure that soil is well secured so that unnecessary erosion, siltation of streams, and sedimentation of water bodies does not occur.

Action CO-1.1.1: Soil-related development controls—Maintain, enforce, and periodically review development controls affecting soil removal, including the Grading Ordinance and the Sedimentation and Erosion Control Ordinance.

Action CO-1.1.3: Consideration of soil constraints in development—Consider soil constraints such as shrink-swell and low soil strength in the design of buildings and roads. Suitable base materials and drainage provisions should be incorporated where necessary.

Policy CO-2.2: Unstable geologic features. Retain geologic features known to be unstable, including serpentine rock, areas of known landsliding, and fault lines, as open space. Where feasible, allow such lands to be used for low-intensity recreational activities.

Action CO-2.2.1: Geo-technical study requirements—Maintain Standard Operating Procedures in the Office of Planning and Building which require geo-technical studies for major developments in areas with moderate to high ground shaking or liquefaction potential, or other geologically unstable features.

Policy CO-2.3: Development on filled soils. Require development on filled soils to make special provisions to safeguard against subsidence and seismic hazards.

Annex to Local Hazard Mitigation Plan

As part of the ABAG multi-jurisdictional Local Hazard Mitigation Plan, the City prepared a plan annex,[23] which serves as an amendment to the Safety Element of the General Plan. The mitigation strategies in the plan annex that apply to geologic and seismic safety are listed below.

[23] City of Oakland, 2012. Annex to 2010 Association of Bay Area Governments Local Hazard Mitigation Plan Taming Natural Disasters, January 20.

Specific Mitigation Strategy INFR-b-4: Install specially-engineered pipelines in areas subject to faulting, liquefaction, earthquake-induced landsliding, or other earthquake hazard.

Specific Mitigation Strategy INFR-b-6: Install portable facilities (such as hoses, pumps, emergency generators, or other equipment) to allow pipelines to bypass failure zones such as fault rupture areas, areas of liquefaction, and other ground failure areas (using a priority scheme if funds are not available for installation at all needed locations).

Specific Mitigation Strategy INFR-b-8: Comply with all applicable building and fire codes, as well as other regulations (such as State requirements for fault, landslide, and liquefaction investigations in particular mapped areas) when constructing or significantly remodeling infrastructure facilities.

(5) Standard Conditions of Approval

SCA-GEO-1: Construction-Related Permit(s) (#33)
Requirement: The project applicant shall obtain all required construction-related permits/approvals from the City. The project shall comply with all standards, requirements and conditions contained in construction-related codes, including but not limited to the Oakland Building Code and the Oakland Grading Regulations, to ensure structural integrity and safe construction.
When Required: Prior to approval of construction-related permit
Initial Approval: Bureau of Building
Monitoring/Inspection: Bureau of Building

SCA-GEO-2: Seismic Hazards Zone (Landslide/Liquefaction) (#36)
Requirement: The project applicant shall submit a site-specific geotechnical report, consistent with California Geological Survey Special Publication 117 (as amended), prepared by a registered geotechnical engineer for City review and approval containing at a minimum a description of the geological and geotechnical conditions at the site, an evaluation of site-specific seismic hazards based on geological and geotechnical conditions, and recommended measures to reduce potential impacts related to liquefaction and/or slope stability hazards. The project applicant shall implement the recommendations contained in the approved report during project design and construction.
When Required: Prior to approval of construction-related permit
Initial Approval: Bureau of Building
Monitoring/Inspection: Bureau of Building

3. Impacts, Standard Conditions of Approval, and Mitigation Measures

This section analyzes impacts related to geology, soils, and seismicity that could result from implementation of the Eastline project. This section begins with the criteria of significance that establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the project and identifies SCAs and/or mitigation measures to address these impacts as needed.

a. Significance Criteria

Implementation of the Eastline project would result in a significant soils, geology, and seismicity impact if it would:

1. Expose people or structures to substantial risk of loss, injury, or death involving:
   - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map or Seismic Hazards Map issued by the State Geologist for the area or based on other substantial evidence of a known fault[24]
   - Strong seismic ground shaking
   - Seismic-related ground failure, including liquefaction, lateral spreading, subsidence, collapse
   - Landslides
2. Result in substantial soil erosion or loss of topsoil, creating substantial risks to life, property, or creeks/waterways
3. Be located on expansive soil, as defined in Section 1802.3.2 of the CBC,[25] creating substantial risks to life or property
4. Be located above a well, pit, swamp, mound, tank vault, or unmarked sewer line, creating substantial risks to life or property
5. Be located above landfills for which there is no approved closure and post-closure plan, or unknown fill soils, creating substantial risks to life or property
6. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater

b. Less-Than-Significant Soils, Geology, and Seismicity Impacts

Four development options are considered to illustrate the range of scenarios that could occur under the Planned Unit Development/Preliminary Development Plan (PUD/PDP). With

[24] Refer to CGS 42 and 117 and Public Resources Code Section 2690 et. seq.
[25] 2007 CBC, as it may be revised.

respect to soils, geology, and seismicity, each of the scenarios would involve similar impacts.

Implementation of the Eastline project would result in the less-than-significant impacts described below. Because these impacts would not exceed the significance criteria described above, they do not require mitigation measures.

(1) Surface Rupture (Criterion 1)

Surface fault rupture occurs when the ground surface is broken due to fault movement during an earthquake. Fault rupture is generally expected to occur along active fault traces. Areas susceptible to fault rupture are delineated by the CGS Alquist-Priolo Earthquake Fault Zones map and require specific geological investigations prior to development to reduce the threat to public health and safety and to minimize the loss of life and property posed by earthquake-induced ground failure. The project site is not located within or adjacent to an Alquist-Priolo Earthquake Fault Zone or an active fault included on a Seismic Hazards Map. Therefore, the project would have a less-than-significant impact on people and structures related to fault rupture.

(2) Landslides (Slope Failure) (Criterion 1)

Implementation of the project would not be affected by slope instability because the project site and surrounding areas are relatively flat. Furthermore, the project site is not within an earthquake-induced landslides hazard zone as designated on a map prepared by the CGS.[26] Therefore, the risk of landslides at the project area is considered to be less than significant.

(3) Soil Erosion and Loss of Topsoil (Criterion 2)

Potential impacts from the loss of topsoil and soil erosion are discussed in *Section V.H, Hydrology and Water Quality* of this Environmental Impact Report (EIR).

(4) Located Above a Well, Pit, Swamp, Mound, Tank Vault, or Unmarked Sewer Line (Criterion 4)

No known wells, pits, swamps, mounds, tank vaults, or unmarked sewer lines underlie the project site.

[26] California Geologic Survey (CGS), 2003. State of California Seismic Hazard Zones, Oakland West Quadrangle Official Map. Released February 14.

(5) Located Above a Landfill (Criterion 5)

No records of a historic landfill at the project site have been identified (for a detailed description of the site history related to hazardous materials, please refer to *Section V.G, Hazards and Hazardous Materials* of this EIR). Based on review of the available records, the project site is not located above a landfill. Therefore, this is a less-than-significant impact.

(6) Soils Incapable of Adequately Supporting the Use of Septic Tanks or Alternative Wastewater Disposal Systems (Criterion 6)

The project does not propose the use of septic tanks or alternative wastewater disposal systems. Sanitary sewer service would be provided by the East Bay Municipal Utility District (EBMUD). Therefore, no impact related to use of on-site septic systems would occur.

c. Significant Soils, Geology, and Seismicity Impacts

The development of the project could result in significant impacts related to seismic and aseismic geohazards.

(1) Strong Seismic Ground Shaking and Ground Failure (including Liquefaction, Lateral Spreading, and Collapse) and Aseismic Settlement, Differential Settlement, Cyclic Densification, and Expansive Soils (Criteria 1 and 3)

The project would include construction of high-rise buildings (potentially the tallest building in Downtown Oakland under the Maximum Office Scenario). The geotechnical site conditions include challenges related to the presence of the underlying BART tunnels and undocumented fill, as well as the soft compressible marine/marsh soils, which could pose a substantial settlement hazard to new development.

Impact GEO-1: Damage to structures could result from unstable soil conditions during the operation period of the project. (S)

Strong seismic shaking could result in a range of geologic hazards with the potential to affect the project improvements, including towers up to 63 floors (940 feet) high. With regard to lateral spreading, the 2016 geotechnical memorandum indicates that the project site is not susceptible to lateral spreading because the potentially liquefiable layers are discontinuous across the project site and due to the lack of downslope or free face.[27] Because the geotechnical memorandum does not specifically address the potential for soil collapse at the site and no other information related to the local collapse hazard is available, the potential for collapse to affect the project is assumed to be a possibility.

A portion of the project site is within a liquefaction hazard zone as designated on a map prepared by the CGS.[28] The 2016 geotechnical memorandum identified layers that were potentially liquefiable based on the available subsurface data. However, calculated shaking-induced settlement magnitudes within these layers is relatively small, estimated to range between ¼ and ½ inch.

The 2016 geotechnical memorandum also indicates that the undocumented fill and the soft compressible marine/marsh layer could pose a substantial aseismic settlement hazard to new development (up to 1.5 inches for 11- to 15-story buildings, up to 6 inches for a 40-story tower and, potentially, in excess of 6 inches for a 60+ story tower). In addition, cyclic densification can occur during strong ground shaking in loose, clean, granular deposits above the water table, resulting in ground surface settlement. The evaluation of cyclic densification potential in areas that are not above the BART tunnels indicates that 1 to 2 inches of cyclic densification could occur, while areas directly above the BART tunnels could experience cyclic densification-induced settlements of up to 5.5 inches during a major earthquake.

Subsidence can occur due to the removal of subsurface water, resulting in gradual depression of the surface elevation of the project site. The project would connect to the EBMUD water system and would not use groundwater at the site. Although no use of groundwater is proposed as part of the project, dewatering would be required during construction, which could cause localized settlement. This subsidence could potentially adversely affect nearby structures, utilities, and pavements if not properly controlled.

Expansive soils are characterized by the potential for shrinking and swelling as the moisture content of the soil decreases and increases, respectively. Shrink-swell potential is influenced by the amount and type of clay minerals present and can be measured by the percent change of the soil volume. Shrink-swell potential is also influenced by the location of the soils; soils below the groundwater table maintain a steady moisture content and would therefore not be subject to shrink-swell effects. While some of the clayey soils underlying the project site (above the groundwater level) could be moderately to highly

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[27] Langan Treadwell Rollo, 2016. Preliminary Geotechnical Recommendations Memorandum for 2100 Telegraph Avenue, Oakland, California, July 5.

[28] California Geologic Survey (CGS), 2003. State of California Seismic Hazard Zones, Oakland West Quadrangle Official Map. Released February 14.

expansive, no site-specific information related to expansive soils is available; it is assumed that unless shown otherwise, shrink-swell potential impacts could occur at the site.

The 2016 geotechnical memorandum concluded that the project is feasible from a geotechnical standpoint. The primary geotechnical challenges identified for the project include (1) the BART tunnels below the site; (2) the presence of undocumented fill across the site, including very loose soil above the BART tunnels; (3) the presence of a weak marsh/marine clay layer beneath the fill; and (4) selection of an appropriate foundation system to support anticipated building loads for the proposed office buildings without excessive settlement.

Based on the recommendations in the 2016 geotechnical memorandum, the building loads would likely not be supported in the shallow undocumented fill because the material is generally weak and variable and susceptible to differential settlement. In addition, some of the fill is very loose and susceptible to seismic densification settlement during a major earthquake. Support of the building in undocumented fill would likely result in erratic and excessive settlement under both static (aseismic) and seismic conditions. The soil layers encountered beneath the soft marine/marsh layer are relatively strong and much less compressible. These layers consist of either dense sands or over-consolidated clays and could accommodate moderate compressive loads without significant settlement. Therefore, it is possible that these soil layers would be used as the load-bearing strata.

Following are brief summaries of the preliminary foundation approaches for the preferred residential and office mix development option at each structure (similar foundation approaches may also be considered by the geotechnical/structural engineers for the other project options).

Office Building Not Over BART Tunnels
The office building not located over BART tunnels would likely be supported on a 6- to 10-foot-thick mat foundation. The upper soft soil layers would either be (1) removed and replaced with engineered fill or lean concrete; or (2) improved using ground improvement techniques (e.g., deep soil mixing or similar method).

Office Building Over BART Tunnels
A portion of the office building would span over the BART tunnels. No foundation loads from the office building would be transferred to the zone above the tunnels. One possible approach considered by the geotechnical/structural engineers is to span over the BART tunnels using a series of multi-story steel supports. At the ends of each truss, a highly concentrated building load would occur. To limit the potential effect on the BART tunnels, these columns could be carried by the soil well below the BART

tunnels. It is possible that these loads would be supported on a series of deep foundations (e.g., non-displacement augured cast-in-place piles or drilled shafts).

Residential Tower

The residential tower could be supported on a 12-foot-thick mat foundation, either at grade or below one basement level. A zone of improved ground (e.g., deep soil mixing or similar method) that transfers building loads to the bearing strata might be needed. Alternatively, the marsh/marine clay layers may also be bypassed using a deep foundation system, as described above for the office building spanning over the BART tunnels. The final selection of the appropriate foundation system would depend on the final weight of the tower, allowable settlement performance of the tower, and potential impact of this settlement on the adjacent BART tunnels.

Policy CO-2.3 of the City of Oakland General Plan requires development on filled soils to make special provisions to safeguard against subsidence and seismic hazards. SCA-GEO-2: Seismic Hazards Zone (Landslide/Liquefaction) (#36) requires the project applicant to submit a site-specific geotechnical report prepared by a registered geotechnical engineer for City review, containing (at a minimum) a description of the geological and geotechnical conditions at the site, an evaluation of site-specific seismic hazards based on geological and geotechnical conditions, and recommended measures to reduce potential impacts related to liquefaction and/or slope stability hazards. However, neither Policy CO-2.3 nor SCA-GEO-2 explicitly addresses aseismic settlement, differential settlement, soil collapse, cyclic densification, or expansive soils. Furthermore, the project faces unusual geotechnical challenges associated with designing foundation systems for some of the tallest buildings ever proposed in the City, including the presence of the underlying BART tunnels, undocumented fill, and soft compressible marine/marsh soils. Therefore, impacts related to geohazards, including settlement, differential settlement, and expansive soils, are significant and require mitigation.

Mitigation Measure GEO-1: Implementation of the following three-part mitigation measure would reduce impacts to project structures or property related to unstable soils to a less-than-significant level:

GEO-1a: Prior to the issuance of any grading or construction permits, a final geotechnical investigation report shall be prepared by a qualified Geotechnical Engineer or Certified Engineering Geologist with input from a structural engineer and submitted to the City of Oakland Bureau of Building for review and acceptance. In addition to all other requirements, the final geotechnical investigation report shall specifically provide recommendations to minimize the following:

- The potential damage to structures, utilities, and pavements from total and differential settlement, soil collapse, and cyclic densification

- The potential for damage to structures, utilities, and pavements caused by expansive soils
- The potential for damage to nearby structures, utilities, and pavements caused by any construction-period dewatering-induced subsidence
- The potential for damage caused by expected seismic shaking

The final geotechnical investigation report shall include estimates of allowable settlement, construction-period and post-construction settlement monitoring methods, and measures to be taken if settlement monitoring results indicate exceedance of allowable settlement estimates. All design measures, recommendations, design criteria, and specifications set forth in the final geotechnical investigation report shall be implemented as a condition of project approval.

GEO-1b: A licensed Geotechnical Engineer with specific experience in foundation design of high-rise buildings, and whose selection is approved by the Building Official, shall peer review the draft geotechnical aspects of the design and engineering plans. The Geotechnical Engineer shall be allowed sufficient time to provide the project design team with comments prior to the building permit application. These comments shall be considered by the Geotechnical Engineer or Certified Engineering Geologist preparing the plans. Where consensus is reached between the two parties, the plans shall be modified accordingly, prior to building permit application. If consensus is not reached, another third-party Geotechnical Engineer whose selection is approved by the Building Official shall make the determination.

GEO-1c: A licensed Geotechnical Engineer, or representative, whose selection is approved by the Building Official, shall provide third-party geotechnical observation and testing during all earthwork and foundation construction activities. The Geotechnical Engineer shall be allowed to evaluate any conditions differing from those encountered during the geotechnical investigation, and shall provide supplemental recommendations to the Building Official, as necessary, which the City shall require the project applicant to implement. At the end of construction, the Geotechnical Engineer shall provide a letter regarding contractor compliance with project plans and specifications and with the recommendations of the final geotechnical investigation report and any supplemental recommendations issued during construction. The letter shall be submitted for review to the City.

Implementation of the above three-part mitigation would reduce this impact to a less-than-significant level. (LTS)

d. Cumulative Impacts

For geology and soils, the cumulative impact area considered is the City of Oakland. Impacts related to geologic hazards are generally site-specific rather than cumulative in nature, because each project area has unique geologic considerations that would be subject to uniform site development and construction standards. Therefore, the potential for cumulative impacts is limited to the project site and adjacent sites. Impacts associated with potential geologic hazards related to soil or other conditions occur at individual building sites. These effects are site-specific and impacts would not be compounded by additional development. Therefore, no significant cumulative impact relating to geology and soils is occurring or would be expected to occur in the vicinity.

G. HAZARDS AND HAZARDOUS MATERIALS

This section describes the environmental setting with regards to hazards and hazardous materials[1] at the project site; discusses the relevant federal, State, and regional regulatory considerations; evaluates the potential impacts of the project related to hazards and hazardous materials (during both the construction phase and following project completion); and provides mitigation measures, where appropriate, to address the identified significant impacts. The evaluation in this section is based on a review of available information included with the project application, previous environmental investigations at the project site, and other published materials.

1. Setting

a. Previous Environmental Investigations

Previous environmental investigations conducted at the project site include Phase I environmental site assessments (ESAs) and subsurface investigations. The findings of these investigations are summarized below.

(1) Phase I Environmental Site Assessments

Phase I ESAs have been performed for each of the properties that constitute part of the project site, as presented below.

2131–2147 Broadway

In 2016, a Phase I ESA for 2131–2147 Broadway[2] was prepared for the property located in the northeast corner of the project site. A summary of the Phase I follows. This property was occupied by residences prior to construction of the existing building in 1925 or 1926. The historical business listings do not indicate any environmentally suspect activities. Groundwater contaminant plumes from two leaking underground storage tank (LUST) sites to the west-northwest and northwest of the property do not appear to pose significant environmental risk to the property, and additional environmental investigation was not

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[1] The California Health and Safety Code defines a hazardous material as, "...any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety, or to the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, radioactive materials, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment" (California Health and Safety Code Section 25501).

[2] Essel Environmental Consulting, 2016a. Phase I Environmental Site Assessment, Sherman Clay Building, 2131–2147 Broadway, Oakland, California 94612, May 19.

recommended. However, the potential for local groundwater contamination associated with unidentified sources cannot be ruled out because, over the past 100 years, both commercial and light-industrial businesses (e.g., gas stations, auto repair shops, cleaners) have existed in the vicinity of this property. Based on the age of the existing building, asbestos-containing materials (ACMs) and lead based paint (LBP) may be present. The 2131–2147 Broadway Phase I recommends testing of suspect ACMs prior to renovation or demolition.

2127 Broadway

In 2015, a Phase I ESA for 2127 Broadway[3] was prepared for the property located in the eastern portion of the project site. A summary of the Phase I follows. This property was occupied by residences in the late 1800s; it was redeveloped with commercial buildings in the early 1900s and again in the 1950s. In the late 1960s, the commercial buildings were apparently removed to facilitate construction of the underground Bay Area Rapid Transit (BART) facilities. The existing commercial building on the property was reportedly constructed in 1975. Groundwater impacts from up-gradient LUST sites or historical service stations or cleaners likely have not impacted this property based upon the results of the Phase I ESA, which indicated that these sites should not pose an environmental concern for the property based on the extent of contamination identified at the sites and/or their distance/direction from the property. Based on the age of the existing building, ACMs and LBP are presumed to be present, and the 2127 Broadway Phase I recommends testing of building materials prior to renovation or demolition. The 2127 Broadway Phase I concludes that no additional environmental investigation (other than for ACMs and LBP) are necessary as the Phase I does not indicate any known or suspected environmental conditions that could impact this property.

2101 Broadway

In 2015, a Phase I ESA for 2101 Broadway[4] was prepared for the property located in the southeast corner of the project site. A summary of the Phase I follows. This property was occupied by five commercial buildings in the late 1800s through early 1900s, and these buildings were replaced by one three-story commercial building by 1951. In the late 1960s, the commercial building was removed to facilitate the construction of BART facilities. The existing commercial building on this property was reportedly constructed in 1974. Groundwater contaminant plumes from two LUST sites to the northwest of the property are not indicated to have impacted the property. The current building was

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[3] Essel Environmental Consulting, 2015a. Phase I Environmental Site Assessment, Commercial Property, 2127 Broadway, Oakland, California 94612, December 21.

[4] Essel Environmental Consulting, 2015c. Phase I Environmental Site Assessment, Commercial Property, 2101 Broadway, Oakland, California 94612, July 30.

reportedly renovated in 2006; thus, it is unlikely that the building contains ACMs. The 2101 Broadway Phase I ESA recommends testing of suspect ACMs prior to renovation or demolition and indicates that based on the age of the existing building, LBP may be present. No known or suspected environmental conditions that could impact this property were indicated and additional environmental investigation (other than for ACMs) was not recommended.

2102 Telegraph Avenue[5]

In 2007, a Phase I ESA for 2102 Telegraph[6] was prepared for the property in the central and southwest portions of the project site. A summary of the Phase I follows. This property was occupied by residences and commercial buildings in the late 1800s and early 1900s, during which time commercial uses (an office with attached washing and fuel oil building, and a dyeing/cleaning facility) may have stored and used hazardous materials. By the early 1950s, a gas station occupied the southwest corner of this property, and a large garage with an auto repair facility at its north end occupied much of the eastern portion. By 1967, the property was used as a parking lot, and the existing parking structure was constructed in approximately 1978. No records were found indicating that underground storage tanks (USTs) were removed from the former gas station on this property or that a subsurface investigation had been performed to evaluate potential impacts to soil and groundwater from the former gas station. As a result, the 2102 Telegraph Phase I concludes that the former gas station is an environmental concern for this property and recommends a subsurface investigation to evaluate potential impacts to soil and groundwater from the former gas station prior to any redevelopment of the property. No suspect ACMs and only limited painted surfaces were observed at the property; therefore, the 2102 Telegraph Phase I concluded that an LBP survey is not warranted.

495 22nd Street

In 2015, a Phase I ESA for 495 22nd Street[7] was prepared for the property I in the northwest corner of the project site. A summary of the Phase I follows. The northwest corner of this property was occupied by residences, and the remainder was vacant land in the late 1800s. By the early 1900s, a large building containing commercial stores also occupied this property. Businesses operating in the commercial building that may have

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[5] This property is also referred to as 2100 Telegraph throughout the EIR.

[6] Fugro West Inc., 2007. Phase I Environmental Site Assessment, 2102 Telegraph Avenue, Oakland, California, April 19.

[7] Essel Environmental Consulting, 2015b. Phase I Environmental Site Assessment, Commercial Property, 495 22nd Street, Oakland, California 94612, June 30.

stored and used hazardous materials include a painting business, a laundry, and a business providing car batteries. By 1946, the commercial building and residences had been removed from the property, and it was subsequently used as a parking lot. The existing building was reportedly constructed in 1953 to 1954 and has been used as a restaurant since that time. Businesses that occupied the property are not suspected to have used significant quantities of hazardous substances. Groundwater contaminant plumes from two LUST sites to the north and west of the property have not migrated beneath the property. The Phase I states that these sites are not considered to pose environmental concerns for the property because active remediation and groundwater monitoring are occurring at the LUST site to the west; and based on the cross-gradient location, closed case status, and non-detectable levels of petroleum hydrocarbons in nearest well located at the site to the north. No issues of environmental concern were identified for the property. Based on the age of the existing building, ACMs and LBP may be present. As a result, the 495 22nd Street Phase I recommends testing of suspect ACMs prior to renovation or demolition; the Phase I does not recommend any additional environmental investigation.

(2) Subsurface Investigations

Based on the findings of the Phase I ESA for 2102 Telegraph Avenue, a preliminary investigation of soil, groundwater, and soil-vapor conditions was performed at the project site. Additional soil and groundwater investigations were conducted to further evaluate the extent of impacts detected during the preliminary investigation and to evaluate other areas of the project site that had not yet been investigated. These subsurface investigations are summarized below.

Preliminary Subsurface Environmental Investigation

In 2015, a preliminary subsurface environmental investigation for 2100 Telegraph Avenue[8] (2015 Subsurface Study) was performed to evaluate potential environmental impacts from the former gas station that was located at the southwest corner of the project site. A summary of the 2015 Subsurface Study follows. The investigation involved sampling of soil and groundwater from three borings, and installing and sampling with three soil-vapor probes. The soil and groundwater samples were analyzed for total petroleum hydrocarbons (TPH) in the gasoline (TPHg), diesel (TPHd), and motor oil (TPHmo) ranges, as well as for volatile organic compounds (VOCs); the soil-vapor samples were analyzed for TPHg and VOCs.

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[8] Essel Environmental Consulting, 2015d. Preliminary Subsurface Environmental Investigation, Property at 2100 Telegraph Avenue, Oakland, California 94612, September 30.

Fill materials consisting of silty sand and clay with trace amounts of mortar, brick, glass, and charred wood, were encountered to depths of approximately 2 to 3 feet below grade. None of the borings encountered the former gas station USTs or fill materials at depths that would suggest a backfilled UST excavation. A layer of discolored soil with petroleum odors was encountered at 13 to 16 feet below grade, at and below the groundwater table. TPHg, TPHd, and the VOC naphthalene were detected at low concentrations (i.e., below the residential Environmental Screening Levels [ESLs] established at the time by the San Francisco Bay Regional Water Quality Control Board [RWQCB]) in samples collected from the layer of discolored soil with petroleum odors. More significant impacts were detected in groundwater samples, including concentrations of TPHg, TPHd, naphthalene, and benzene. The most significant impacts in groundwater were detected near the center of the former gas station area. Concentrations of TPHg and VOCs were detected in the three soil-vapor samples at levels below residential ESLs (for those VOCs with ESLs established at the time).

The conclusions and recommendations of the 2015 Subsurface Study concludes that further assessment and remediation of the former gas station area may be necessary or required, involving the delineation of the lateral extent of impact to soil and groundwater and the excavation and removal of discolored soil and petroleum-impacted groundwater. The 2015 Subsurface Study also recommends the possible incorporation of a vapor barrier or vapor mitigation system in the structural design of future developments.[9]

Additional Subsurface Environmental Investigation

In August 2016, an additional subsurface environmental investigation[10] (2016 Subsurface Study) was performed for project site; a summary of the findings follow. The additional investigation involved advancing eight borings to evaluate the lateral extent of the petroleum-hydrocarbon-impacted soil and groundwater identified in the southwestern corner of the project site during the preliminary subsurface environmental investigation; evaluating for the potential presence of lead in shallow soil; and determining any other potential impacts in areas not previously investigated (e.g., due to the historical cleaners and automobile repair facility at the project site in the early to mid-1900s). Deeper soil samples (below 10 feet) and groundwater sample were analyzed for TPHg, TPHd, TPHmo, and VOCs. Shallow soil samples (ranging in depth from 1 to 2½ feet) and two deeper native soil samples were also analyzed for lead. Additionally, two geophysical consultants were contacted regarding a possible geophysical survey of the former gas station to

[9] Essel Environmental Consulting, 2015d. Preliminary Subsurface Environmental Investigation, Property at 2100 Telegraph Avenue, Oakland, California 94612, September 30.

[10] Essel Environmental Consulting, 2016b. Interim Report, Additional Subsurface Environmental Investigation, City Block Bounded by Telegraph Avenue, 21st Street, 22nd Street, and Broadway, Oakland, California 94612, September 20.

identify USTs; however, both consultants indicated that the concrete at the parking structure would interfere with geophysical readings and likely render the results inconclusive.

No field evidence of TPH impacts, such as notably discolored soil, petroleum odors, or field readings was noted in the eight borings. Soil samples did not contain detectable concentrations of TPH or VOCs, except for a trace concentration of naphthalene in one sample. Concentrations of total lead ranged from 4.8 to 140 milligrams per kilogram (mg/kg) in the shallow soil samples presumed to consist of fill materials. The two deeper native soil samples contained low concentrations of lead. None of the constituents detected in the soil samples were greater than applicable ESLs for a commercial property, and lead was detected in three samples at concentrations greater than the Tier 1 ESL, which are generally applicable to residential properties. Five of the shallow soil samples also contained lead concentrations greater than 50 mg/kg, which would require additional testing for soluble lead, if this soil were to be removed and disposed of off-site.

TPHg was not detected in any of the groundwater samples. TPHd and TPHmo were detected at concentrations exceeding the drinking water MCLs/Tier 1 ESLs in most of the groundwater samples. Some VOCs were detected in groundwater at trace to low concentrations, and the VOC benzene was detected at a concentration exceeding the drinking water MCLs/Tier 1 ESLs in one sample. Detected concentrations of VOCs in groundwater were below the ESLs for groundwater vapor intrusion for commercial properties underlain by a mix of fine- and coarse-grained soil.[11]

The 2016 Subsurface Study concludes the following:

- Petroleum hydrocarbon impacts to soil and groundwater beneath the former gas station does not appear to have migrated to the north, northeast, or east.[12]
- The relatively low and uniform concentrations of diesel-range and motor-oil-range hydrocarbons detected in the groundwater at the relatively widely spaced boring locations during the current investigation are not likely related to releases at the

[11] Essel Environmental Consulting, 2016b. Interim Report, Additional Subsurface Environmental Investigation, City Block Bounded by Telegraph Avenue, 21st Street, 22nd Street, and Broadway, Oakland, California 94612, September 20.

[12] The additional subsurface investigation did not include evaluation of potential impacts to soil and groudnwater that may have migrated towards the west or south of the former gas station, beneath adjacent streets. It is unlikely that impacts to soil and groudnwater would have migrated towards west, as that is in the upgradient groundwater flow direction from the former gas station. It is possible that impacts to soil and groundwater could have migrated towards the south to southeast, which is in the downgradient groundwater flow direction from the former gas station. Additonal investigation of the former gas station would be required as part of SCA Implementation Measure HAZ-1, as discussed in Section 3.b below.The potenital for off-site migration of contaminants from the fomer gas station would be addressed through the implementation of the requirements of SCA Implementation Measure HAZ-1.

former gas station, and a portion of the detected hydrocarbons are suspected to be non-petroleum, naturally occurring organic compounds.

- The absence of detectable chlorinated solvents in groundwater from the 10 borings advanced in 2015 and 2016 indicates that any solvent impacts resulting from historical cleaners or automobile repair facilities is no longer present in the area.

2. Regulatory Setting

The following subsection provides the federal, State, and local regulatory framework for hazardous materials and hazardous waste, hazardous building materials that could be encountered during building demolition activities, and worker health and safety requirements.

a. Federal, State, and Regional

The use, storage, and disposal of hazardous materials, including management of contaminated soils and groundwater, is regulated by numerous local, State, and federal laws and regulations. The United States Environmental Protection Agency (EPA) is the federal agency that administers hazardous materials and hazardous waste regulations. Relevant State agencies include the Department of Toxic Substances Control (DTSC), the State Water Resources Control Board (SWRCB), and the California Air Resources Board (CARB). The San Francisco Bay RWQCB, the Bay Area Air Quality Management District (BAAQMD), and the Alameda County Department of Environmental Health (ACEH) have jurisdiction at the regional and local level.

A description of each federal, State, and regional/local agency's jurisdiction and involvement in the management of hazardous materials and wastes are provided below.

Federal

The EPA is the federal agency responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials and hazardous waste. The federal regulations are primarily codified in Title 40 of the Code of Federal Regulations. The legislation includes the Resource Conservation and Recovery Act of 1976, the Superfund Amendments and Reauthorization Acts of 1986, and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980. The EPA provides oversight for site investigation and remediation projects, and has developed protocols for sampling, testing, and evaluation of solid wastes.[13]

[13] United States Environmental Protection Agency (EPA), 2016a. The SW-846 Compendium. Updated September 15. Available at: https://www.epa.gov/hw-sw846/sw-846-compendium, accessed October 12, 2016.

State

Three State agencies, described below, regulate hazardous materials and waste that may occur on or around the project site.

- **Department of Toxic Substances Control.** In California, the DTSC is authorized by the EPA to enforce and implement federal hazardous materials laws and regulations. California regulations pertaining to hazardous materials are equal to or exceed the federal requirements. Most State hazardous materials regulations are contained in Title 22 of the California Code of Regulations (CCR). The DTSC generally acts as the lead agency for soil and groundwater cleanup projects that affect public health, and establishes cleanup levels for subsurface contamination that are equal to or more restrictive than federal levels. The DTSC has also developed land disposal restrictions and treatment standards for hazardous waste disposal in California.
- **State Water Resources Control Board.** The SWRCB enforces regulations on how to implement UST programs. It also allocates monies to eligible parties that request reimbursement of funds to clean up soil and groundwater pollution from UST leaks. The SWRCB also enforces the Porter-Cologne Water Quality Act through its nine RWQCBs, including the San Francisco Bay RWQCB, described below.
- **California Air Resources Board.** This agency is responsible for coordination and oversight of State and local air pollution control programs in California, including implementation of the California Clean Air Act of 1988. The CARB has developed State air quality standards, and is responsible for monitoring air quality in conjunction with the local air districts.

Regional

The following regional agencies have regulatory authority over the project's management of hazardous materials and waste.

- **San Francisco Bay Regional Water Quality Control Board.** The nine regional boards, including the San Francisco Bay RWQCB, provide for protection of state waters in accordance with the Porter-Cologne Water Quality Act of 1969. The RWQCB can act as lead agency to provide oversight of sites where the quality of groundwater or surface waters is threatened, and has the authority to require investigations and remedial actions. The RWQCB also developed ESLs to help expedite the preparation of environmental risk assessments at sites where contaminated soil and groundwater have been identified.[14]

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[14] Regional Water Quality Control Board (RWQCB), 2016. Environmental Screening Levels, Interim Final, February. RWQCB San Francisco Bay Region. Available at: http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.shtml, accessed October 12, 2016.

- **Bay Area Air Quality Management District.** The BAAQMD has primary responsibility for control of air pollution from sources other than motor vehicles and consumer products (which are the responsibility of the EPA and the CARB). The BAAQMD is responsible for preparing attainment plans for nonattainment criteria pollutants, control of stationary air pollutant sources, and issuance of permits for activities that include asbestos demolition and renovation activities (District Regulation 11, Rule 2).
- **Alameda County Environmental Health.** The ACEH is the primary agency responsible for local enforcement of State and federal laws pertaining to hazardous materials and hazardous waste management. In Oakland, the ACEH is the Certified Unified Program Agency (CUPA), responsible for coordination of the following programs: Hazardous Materials Business Plan Program, Hazardous Waste Generator Program, UST Program, California Accidental Release Program, Tiered Permitting Program, and Aboveground Storage Tank Program.[15] The ACEH also provides regulatory oversight for investigation and cleanup of leaking underground fuel tank sites and spills, leaks, investigation, and cleanup sites.[16]

Lead, Asbestos, and Other Hazardous Building Materials

Prior to 1978, lead compounds were commonly used in exterior and interior paints. Lead is a suspected human carcinogen (i.e., may cause cancer), a known teratogen (i.e., causes birth defects), and a reproductive toxin (i.e., can cause sterility). Prior to the 1980s, building materials often contained asbestos fibers, which are a known human carcinogen. Due to its strength and fire resistance, asbestos was frequently incorporated into insulation, roofing, siding, textured paint and patching compounds used on wall and ceiling joints, vinyl floor tiles and adhesives, and water and steam pipes.

Polychlorinated biphenyls (PCBs) were used as coolants and lubricants in transformers, capacitors, heating/cooling equipment, and other electrical equipment, and were also used as plasticizers in paints, plastics, rubber products, and caulking. Although manufacturing of PCBs has been banned in the United States since 1979, they may still be found in older electrical equipment and other building materials such as light ballasts and caulking. PCBs have been demonstrated to cause cancer and a variety of other adverse health effects in animals, including effects on the immune system, reproductive system, nervous system, and endocrine system. Studies in humans support evidence for potential

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[15] Alameda County Environmental Health (ACEH), 2016a. Hazardous Materials/Waste Program (CUPA). Available at: https://www.acgov.org/aceh/hazard/index.htm, accessed October 12, 2016.

[16] Alameda County Environmental Health (ACEH), 2016b. LUFT/SLIC Program. Available at: https://www.acgov.org/aceh/lop/index.htm, accessed October 12, 2016.

carcinogenic and non-carcinogenic effects of PCBs.[17] PCBs and PCB-contaminated items require proper off-site transport and disposal at a facility that can accept such wastes.

Fluorescent lighting tubes and ballasts, computer displays, and several other common items containing hazardous materials (including mercury, a heavy metal) are regulated as "universal wastes" by the State of California. Universal waste regulations allow common, low-hazard wastes to be managed under less stringent requirements than other hazardous wastes. Management of other hazardous wastes is governed by DTSC hazardous waste rules.

Worker Health and Safety

Worker health and safety is regulated at the federal level by the Occupational Safety and Health Administration (OSHA). The Federal Occupational Safety and Health Act of 1970 authorizes the states to establish their own safety and health programs with OSHA approval. In California, worker health and safety protections are regulated by the California Occupational Safety and Health Administration (Cal/OSHA), which also provides consultant assistance to employers. California standards for workers dealing with hazardous materials are contained in 8 CCR and include practices for all industries (General Industrial Safety Orders), with specific practices for construction and other industries. Workers at hazardous waste sites (or workers who may be exposed to hazardous wastes that might be encountered during excavation of contaminated soils) must receive specialized training and medical supervision according to the Hazardous Waste Operations and Emergency Response regulations (8 CCR Section 5192). Additional regulations have been developed for construction workers potentially exposed to lead (8 CCR Section 1532.1) and asbestos (8 CCR Section 1529). Cal/OSHA enforcement units conduct on-site evaluations and issue notices of violation to enforce necessary improvements to health and safety practices.

b. City of Oakland

The following section summarizes relevant hazards and hazardous materials related policies and standards from the General Plan and Standard Conditions of Approval (SCAs).

(1) General Plan

The Safety Element of the City of Oakland General Plan[18] contains the following policies and action items related to hazardous materials:

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[17] United States Environmental Protection Agency (EPA), 2016b. Learn about Polychlorinated Biphenyls (PCBs). Updated September 15. Available at: https://www.epa.gov/pcbs/learn-about-polychlorinated-biphenyls-pcbs, accessed October 12, 2016.

Policy HM-1: Minimize the potential risks to human and environmental health and safety associated with the past and present use, handling, storage and disposal of hazardous materials.

Action HM-1.1: Continue to exercise unified-program responsibilities, including the issuance of permits for and inspection of certain industrial facilities, monitoring the filing of disclosure forms and risk-management plans, hazardous-materials assessment reports and remediation plans, and closure plans by such facilities.

Action HM-1.2: Continue to enforce provisions under the zoning ordinance regulating the location of facilities which use or store hazardous materials.

Action HM-1.3: Consider adopting a health and safety protection overlay zone or set of procedures to ensure that new activities which use or store hazardous materials on a regular basis near residential zones do not endanger public health or the environment.

Action HM-1.4: Continue to participate in the Alameda County Waste Management Authority and, as a participant, continue to implement policies under the county's hazardous-waste management plan to minimize the generation of hazardous wastes.

Action HM-1.5: Continue to implement the city's household hazardous-waste element (including educating residents about waste-disposal options and the consequences of illegal disposal) in order to reduce the generation of household hazardous waste and the amount of such waste that is disposed inappropriately.

Policy HM-2: Reduce the public's exposure to toxic air contaminants through appropriate land use and transportation strategies.

Action HM-2.1: Continue to enforce performance standards controlling the emission of air contaminants, particulate matter, smoke and unpleasant odors.

Action HM-2.2: Continue to discourage the development of sensitive receptors adjacent to significant sources of air contaminants and encourage industry to adopt best-available control technologies to reduce air contaminants.

Action HM-2.3: Continue to support the efforts of the Bay Area Air Quality Management District's air-toxics program, including the review and permitting of stationary sources, identification of emitting facilities, promulgation of categorical control measures, and monitoring and inventory of emissions.

Policy HM-3: Seek to prevent industrial and transportation accidents involving hazardous materials, and enhance the city's capacity to respond to such incidents.

Action HM-3.1: Continue to enforce regulations limiting truck travel through certain areas of the city to designated routes, and consider establishing time based restrictions on truck travel on certain routes to reduce the risk and potential impact of accidents during peak traffic hours.

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[18] City of Oakland, 2004. City of Oakland General Plan, Safety Element. Amended 2012. Available at: http://www2.oaklandnet.com/government/o/PBN/OurServices/GeneralPlan/DOWD009020, accessed October 12, 2016.

Action HM-3.2: Continue to support the prohibition of trucks on I-580 through Oakland.

Action HM-3.3: Support state and federal legislative efforts that seek to increase the safety of transporting hazardous materials.

Action HM-3.4: Continue to rely on, and update, the city's hazardous materials area plan to respond to emergencies related to hazardous materials.

Action HM-3.5: Continue to offer basic emergency-response education and training to local businesses.

It should be noted that Action HM-1.1above is out of date as ACEH has assumed the CUPA responsibilities for the City of Oakland (City).

(2) Emergency Evacuation Routes

Figure 7.2 of the Safety Element of the City of Oakland General Plan[19] indicates that the emergency evacuation routes in the vicinity of the project site include Telegraph Avenue, Broadway, and West Grand Avenue.

(3) Standard Conditions of Approval

The City has developed Standard Conditions of Approval (SCAs) that are applied to projects when they receive discretionary planning-related approval. The SCAs related to hazards and hazardous materials would apply to the project are presented below. SCA-AIR-4: Asbestos in Structures (#23) also addresses impacts related to releases of hazardous materials, and is listed in *Section V.D, Air Quality*.

SCA-HAZ-1: Hazardous Materials Related to Construction (#39)
Requirement: The project applicant shall ensure that Best Management Practices (BMPs) are implemented by the contractor during construction to minimize potential negative effects on groundwater, soils, and human health. These shall include, at a minimum, the following:

a. Follow manufacture's recommendations for use, storage, and disposal of chemical products used in construction;
b. Avoid overtopping construction equipment fuel gas tanks;
c. During routine maintenance of construction equipment, properly contain and remove grease and oils;
d. Properly dispose of discarded containers of fuels and other chemicals;

[19] City of Oakland, 2004. City of Oakland General Plan, Safety Element. Amended 2012. Available at: http://www2.oaklandnet.com/government/o/PBN/OurServices/GeneralPlan/DOWD009020, accessed October 12, 2016.

e. Implement lead-safe work practices and comply with all local, regional, state, and federal requirements concerning lead (for more information refer to the Alameda County Lead Poisoning Prevention Program); and
f. If soil, groundwater, or other environmental medium with suspected contamination is encountered unexpectedly during construction activities (e.g., identified by odor or visual staining, or if any underground storage tanks, abandoned drums or other hazardous materials or wastes are encountered), the project applicant shall cease work in the vicinity of the suspect material, the area shall be secured as necessary, and the applicant shall take all appropriate measures to protect human health and the environment. Appropriate measures shall include notifying the City and applicable regulatory agency(ies) and implementation of the actions described in the City's Standard Conditions of Approval, as necessary, to identify the nature and extent of contamination. Work shall not resume in the area(s) affected until the measures have been implemented under the oversight of the City or regulatory agency, as appropriate.

When Required: During construction
Initial Approval: N/A
Monitoring/Inspection: Bureau of Building

SCA-HAZ-2: Hazardous Building Materials and Site Contamination (#40)
a. Hazardous Building Materials Assessment
Requirement: The project applicant shall submit a comprehensive assessment report to the Bureau of Building, signed by a qualified environmental professional, documenting the presence or lack thereof of asbestos-containing materials (ACMs), lead-based paint, polychlorinated biphenyls (PCBs), and any other building materials or stored materials classified as hazardous materials by State or federal law. If lead-based paint, ACMs, PCBs, or any other building materials or stored materials classified as hazardous materials are present, the project applicant shall submit specifications prepared and signed by a qualified environmental professional, for the stabilization and/or removal of the identified hazardous materials in accordance with all applicable laws and regulations. The project applicant shall implement the approved recommendations and submit to the City evidence of approval for any proposed remedial action and required clearances by the applicable local, state, or federal regulatory agency.
When Required: Prior to approval of demolition, grading, or building permits
Initial Approval: Bureau of Building
Monitoring/Inspection: Bureau of Building

b. Environmental Site Assessment Required
Requirement: The project applicant shall submit a Phase I Environmental Site Assessment report, and Phase II Environmental Site Assessment report if warranted by the Phase I report, for the project site for review and approval by the City. The

report(s) shall be prepared by a qualified environmental assessment professional and include recommendations for remedial action, as appropriate, for hazardous materials. The project applicant shall implement the approved recommendations and submit to the City evidence of approval for any proposed remedial action and required clearances by the applicable local, state, or federal regulatory agency.
When Required: Prior to approval of construction-related permit
Initial Approval: Applicable regulatory agency with jurisdiction
Monitoring/Inspection: Applicable regulatory agency with jurisdiction

c. Health and Safety Plan Required
Requirement: The project applicant shall submit a Health and Safety Plan for the review and approval by the City in order to protect project construction workers from risks associated with hazardous materials. The project applicant shall implement the approved Plan.
When Required: Prior to approval of construction-related permit
Initial Approval: Bureau of Building
Monitoring/Inspection: Bureau of Building

d. Best Management Practices (BMPs) Required for Contaminated Sites
Requirement: The project applicant shall ensure that BMPs are implemented by the contractor during construction to minimize potential soil and groundwater hazards. These shall include the following:

i. Soil generated by construction activities shall be stockpiled on-site in a secure and safe manner. All contaminated soils determined to be hazardous or non-hazardous waste must be adequately profiled (sampled) prior to acceptable reuse or disposal at an appropriate off-site facility. Specific sampling and handling and transport procedures for reuse or disposal shall be in accordance with applicable local, state, and federal requirements.
ii. Groundwater pumped from the subsurface shall be contained on-site in a secure and safe manner, prior to treatment and disposal, to ensure environmental and health issues are resolved pursuant to applicable laws and policies. Engineering controls shall be utilized, which include impermeable barriers to prohibit groundwater and vapor intrusion into the building.

When Required: During construction
Initial Approval: N/A
Monitoring/Inspection: Bureau of Building

3. Impacts, Standard Conditions of Approval, and Mitigation Measures

This section describes the impacts related to hazardous materials that could result from implementation of the Eastline project. The section begins with the criteria of significance that establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the project and identifies SCAs and/or mitigation measures to address these impacts as needed.

a. Significance Criteria

Implementation of the Eastline project would result in a significant hazard and hazardous materials impact on the environment if it would:

1. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials
2. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment
3. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼-mile of an existing or proposed school
4. Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 (i.e., the "Cortese List") and, as a result, create a significant hazard to the public or the environment
5. Result in less than two emergency access routes for streets exceeding 600 feet in length unless otherwise determined to be acceptable by the Fire Chief, or his/her designee, in specific instances due to climatic, geographic, topographic, or other conditions
6. Be located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, and result in a significant safety hazard for people residing or working in the project area
7. Be located within the vicinity of a private airstrip, and result in a significant safety hazard for people residing or working in the project area
8. Fundamentally impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
9. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands

b. Less-Than-Significant Hazards and Hazardous Materials Impacts

The following discusses less-than-significant impacts of the project.

(1) Routine Transport, Use, or Disposal of Hazardous Materials (Criterion 1)

Operation of the project would result in less-than-significant impacts related to the routine transport, use, or disposal of hazardous materials, as the proposed retail, office, and residential land uses would involve only small quantities of commercially available hazardous materials for routine maintenance (e.g., paint and cleaning supplies).

Construction of the project would involve the use and transport of hazardous materials. These materials could include excavated contaminated soil and/or groundwater; building demolition debris containing hazardous materials; and fuels, oils, paints, adhesives, and other chemicals used during construction activities. Removal, relocation, handling, or transportation of hazardous materials could result in accidental releases or spills and associated health risks to workers, the public, and environment. The project would be required to comply with the SCA-HAZ-1: Hazardous Materials Related to Construction (#39), which would ensure that BMPs are implemented during construction to minimize potential negative effects of hazardous materials on groundwater, soils, and human health. The project would also be required to comply with SCA-HAZ-2: Hazardous Building Materials and Site Contamination (#40), which would require preparation of a Health and Safety Plan to protect project construction workers from risks associated with hazardous materials.

Additionally, the project would involve construction activities that would disturb over 1 acre of land, and therefore would be required to comply with the Construction General Permit issued by the SWRCB under Order 2009-0009-DWQ. The Construction General Permit requires the development of a Stormwater Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. A SWPPP identifies all potential pollutants and their sources, including construction materials and contaminated soil, and includes a list of BMPs to reduce discharges of construction-related stormwater pollutants. A SWPPP also defines proper building material staging areas, paint, and concrete washout areas; outlines proper equipment/vehicle fueling and maintenance practices; controls equipment/vehicle washing and allowable non-stormwater discharges; and includes a spill prevention and response plan. Under existing programs, the project applicant must submit evidence of compliance with Construction General Permit requirements to the City, in accordance with SCA-HYD-2: State Construction General Permit (#46).

Adherence to the requirements of the City's SCAs and the Construction General Permit would ensure that the project resulted in less-than-significant impacts related to the routine transport, use, or disposal of hazardous materials.

(2) Hazardous Emissions within ¼-Mile of Schools (Criterion 3)

Oakland School for the Arts, at 530 18th Street, is approximately 850 feet southwest of the project site. No other schools are located within ¼-mile of the project site.[20] The project would not involve the handling of acutely hazardous materials. Compliance with SCA-HAZ-1: Hazardous Materials Related to Construction (#39) and SCA-HAZ-2: Hazardous Building Materials and Site Contamination (#40), as discussed in subsection G.3.b.1, and implementation of SCA Implementation Measure HAZ-1, as discussed in subsection G.3.b.2, above, would reduce potential impacts related to hazardous emissions or the handling of hazardous materials, substances, or waste within ¼-mile of a school to a less-than-significant level.

(3) Location on Site Listed Pursuant to Government Code Section 65962.5 (Criterion 4)

Based on the review of public agency databases, the project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Therefore, the project would have no impact related to inclusion on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

As discussed in Sections G.1.a.1 above, a gas station was formerly located at the southwest corner of the project site. Because no records regarding removal of USTs have been found, and because environmental investigations revealed petroleum hydrocarbon contamination in soil and groundwater beneath the former gas station, associated LUSTs may be (or formerly were) occurring at this location. Presentation of these findings to a regulatory agency such as the ACEH or RWQCB would likely trigger the opening of a LUST case for the former gas station, and the project site would then be included on the list of hazardous material release sites compiled pursuant to Government Code Section 65962.5. Potential impacts related to subsurface contamination from the former gas station are addressed in subsection G.3.b.1, above.

(4) Aviation Hazards (Criteria 6 and 7)

Oakland International Airport, the closest airport to the project site, is located approximately 9.5 miles to the southeast. The project site is not within the area of a public airport land use plan or within 2 miles of a public use airport.[21] The project site is also not within the vicinity of a private airstrip. Because the project would include

[20] California Department of Education, 2016. California School Directory. Available at: http://www.cde.ca.gov/re/sd/, accessed October 26, 2016.

[21] Alameda County Community Development Agency, 2010. Oakland International Airport, Airport Land Use Compatibility Plan, December. Available at: https://www.acgov.org/cda/planning/generalplans/documents/OAK_ALUCP_122010_FULL.pdf, accessed November 29, 2016.

construction of a structure which is over 200 feet above the ground level, the project would be required to submit a notice to the Federal Aviation Administration (FAA) through completion of FAA Form 7460-1, Notice of Proposed Construction or Alteration, as required by Title 14 Code of Federal Regulations Part 77. Through this notification, the FAA would review the project to ensure that it would not pose a hazard to air navigation. Therefore, the project would result in less-than-significant impacts related to aviation hazards.

(5) Emergency Response and Evacuation (Criteron 8)

The project would not significantly alter roadways in the area of the project site. The project would slightly alter the configuration of 22nd Street at the northwest corner of the project site, although this alteration would not restrict emergency response or evacuation access. The project would eliminate a driveway that currently bisects the eastern portion of the project site, connecting 22nd Street to 21st Street. The streets surrounding the project site are less than 600 feet long; therefore, elimination of this driveway would not result in less than two emergency access routes for streets exceeding 600 feet in length.

Figure 7.2 of the Safety Element of the City of Oakland General Plan[22] indicates that the emergency evacuation routes in the vicinity of the project site include Telegraph Avenue, Broadway, and West Grand Avenue. Construction of the project could require temporary closure of portions of adjacent streets, including Telegraph Avenue and Broadway. Traffic control requirements imposed by the City for the permitting of temporary closure of streets areas would ensure that appropriate emergency access is maintained at all times during construction activities. Therefore, the project would have a less-than-significant impact related to emergency response and evacuation.

(6) Wild Fires (Criterion 9)

The project site is within a highly urbanized area and is not near areas susceptible to wild fires. Therefore, the project would have no impact related to wild fires.

c. Significant Hazards and Hazardous Materials Impacts and Mitigation Measures

Implementation of the project would result in the potentially significant hazards and hazardous materials impacts described below.

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[22] City of Oakland, 2004. General Plan, Safety Element, Amended 2012. Available at: http://www2.oaklandnet.com/government/o/PBN/OurServices/GeneralPlan/DOWD009020, accessed October 12, 2016.

(1) Upset and Accident Conditions Involving the Release of Hazardous Materials (Criterion 2)

Construction of the project would involve the demolition of existing structures that may contain LBP, ACMs, and PCB-containing materials and equipment. If these hazardous building materials were not appropriately abated and disposed of, demolition activities could result in the release of hazardous building materials into the environment and exposure of construction workers and the public.

The project would be required to adhere to the requirements of the SCA-AIR-4: Asbestos in Structures (#23), which requires compliance with all applicable laws and regulations regarding ACMs during demolition. Compliance with SCA-HAZ-1 would require that ACMs be abated by a certified asbestos abatement contractor in accordance with construction worker health and safety regulations and the regulations and notification requirements of the BAAQMD. The project would also be required to adhere to the requirements of the SCA-HAZ-1: Hazardous Materials Related to Construction, which requires lead-safe work practices in accordance with federal, State, and local requirements concerning lead. The project would also be required to adhere to the requirements of the SCA-HAZ-2: Hazardous Building Materials and Site Contamination (#40), which would ensure that a comprehensive assessment is prepared to document whether ACMs, LBP, PCBs, or any other hazardous materials are present at the project site, and would require the stabilization and/or removal of the identified hazardous materials in accordance with all applicable laws and regulations. The project would be required to properly handle and dispose of electrical equipment, lighting ballasts, and other building materials that may be identified to contain PCBs, in accordance with the Toxic Substances Control Act and other federal and State regulations.

Adherence to the requirements of the City's SCAs would reduce impacts related to the potential release of hazardous building materials during demolition activities to a less-than-significant level.

As discussed in subsections G.1.a, above, a gas station was formerly located in the southwest corner of the project site; environmental investigations revealed contamination from petroleum hydrocarbons in soil and groundwater in this area and it is unknown whether the USTs associated with the gas station were removed. Additionally, fill material from unknown sources has been identified in the subsurface of the project site, and lead concentrations exceeding the Tier 1 (residential) ESL were detected in three shallow soil samples collected at the project site. Because the sources of the fill material are unknown, the fill material could be contaminated.

Excavation of contaminated soils could expose workers and the public to hazardous materials in dust or vapors that could be released from contaminated soil and groundwater. Reuse of potentially contaminated soil could expose future residents, the public, and maintenance workers to hazardous materials. If USTs are still present beneath the former gas station in the southwest corner of the project site, excavation activities in the area could damage the USTs, which could release hazardous materials into soil and groundwater and release hazardous vapors into the environment. Further, the improper disposal of contaminated soil and groundwater could result in the release of hazardous materials into the environment.

A draft Site Management Plan (SMP)[23] has been prepared for the project, which provides procedures for handling waste soil and groundwater generated during construction in a manner that complies with applicable regulations and minimizes potential hazards to human health and the environment. The draft SMP also addresses other construction-related considerations, such as worker health and safety, dust control/monitoring, and stormwater pollution prevention (for which specific and more detailed plans would be prepared). The draft SMP also indicates that if unanticipated subsurface features (e.g., concrete slabs and piping associated with aboveground storage tanks, USTs, concrete vaults or sumps, underground piping [including transite piping], or chemically impacted soil) are encountered during excavation activities, the construction contractor would stop work in the area, secure the affected area, and evaluate the conditions before taking further action. The site/owner's project manager would be notified, and would be responsible for notifying the applicable regulatory agency, as necessary.

The draft SMP indicates that shallow soil, including suspect fill materials, was characterized only for lead, and that additional characterization of soil in the areas to be excavated may be appropriate before the start of construction. The draft SMP also indicates that if excavation would occur in the area of the former gas station, additional investigation, including a geophysical survey and soil borings after removing the parking structure, may be appropriate.

Impact HAZ-1: Contaminated soil, groundwater, and potential USTs in the subsurface of the project site could pose a risk of exposure to hazardous materials. (S)

If additional characterization of soil and a geophysical survey to locate potential USTs associated with the former gas station were not performed, hazards associated with contaminated soil, groundwater, and potential USTs may not be appropriately addressed by the SMP. This is a potentially significant impact. The following project specific SCA Implementation Measure shall be implemented by the project sponsor to reduce impacts related to contaminated soil, groundwater, and potential USTs to a less-than-significant level. This SCA Implementation Measure represents project-specific requirements

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[23] Essel Environmental Consulting, 2016c. Draft Site Management Plan, City Block Bounded by Telegraph Avenue, 21st Street, 22nd Street, and Broadway Oakland, California 94612.

necessary to further implement SCA-HAZ-2: Hazardous Building Materials and Site Contamination (#40).

> SCA Implementation Measure HAZ-1: Additional characterization of soil in the areas to be excavated shall be performed by an environmental professional before the start of construction. If contaminated soil or groundwater is identified that could pose hazards to human health or the environment, the SMP shall be updated to ensure that the SMP includes appropriate procedures to mitigate potential hazards to human health or the environment to a less-than-significant level, the appropriate regulatory agencies shall be immediately notified of the identified soil or groundwater contamination, and the updated SMP shall be submitted to the appropriate regulatory agencies for review and approval. The SMP must be finalized and certified by an environmental professional prior to the start of construction.
>
> Additional investigation of the former gas station area shall be performed by an environmental professional after removing the existing parking structure, including a geophysical survey and soil borings. If potential USTs are identified by the geophysical survey or if contaminated soil is encountered in the borings, the area of the former gas station shall be restricted from further development until the appropriate regulatory agencies have been notified and further investigation or remediation activities have been performed under regulatory agency oversight.
>
> An environmental professional shall be hired by the applicant to monitor and document excavation, dewatering, and waste transportation and disposal activities to ensure that the procedures of the SMP are followed. (LTS)

Implementation of the SMP, as required by SCA Implementation Measure HAZ-1, would ensure compliance with the requirements of SCA-HAZ-2: Hazardous Building Materials and Site Contamination (#40), which addresses sites with soil and groundwater contamination. Implementation of SCA Implementation Measure HAZ-1 and compliance with SCA-AIR-4: Asbestos in Structures (#23), SCA-HAZ-1: Hazardous Materials Related to Construction (#39), and SCA-HAZ-2: Hazardous Building Materials and Site Contamination (#40) would ensure that potential impacts related to releases of hazardous materials would be less than significant.

d. Cumulative Hazards and Hazardous Materials Impacts

As discussed in subsection G.3.b, above, the project would result in less-than-significant impacts related to the routine transport, use, or disposal of hazardous materials. No potential impacts were identified for the other significance criteria discussed in subsection G.3.b, above; therefore, potential cumulative impacts would not occur for those significance criteria. Other projects in the vicinity of the project site would likely have similar routine hazardous materials uses associated with construction (e.g., oils, grease, fuels, and paints). Occurrence of a cumulative effect would require multiple projects to release hazardous materials at the same time in close proximity to each other. Each of those cumulative projects, including the Eastline project, would be required to comply with applicable SCAs and regulations related to hazardous materials and to implement safety measures (e.g., preparation and implementation of a Hazardous Materials Business Plan in accordance with California Health and Safety Code, Division 20, Chapter 6.95, if the quantities of hazardous materials stored on site exceed specified thresholds, as well as compliance with OSHA requirements for worker health and safety) to reduce the risk of hazardous materials releases.

As discussed in subsection G.3.c.1, above, the project site is known to be impacted with hazardous materials in the subsurface. Nearby projects are either known to be impacted with hazardous material in the subsurface or may encounter contamination during construction. The project, in conjunction with construction activities at nearby sites, could result in the direct exposure of construction workers to hazardous material in the subsurface, or could result in the release of contaminants in the form of vapors or fugitive dust, exposing workers or nearby receptors. However, any contribution from the project to contamination that may be released from other projects would not be cumulatively considerable because the adherence to SCAs and implementation of SCA Implementation Measure HAZ-1 incorporated into the project would minimize or eliminate migration of contaminants to off-site locations.

H. HYDROLOGY AND WATER QUALITY

This section describes the existing hydrological setting at the project site, including runoff, drainage, and water quality characteristics; summarizes the State and local regulations related to hydrology and water quality; assesses the potentially significant impacts that could result from implementation of the project; and provides mitigation measures and SCAs, where appropriate, to reduce the identified impacts to a less-than-significant level.

The evaluation in this section is based on a review of (1) a preliminary subsurface environmental investigation[1] prepared for the project; and (2) information provided as part of the project application, as well as other published materials.

1. Setting

The following describes the existing hydrological setting at the project site and vicinity.

a. Climate

The climate of the project vicinity is characterized as Mediterranean, with cool wet winters and warm dry summers. The average annual high temperature is approximately 65 degrees Fahrenheit (°F), and the average annual low temperature is approximately 49°F. The mean annual rainfall in the project vicinity for the period of 1894 to 1958 was approximately 23 inches, primarily occurring on a yearly basis in October through April. During the period of record, annual rainfall has varied from approximately 12 inches (in 1910) to approximately 39 inches (in 1940), with a highest one-day precipitation total of approximately 4.3 inches on February 12, 1904.[2]

b. Runoff and Drainage

The project site is in a relatively flat, highly urbanized area. The existing ground surface elevation of the project site ranges from approximately 20 feet above the North American Vertical Datum of 1988 (NAVD88) in the southeast corner of the site to approximately 24 feet NAVD88 in the northwest corner.[3] The project site is developed, and most of the

[1] Essel Environmental Consulting, 2015d. Report: Preliminary Subsurface Environmental Investigation, Property at 2100 Telegraph Avenue, Oakland, California 94612. September 30.

[2] Western Regional Climate Center, 2016. General Climate Summary Tables-Temperature and Precipitation, Oakland, California. Available at: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca6332, accessed April 27.

[3] United States Geological Survey (USGS), 2015. Oakland West Quadrangle, California, 7.5-Minute Series.

site (approximately 3.7 acres) is covered with impervious surfaces. A small portion of the site (less than 0.2-acre) is pervious and consists primarily of landscaped areas.

Because the project site is largely covered by impervious surfaces, under current conditions, infiltration of precipitation is minimal. Runoff during rainfall events flows toward storm drain inlets located both on the project site and on the curbs and gutters of streets surrounding the site.

Two underground storm drains serve the majority of the project site; these storm drains convey stormwater eastward along 22nd Street and 21st Street, and then drain into Lake Merritt.[4]

c. Flooding

The project site is not within a Federal Emergency Management Agency (FEMA)-designated 100-year Flood Hazard Zone. The project site is designated as "Other Areas" Zone X on Flood Insurance Rate Maps published by FEMA.[5] The "Other Areas" Zone X designation indicates that the site is outside the 0.2-percent-annual-chance floodplain (also known as the 500-year floodplain).

The project site is not designated as a dam failure inundation area, as indicated on Figure 6.1 of the City of Oakland General Plan Safety Element.[6]

d. Coastal Hazards

Based on the location of the project site (relatively far from any open water shoreline – over 1 mile from the Oakland Inner Harbor) and its elevation (approximately 20 feet or greater above NAVD88), the site is unlikely to be subject to coastal flooding hazards. Nevertheless, such coastal hazards—including sea level rise, seiche, tsunami, and extreme high tides—are described below.

(1) Sea Level Rise

According to the San Francisco Bay Conservation and Development Commission, sea level (including in San Francisco Bay) is rising and expected to continue to rise even with existing efforts to mitigate global warming through reduction of greenhouse gas

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[4] Sowers, Janet M. et al., 1993. Creek & Watershed Map of Oakland & Berkeley. Revised 1995 & 2000.

[5] Federal Emergency Management Agency (FEMA), 2009. Flood Insurance Rate Map, Alameda County, California and Incorporated Areas, Map Number 06001C0067G. Effective August 3.

[6] City of Oakland, 2004. City of Oakland General Plan, Safety Element, Amended 2012.

emissions.[7] Rates of sea level rise may vary at specific locations, as local subsidence or uplift affects the relative change in sea level between land masses and the ocean. In the San Francisco Bay Area (Bay Area), the background rate of sea level rise is estimated at approximately 0.076 inch per year for the period of 1900 to 2008.[8] Between 2000 and 2030, sea level rise in the Bay Area is projected to be 6 ± 2 inches, with an unlikely but possible rise of up to 12 inches during this period; between 2000 and 2050, sea level rise is projected to be 11 ± 4 inches, with an unlikely but possible rise of up to 24 inches during this period; between 2000 and 2100, sea level rise is projected to be 36 ± 10 inches, with an unlikely but possible rise of up to 66 inches during this period.[9] As indicated in the City of Oakland General Plan,[10] it is reasonable to assume an approximately 1-foot increase in Oakland bay waters over the next 50 years.[11] Therefore, only very-low-lying areas would be flooded by such a rise in water levels: south of the High Street Bridge, along the San Leandro Bay shoreline, and along the Martin Luther King Jr. Regional Shoreline. Because the project site is not close to the shoreline areas and is at a relatively higher elevation, it is not considered vulnerable to sea level rise within the next 50 years.

(2) Seiche

A seiche is the oscillation of a body of water. Seiches occur most frequently in enclosed or semi-enclosed basins such as lakes, bays, and harbors. These oscillations can be triggered in an otherwise still body of water by strong winds, changes in atmospheric pressure, earthquakes, tsunami, or tides. Triggering forces that set off a seiche are most effective if they operate at specific frequencies relative to the size of an enclosed basin. Coastal measurements of sea level often show seiches with amplitudes of a few centimeters and periods of a few minutes due to oscillations of the local harbor, estuary, or bay, superimposed on the normal tidal changes. To produce significant seiching, the forcing periods must be close to the natural period of the body of water or one of the overtones.[12]

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[7] San Francisco Bay Conservation and Development Commission (BCDC), 2011. Living with a Rising Bay: Vulnerability and Adaptation in San Francisco Bay and on its Shoreline. Approved October 6.

[8] National Research Council of the National Academies, 2012. Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future. Chapter 4.

[9] City and County of San Francisco, 2014. Guidance for Incorporating Sea Level Rise into Capital Planning in San Francisco: Assessing Vulnerability and Risk to Support Adaptation. Sea Level Rise Committee. September 22.

[10] City of Oakland, 2004. City of Oakland General Plan, Safety Element, Amended 2012.

[11] Considered an adequate time horizon for the purposes of the Safety Element because few structures exceed such a lifespan.

[12] Borrero, J., L. Dengler, B. Uslu, and C. Synolakis, 2006. Numerical Modeling of Tsunami Effects at Marine Oil Terminals in San Francisco Bay, June 8. Report prepared for Marine Facilities Division of the California State Lands Commission.

Seiches are not considered a hazard in San Francisco Bay based on the natural oscillations of the bay. The only threat of large-scale damage from seiches in Oakland appears to come from downstream flooding that would be caused by large volumes of water overtopping a dam or reservoir. Because the project site is not designated as a dam failure inundation area, as indicated above, the likelihood of flooding at the project site resulting from seiches is negligible. In addition, Lake Merritt, the nearest water body, is likely too shallow to be able to generate damaging seiches (with depths greater than 2 to 3 feet only near its center).[13]

(3) Tsunami

Tsunamis are long-period water waves caused by underwater seismic events, volcanic eruptions, or undersea landslides. Tsunamis affecting the San Francisco Bay region would originate west of the bay in the Pacific Ocean. Areas that are highly susceptible to tsunami inundation tend to be low-lying coastal areas, such as tidal flats, marshlands, and former bay margins that have been artificially filled. Inundation or damage caused by a tsunami may disrupt highway traffic in those low-lying areas. Tsunamis entering San Francisco Bay through the relatively narrow Golden Gate would tend to dissipate with the energy of the wave spreading out as the bay becomes wider and shallower.[14]

The California Emergency Management Agency, the California Geological Survey, and the Tsunami Research Center at the University of Southern California have produced tsunami inundation maps for areas along the California coastline, including Oakland.[15] The project site is not designated as a tsunami inundation area according to the map for this area.

(4) Extreme High Tides

Extreme high tides in San Francisco Bay result from the combined effects of astronomical high tides (related to the lunar cycle) and other factors such as winds, barometric pressure, ocean temperatures, and freshwater runoff. In California, the highest astronomical tides occur in the summer and winter; therefore, extreme high tides are most likely to occur during these times. Based on the 129-year record of daily high tides, the United States Army Corps of Engineers has developed an estimated 100-year high-tide elevation (an extreme high tide with a probability of occurrence every 100 years) for various locations in San Francisco Bay. The elevation of the estimated 100-year tide at Oakland is

[13] City of Oakland, 2004. City of Oakland General Plan, Safety Element, Amended 2012.

[14] Borrero, J., L. Dengler, B. Uslu, and C. Synolakis, 2006. Numerical Modeling of Tsunami Effects at Marine Oil Terminals in San Francisco Bay, June 8. Report prepared for Marine Facilities Division of the California State Lands Commission.

[15] California Emergency Management Agency, 2009. Tsunami Inundation Map for Emergency Planning, Oakland West Quadrangle. July 31.

approximately 9.41 feet NAVD88. The FEMA regional hydrodynamic model output, which extends from 1973 to 2003, estimates the 100-year tide at Oakland to be approximately 9.82 feet NAVD88.[16] Because the project site has a ground surface elevation of approximately 20 feet or greater NAVD88, it is not expected to be susceptible to extreme high tides.

e. Water and Groundwater Quality

The quality of surface water and groundwater in the vicinity of the project site is affected by past and current land uses (both at the site and within the watershed) and by the composition of geologic materials in the vicinity. The State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs) regulate water quality of surface water and groundwater bodies throughout California. In the Bay Area, including the project vicinity, the San Francisco Bay RWQCB is responsible for implementing the Water Quality Control Plan (Basin Plan).[17] The Basin Plan establishes beneficial water uses for waterways and water bodies within the region and is a master policy document for managing water quality in the region.

As described in the Basin Plan, San Francisco Bay is located approximately 2 miles west of the project site, and provides the beneficial uses of industrial service supply, commercial and sport fishing, shellfish harvesting, estuarine habitat, fish migration, preservation of rare and endangered species, fish spawning, wildlife habitat, water contract and noncontact recreation, and navigation. Lake Merritt, located approximately 1,500 feet east of the project site, connects to San Francisco Bay through Merritt Channel. Under the Basin Plan, Lake Merritt is listed as providing the beneficial uses of commercial and sport fishing, shellfish harvesting, estuarine habitat, fish spawning, warm freshwater habitat, wildlife habitat, and water-contact and non-water-contact recreation.

The project site is in the Santa Clara Valley Groundwater Basin, East Bay Plain Subbasin. The East Bay Plain Subbasin is listed in the Basin Plan as providing the beneficial uses of municipal and domestic water supply, industrial process water supply, industrial service water supply, and agricultural water supply. A subsurface environmental investigation conducted for the project indicates that groundwater was encountered in the fine-grained sand at approximately 13 feet below grade.[18]

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[16] AECOM, 2016. San Francisco Bay Tidal Datums and Extreme Tides Study. February.

[17] Regional Water Quality Control Board, 2015a. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). Incorporating all amendments as of March 20.

[18] Essel Environmental Consulting, 2015d. Report: Preliminary Subsurface Environmental Investigation, Property at 2100 Telegraph Avenue, Oakland, California 94612. September 30.

In the upper 200 feet of the subsurface, the groundwater is characterized as calcium bicarbonate with total dissolved solids ranging from 360 to 1,010 milligram per liter (mg/L), while groundwater is characterized as sodium bicarbonate from 200 to 1,000 feet below ground surface with total dissolved solids ranging from 310 to 1,420 mg/L.[19]

2. Regulatory Setting

This subsection describes the State and local laws and regulations pertinent to hydrology and water quality.

a. State

Stormwater quality is regulated by the National Pollutant Discharge Elimination System (NPDES) Program, established through the federal Clean Water Act. The NPDES program objective is to control and reduce pollutant discharges to surface water bodies. Compliance with NPDES permits is mandated by State and federal statutes and regulations. Pursuant to Section 402 of the Clean Water Act and the Porter-Cologne Water Quality Control Act, municipal stormwater discharges in the city of Oakland are regulated under the San Francisco Bay RWQCB Municipal Regional Permit (MRP), Order No. R2-2015-0049, NPDES Permit No. CAS612008, adopted October 14, 2009.[20] The City of Oakland (City) is part of the Alameda Countywide Clean Water Program, which provides guidance and assistance to Alameda County municipalities in complying with the requirements of the MRP.

MRP Provision C.3.g, which pertains to hydromodification management, contains the following requirements: (1) stormwater discharges shall not cause an increase in the erosion potential of the receiving stream over the existing condition; and (2) increases in runoff flow and volume shall be managed such that post-project runoff does not exceed estimated pre-project rates and durations, where such increased flow and/or volume is likely to cause increased potential for erosion of creek beds and banks, silt pollutant generation, or other adverse impacts on beneficial uses due to increased erosive force. According to the Hydromodification Applicability Map contained in this MRP provision, the project site is not within an area designated as susceptible to hydromodification.

Projects disturbing more than 1 acre of land during construction are required to comply with the NPDES General Permit for Storm Water Discharges Associated with Construction

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[19] California Department of Water Resources (DWR), 2004. California's Groundwater: Santa Clara Valley Groundwater Basin, East Bay Plain Subbasin, Bulletin 118. February 27.

[20] Regional Water Quality Control Board (RWQCB), 2015b. San Francisco Bay Region Municipal Regional Stormwater NPDES Permit, Order No. R2-2015-0049, NPDES Permit No. CAS612008. RWQCB, San Francisco Bay Region. November 19.

and Land Disturbance Activities, Order No. 2009-0009-DWQ, NPDES No. CAS000002 (Construction General Permit).[21]

To obtain coverage under the Construction General Permit, the project applicant must provide, via electronic submittal, a Notice of Intent (NOI), a Stormwater Pollution Prevention Plan (SWPPP), and other documents required by Attachment B of the Construction General Permit. Activities subject to the Construction General Permit include clearing, grading, and ground disturbances such as grubbing and excavation. The permit also covers linear underground and overhead projects such as pipeline installations. Construction General Permit activities are regulated at the local level by the RWQCB.

The Construction General Permit uses a risk-based permitting approach and mandates certain requirements based on the project risk level (i.e., Level 1, Level 2, or Level 3). The project risk level is based on the risk of sediment discharge and the receiving water risk. The sediment discharge risk depends on the project location and season (i.e., wet-weather versus dry-weather activities). The receiving water risk depends on whether the project would discharge to a sediment-sensitive water body. The project risk level would be determined by the project applicant when the NOI is filed (and when further details on the timing of construction activity are known).

The Construction General Permit performance standard calls for dischargers to minimize or prevent pollutants in stormwater discharges (as well as authorized non-stormwater discharges) through the use of controls, structures, and best management practices (BMPs) that achieve Best Available Technology for treatment of toxic and nonconventional pollutants and Best Conventional Technology for treatment of conventional pollutants. A SWPPP must be prepared by a Qualified SWPPP Developer that meets the certification requirements in the Construction General Permit. The purposes of the SWPPP are to (1) help identify the sources of sediment and other pollutants that could affect the quality of stormwater discharges; and (2) describe and ensure implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-stormwater discharges resulting from construction activity. The operation of BMPs must be overseen by a Qualified SWPPP Practitioner who meets the requirements outlined in the Construction General Permit.

The SWPPP must include a construction site monitoring program. Depending on the project risk level, the monitoring program could include visual observations of site discharges, water quality monitoring of site discharges (pH, turbidity, and non-visible

[21] State Water Resources Control Board (SWRCB), 2009. Construction General Permit Fact Sheet. 2009-0009-DWQ amended by 2010-0014-DWQ & 2012-0006-DWQ. SWRCB Division of Water Quality.

pollutants, if applicable), and receiving water monitoring (pH, turbidity, suspended sediment concentration, and bioassessment).

b. City of Oakland

Applicable local regulations and programs related to hydrology and water quality are described below.

(1) General Plan

The following objections, policies, and actions from the City of Oakland General Plan's Open Space, Conservation and Recreation Element and Safety Element related to hydrology and water quality pertain to the project.

Open Space, Conservation, and Recreation – Chapter 3: Conservation, Water Resources

Objective CO-5: Water Quality. To minimize the adverse effects of urbanization on Oakland's groundwater, creeks, lakes, and nearshore waters.

Policy CO 5.3: Control of Urban Runoff: Employ a broad range of strategies, compatible with the Alameda Countywide Clean Water Program, to: (a) reduce water pollution associated with stormwater runoff; (b) reduce water pollution associated with hazardous spills, runoff from hazardous material areas, improper disposal of household hazardous wastes, illicit dumping, and marina "live-aboards;" and (c) improve water quality in Lake Merritt to enhance the lake's aesthetic, recreational, and ecological function.

Safety Element – Chapter 3: Geologic Hazards

Policy GE-2: Continue to enforce ordinances and implement programs that seek specifically to reduce the landslide and erosion hazards.

Action GE-2.2: Continue to enforce the grading, erosion and sedimentation ordinance by requiring, under certain conditions, grading permits and plans to control erosion and sedimentation.

Action GE-2.3: Continue to enforce provisions under the creek protection, stormwater management and discharge control ordinance designed to control erosion and sedimentation.

Action GE-2.5: Enact regulations requiring new development projects to employ site design and source-control techniques to manage peak stormwater runoff flows and impacts from increased runoff volumes.

Safety Element – Chapter 6: Flooding Hazards

Policy FL-1: Enforce and update local ordinance, and comply with regional orders that would reduce the risk of storm-induced flooding.

Action FL-1.3: Comply with all applicable performance standards pursuant to the 2003 Alameda countywide National Pollutant Discharge Elimination System municipal stormwater permit that seek to manage increases in stormwater runoff flows from new-development and redevelopment construction projects.

Action FL-1.4: Continue to enforce the grading, erosion, and sedimentation ordinance by prohibiting the discharge of concentrated stormwater flows by other than approved methods.

(2) Oakland Municipal Code

Grading Ordinance (Chapter 15.04.660)

The Grading Ordinance requires a permit for grading activities on private or public property for projects that exceed certain criteria, such as amount of proposed excavation and degree of site slope. During project construction, the volume of the excavated fill material could exceed 50 cubic yards and could result in a 20-percent on-site slope, or the depth of excavation could exceed 5 feet at any location. Therefore, the project sponsor would be required to apply for the grading permit and to prepare a grading plan, an erosion and sedimentation control plan, and a drainage plan.

c. Oakland Standard Conditions of Approval

SCA-HYD-1: Erosion and Sedimentation Control Plan for Construction (#45)
Erosion and Sedimentation Control Plan Required
Requirement: The project applicant shall submit an Erosion and Sedimentation Control Plan to the City for review and approval. The Erosion and Sedimentation Control Plan shall include all necessary measures to be taken to prevent excessive stormwater runoff or carrying by stormwater runoff of solid materials onto lands of adjacent property owners or public streets or into creeks as a result of conditions created by grading and/or construction operations. The plan shall include, but not be limited to, such measures as short-term erosion control planting; waterproof slope covering; check dams; interceptor ditches; benches; storm drains; dissipation structures; diversion dikes; retarding berms and barriers; devices to trap, store, and filter out sediment; and stormwater retention basins. Off-site work by the project applicant could be necessary. The project applicant shall obtain permission or easements necessary for off-site work. There shall be a clear notation that the plan is subject to modification as changing conditions occur. Calculations of anticipated stormwater runoff and sediment volumes shall be included, if required by the City. The plan shall specify that, after construction is completed, the project applicant shall ensure that the storm drain system is inspected and that the project applicant clears the system of any debris or sediment.

When Required: Prior to approval of construction-related permit
Initial Approval: Bureau of Building
Monitoring/Inspection: N/A

Erosion and Sedimentation Control During Construction
Requirement: The project applicant shall implement the approved Erosion and Sedimentation Control Plan. No grading shall occur during the wet-weather season (October 15 through April 15) unless specifically authorized in writing by the Bureau of Building.
When Required: During construction
Initial Approval: N/A
Monitoring/Inspection: Bureau of Building

SCA-HYD-2: State Construction General Permit (#46)
Requirement: The project applicant shall comply with the requirements of the Construction General Permit issued by the SWRCB. The project applicant shall submit an NOI, SWPPP, and other required Permit Registration Documents to the SWRCB. The project applicant shall submit evidence of compliance with permit requirements to the City.
When Required: Prior to approval of construction-related permit
Initial Approval: SWRCB; evidence of compliance submitted to Bureau of Building
Monitoring/Inspection: SWRCB

SCA-HYD-3: NPDES C.3 Stormwater Requirements for Regulated Projects (#50)
Post-Construction Stormwater Management Plan Required
Requirement: The project applicant shall comply with the requirements of Provision C.3 of the Municipal Regional Stormwater Permit issued under the NPDES. The project applicant shall submit a Post-Construction Stormwater Management Plan to the City for review and approval with the project drawings submitted for site improvements, and shall implement the approved plan during construction. The Post-Construction Stormwater Management Plan shall include and identify the following:

i. Location and size of new and replaced impervious surface.
ii. Directional surface flow of stormwater runoff.
iii. Location of proposed on-site storm drain lines.
iv. Site design measures to reduce the amount of impervious surface area.
v. Source control measures to limit stormwater pollution.
vi. Stormwater treatment measures to remove pollutants from stormwater runoff, including the method used to hydraulically size the treatment measures.
vii. Hydromodification management measures, if required by Provision C.3, so that post-project stormwater runoff flow and duration match pre-project runoff.

When Required: Prior to approval of construction-related permit
Initial Approval: Bureau of Planning; Bureau of Building
Monitoring/Inspection: Bureau of Building

Maintenance Agreement Required
Requirement: The project applicant shall enter into a maintenance agreement with the City, based on the Standard City of Oakland Stormwater Treatment Measures Maintenance Agreement, in accordance with Provision C.3, which provides, in part, for the following:

i. The project applicant accepting responsibility for the adequate installation/ construction, operation, maintenance, inspection, and reporting of any on-site stormwater treatment measures being incorporated into the project until the responsibility is legally transferred to another entity.
ii. Legal access to the on-site stormwater treatment measures for representatives of the City, the local vector control district, and staff of the RWQCB, San Francisco Bay Region, for the purpose of verifying the implementation, operation, and maintenance of the on-site stormwater treatment measures, and to take corrective action if necessary.

The maintenance agreement shall be recorded at the County Recorder's Office at the applicant's expense.
When Required: Prior to building permit final
Initial Approval: Bureau of Building
Monitoring/Inspection: Bureau of Building

3. Impacts, Standard Conditions of Approval, and Mitigation Measures

This section describes the impacts related to hydrology and water quality that could result from implementation of the Eastline project. The section begins with the criteria of significance that establish the thresholds for determining whether a project impact is significant. The latter part of this section presents the impacts associated with the project and identifies SCAs and/or mitigation measures to address these impacts as needed.

a. Significance Criteria

Implementation of the Eastline project would result in a significant hydrology or water quality impact if it would:

1. Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade water quality
2. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting nearby wells

would drop to a level that would not support existing land uses or planned uses for which permits have been granted)

3. Result in substantial erosion or siltation on or off site that would affect the quality of receiving waters
4. Result in substantial flooding on or off site
5. Create or contribute substantial runoff that would exceed the capacity of existing or planned stormwater drainage systems and would be an additional source of polluted runoff
6. Place housing or structures within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, that would impede or redirect flood flows; expose people or structures to a significant risk of loss, injury, or death involving flooding
7. Expose people or structures to a significant risk of loss, injury, or death involving seiche, tsunami, or mudflow
8. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course, or increasing the rate or amount of flow of a creek, river, or stream in a manner that would result in substantial erosion, siltation, or flooding, either on or off site
9. Fundamentally conflict with the City of Oakland Creek Protection Ordinance (Oakland Municipal Code Chapter 13.16) intended to protect hydrologic resources[22]

b. Less-Than-Significant Hydrology and Water Quality Impacts

Four development scenarios are considered in the Planned Unit Development/Preliminary Development Plan (PUD/PDP) to illustrate the range of scenarios that could occur. With respect to hydrology and water quality, each of the PUD/PDP scenarios would involve similar impacts. As a result, analysis specific to each development scenarios is not included.

Implementation of the Eastline project would result in less-than-significant impacts to hydrology and water quality as described below. Because these impacts would not exceed the significance thresholds described above, no mitigation measures would be necessary.

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[22] Although there are no specific numeric/quantitative criteria for assessing impacts, factors to be considered in determining significance include whether substantial degradation of water quality would occur through (a) discharging a substantial amount of pollutants into a creek; (b) significantly modifying the natural flow of the water or capacity; (c) depositing substantial amounts of new material into a creek or causing substantial bank erosion or instability; or (d) substantially endangering public or private property or threatening public health or safety.

(1) Affect Water Quality (Criterion 1)

The project would involve construction activities that would disturb over 1 acre of land, and therefore would be required to comply with the Construction General Permit issued by the SWRCB under Order 2009-0009-DWQ. On-site construction activities subject to the Construction General Permit include clearing, grading, excavation, and stockpiling. The Construction General Permit also requires the development of a SWPPP by a certified Qualified SWPPP Developer. A SWPPP identifies all potential pollutants and their sources, including erosion, sediments, and construction materials, and includes a list of BMPs to reduce discharges of construction-related stormwater pollutants. A SWPPP includes a detailed description of controls to reduce pollutants and outlines maintenance and inspection procedures; it is kept on site for ongoing monitoring requirements. Typical sediment and erosion BMPs include protecting storm drain inlets, establishing and maintaining construction exists, and instituting perimeter controls. A SWPPP also defines proper building material staging areas and paint/concrete washout areas, outlines proper equipment/vehicle fueling and maintenance practices, controls equipment/vehicle washing and allowable non-stormwater discharges, and includes a spill prevention and response plan. Under existing programs, the project applicant must submit evidence of compliance with Construction General Permit requirements to the City, in accordance with SCA-HYD-2: State Construction General Permit (#46).

In addition, the project would be required to comply with SCA-HYD-1: Erosion and Sedimentation Control Plan for Construction (#45), which requires construction activities to be performed under an Erosion and Sedimentation Control Plan, which, when properly implemented, would prevent excessive erosion and stormwater runoff of solid materials as a result of construction activities that could otherwise degrade receiving water quality.

Because the project site would replace over 10,000 square feet of existing impervious surface area, the project would be required to comply with Provision C.3 requirements of the NPDES MRP.[23] Regulated projects are required to incorporate post-construction stormwater management measures to reduce stormwater pollution from all new and replaced impervious surfaces. The project is in an area that is exempt from the hydromodification[24] requirements of Provision C.3 of the MRP. As described in the Preliminary Post-Construction Stormwater Management Plan included in the Project

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[23] Regional Water Quality Control Board (RWQCB), 2015b. San Francisco Bay Region Municipal Regional Stormwater NPDES Permit, Order No. R2-2015-0049, NPDES Permit No. CAS612008. RWQCB, San Francisco Bay Region. November 19.

[24] Hydromodification is the modification of a stream's hydrograph, generally due to increases in flows and durations that result when land is developed (e.g., made more impervious). The effects of hydromodification include but are not limited to increased bed and bank erosion, loss of habitat, increased sediment transport and deposition, and increased flooding.

Application, the project qualifies as a Category C – Transit Oriented Development and is eligible for 100 percent treatment reduction credits. The project's qualification for treatment reduction credits is based on the following criteria designated in Provision C.3 of the MRP:

10. The proposed project is located within ¼ mile of an existing transit hub, which allows for a 50 percent treatment reduction credit.
11. The proposed project has a greater than 6.0 floor area ratio, which allows for a 30 percent treatment reduction credit.
12. The proposed project has no surface parking except for incidental parking for emergency vehicle access, ADA access, and passenger or freight loading zones, which allows for a 20 percent treatment reduction credit.

As described in the Preliminary Post-Construction Stormwater Management Plan, although the project is eligible for treatment reduction credits, the project is intended to treat stormwater runoff from all new and impervious surfaces to the maximum extent feasible. This would be achieved by collecting stormwater runoff from roof areas to supplement toilet flushing water as part of a greywater reuse system; stormwater that is not captured for reuse would be directed to biofiltration flow-through planters or treated with media filters to remove pollutants from stormwater runoff.

Because the project site would replace over 10,000 square feet of existing impervious surface area and would be required to comply with Provision C.3 of the MRP, SCA-HYD-3: NPDES C.3 Stormwater Requirements for Regulated Projects (#50), which requires the implementation of a Post-Construction Stormwater Management Plan and Maintenance Agreement, would also apply to the project.

Dewatering could be performed during construction of proposed below-grade parking and basement areas. Dewatering effluent could have high turbidity and could contain contaminants. Turbid/contaminated groundwater could cause degradation of the receiving water quality if discharged directly to storm drains without treatment. Any groundwater dewatering would be limited in duration, and the discharge of dewatering effluent would be subject to permits from the East Bay Municipal Utility District (EBMUD) (if discharged to the sanitary sewer system) or the RWQCB (if discharged to the storm sewer system). Dewatering activities would also be required to comply with SCA-HAZ-3: Hazardous Building Materials and Site Contamination (#40) (as discussed under Section *V.G, Hazards and Hazardous Materials*), which requires groundwater pumped from the subsurface to be contained on site in a secure and safe manner, prior to treatment and disposal, to ensure that environmental and health issues are resolved pursuant to applicable laws and policies.

As stated in the Construction General Permit, non-stormwater discharges directly connected to receiving waters or the storm drain system have the potential to negatively impact water quality. Thus, the discharger must implement measures to control all non-stormwater discharges during construction, and from dewatering activities associated with construction. Further, the discharge of any pollutant-laden water that would cause or contribute to an exceedance of the applicable RWQCB's Basin Plan from a dewatering site or sediment basin into any receiving water or storm drain is prohibited.[25] Under existing State law, it is illegal to discharge unpermitted non-stormwater to receiving waters.

The Construction General Permit allows the discharge of dewatering effluent if the water is properly filtered or treated, using appropriate technology. These technologies include but are not limited to retention in settling ponds (where sediments settle out prior to discharge of water) and filtration using gravel and sand filters (to mechanically remove the sediment). If the dewatering activity is deemed by the RWQCB not to be covered by the Construction General Permit, the discharger could potentially prepare a Report of Waste Discharge, and if approved by the RWQCB, the discharger could be issued site-specific Waste Discharge Requirements (WDRs) under NPDES regulations. Site-specific WDRs contain rigorous monitoring requirements and performance standards that, when implemented, ensure that receiving water quality is not substantially degraded.

If the water is not suitable for discharge to the storm drain (receiving water), as discussed above, dewatering effluent may be discharged to EBMUD's sanitary sewer system if special discharge criteria are met. These include, but are not limited to, application of treatment technologies or BMPs that would result in achieving compliance with the wastewater discharge limits. Discharges to EBMUD's facilities must occur under a Special Discharge Permit. EBMUD manages the water it accepts into its facilities to ensure proper treatment of wastewater at the treatment facility prior to discharge.

If it is infeasible to meet the requirements of the Construction General Permit, acquire site-specific WDRs, or meet the EBMUD Special Discharge Permit requirements, the construction contractor would be required to transport the dewatering effluent off site for treatment.

Compliance with State and local regulations regarding stormwater and dewatering would protect receiving water quality and ensure that the project would result in less-than-significant impacts to water quality.

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[25] State Water Resources Control Board (SWRCB), 2009. Construction General Permit Fact Sheet. 2009-0009-DWQ amended by 2010-0014-DWQ & 2012-0006-DWQ. SWRCB Division of Water Quality.

(2) Affect Groundwater Supplies (Criterion 2)

The majority of the project site is covered by impervious surfaces. Existing pervious surfaces at the site consist of limited planters and a small unpaved area in the northwest portion of the existing 2100 Telegraph parcel. The project would not significantly alter the amount of ground floor impervious area, and therefore would not interfere substantially with groundwater recharge. As discussed above, dewatering could be performed during construction of proposed below-grade parking and basement areas. Construction-related dewatering would be temporary and limited to the area of the project site and would not substantially contribute to depletion of groundwater supplies. Operation of the project would not involve dewatering or the use of groundwater, as potable water would be supplied to the project site by EBMUD. Therefore, the project would result in less-than-significant impacts related to depletion of groundwater supplies or interference with groundwater recharge.

(3) Result in Erosion/Siltation (Criterion 3)

As discussed in subsection H.3.b.1, above, the project would be required to comply with the Construction General Permit, which requires preparation and implementation of a SWPPP, including erosion and sediment control BMPs, as well as SCA-HYD-1: Erosion and Sedimentation Control Plan for Construction (#45), which requires construction activities to be performed under an Erosion and Sedimentation Control Plan. Compliance with these State and local regulations would prevent excessive erosion and siltation during construction activities, which could otherwise degrade receiving water quality.

The project would increase the amount of pervious area at the project site from approximately 8,400 square feet to approximately between 32,900 and 37,900 square feet, primarily through the construction of landscaped areas on roof tops. The project would also collect stormwater runoff from roof areas to supplement toilet flushing water as part of a greywater reuse system. The increase in pervious area and harvesting of rainwater would reduce the amount of stormwater runoff from the project site, which reduces the potential for erosion to occur in downstream drainage courses. Because stormwater is conveyed from the project site to Lake Merritt via underground storm drains, stormwater runoff from the project site would not cause erosion in the downstream drainage courses. Stormwater that is not captured for reuse would be directed to flow-through planters or would be treated with media filters, which would minimize the amount of silt and pollutants in stormwater runoff. The project would therefore have a less-than-significant impact on erosion or siltation associated with changing drainage patterns.

(4) Result in Flooding (Criterion 4)

The project site is not within a FEMA-designated 100-year flood hazard zone.[26] The project would convey stormwater runoff to the same storm drains that currently serve the project site—a 54-inch-diameter storm drain culvert beneath 22nd Street, a 45-inch-diameter storm drain culvert beneath 21st Street, and a 15-inch-diameter storm drain beneath Telegraph Avenue—which ultimately discharge to Lake Merritt. As discussed in subsection H.3.b.3, above, the project would increase the amount of pervious area and collect stormwater runoff from roof areas for reuse, which would decrease the amount of stormwater runoff leaving the site and reduce the project site's contribution to potential flooding of off-site drainage courses compared to the existing condition. The project would also be required to prepare and implement a Post-Construction Stormwater Management Plan and Maintenance Agreement in accordance with SCA-HYD-3: NPDES C.3 Stormwater Requirements for Regulated Projects (#50), which would ensure that stormwater management systems are appropriately designed and maintained to prevent flooding on site. The project would therefore have a less-than-significant impact related to flooding on or off site.

(5) Contribute Polluted Runoff or Exceed Storm Drain System Capacity (Criterion 5)

As discussed in subsection H.3.b.4, above, the project would convey stormwater runoff to the same storm drains that currently serve the project site, and the project would increase the amount of pervious area and collect stormwater runoff from roof areas for reuse, which would reduce the amount of stormwater runoff leaving the site compared to the existing condition. As discussed in subsection H.3.b.3, above, stormwater that is not captured for reuse would be directed to flow-through planters or would be treated with media filters, which would minimize the amount of silt and pollutants in stormwater runoff. The project would therefore have a less-than-significant impact related to contributing polluted runoff or runoff that could exceed the capacity of storm drains.

(6) Place Housing or Structures in a Flood Hazard Area that Could Impede or Redirect Flood Flows, or Expose People or Structures to Flooding Risks (Criterion 6)

The project site is not within a FEMA-designated 100-year Flood Hazard Zone, nor is it within flood hazard areas presented on Figure 6.1 of the Safety Element of the City of Oakland General Plan.[27] Therefore, the project would have no impact related to placing

[26] Federal Emergency Management Agency (FEMA), 2009. Flood Insurance Rate Map, Alameda County, California and Incorporated Areas, Map Number 06001C0067G. Effective August 3.

[27] City of Oakland, 2004. City of Oakland General Plan, Safety Element, Amended 2012.

housing or structures within flood hazard areas and would not expose people or structures to flooding risks.

(7) Inundation by Seiche, Tsunami, or Mudflow (Criterion 7)

As discussed in subsection H.1.d.2, above, seiches in San Francisco Bay pose a negligible hazard to the Bay Area.[28] Further, because the project site is not within a dam failure inundation area and Lake Merritt is likely too shallow to generate damaging seiches, the likelihood of seiches resulting in flooding at the site is negligible. The project site is also not within a tsunami inundation area, as presented on Figure 6.1 of the Safety Element of the City of Oakland General Plan.[29]

The project site and surrounding areas are relatively flat, and are not located near slopes that would be subject to mudflows. Therefore, no impact associated with mudflow inundation would occur.

(8) Alter Drainage Patterns or Increase Surface Water Flows in a Manner that Could Result in Erosion, Siltation, or Flooding On or Off Site (Criterion 8)

The project would not alter the course of a creek, river, or stream. As discussed in subsection H.3.b.4, above, the project would convey stormwater runoff to the same storm drains that currently serve the project site, and the project would increase the amount of pervious area and collect stormwater runoff from roof areas for reuse, which would reduce the amount of stormwater runoff leaving the site compared to the existing condition. As discussed in subsection H.3.b.3, above, stormwater that is not captured for reuse would be directed to flow-through planters or would be treated with media filters, which would minimize the amount of silt in stormwater runoff. Therefore, the project would result in less-than-significant impacts related to erosion, siltation, or flooding associated with changing drainage patterns.

(9) Fundamentally Conflict with the City of Oakland Creek Protection Ordinance (Criterion 9)

The project would not alter a creek, and stormwater runoff from the project site does not discharge into a creek; therefore, the project would not conflict with the City's Creek Protection Ordinance.

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[28] Borrero, J., L. Dengler, B. Uslu, and C. Synolakis, 2006. Numerical Modeling of Tsunami Effects at Marine Oil Terminals in San Francisco Bay, June 8. Report prepared for Marine Facilities Division of the California State Lands Commission.

[29] City of Oakland, 2004. City of Oakland General Plan, Safety Element, Amended 2012.

c. Significant Hydrology and Water Quality Impacts

Implementation of the project would not result in any significant impacts to hydrology and water quality.

d. Cumulative Impacts

The geographic area of concern for cumulative hydrology and water quality impacts is the city of Oakland and surrounding water bodies, primarily Lake Merritt and San Francisco Bay. Stormwater discharges are affected by urban pollutants that contribute to the degradation of water quality in surface waters near the project site, including Lake Merritt. Urban pollutants in stormwater include petroleum hydrocarbons, sediments, metals, pesticides, and trash. Past, current, and reasonably foreseeable projects in the vicinity of the project site could result in cumulative impacts associated with stormwater discharges, similar to the potential impacts from construction of the project. To adequately address cumulative water quality impacts, stormwater regulations have become progressively more stringent since the passage of the federal Clean Water Act, and current NPDES permits now require new development and redevelopment projects to manage and treat all significant sources of stormwater pollutants and reduce runoff. Under existing conditions, there is no treatment of stormwater runoff at the project site. The project would harvest and reuse stormwater, thereby reducing the amount of runoff and the associated pollutant load. Therefore, any contribution of the project to the cumulative water quality impact would not be cumulatively considerable.

Because the project would increase the amount of pervious area and collect stormwater runoff from roof areas for reuse, which would reduce the amount of stormwater runoff leaving the project site compared to the existing condition, stormwater drainage generated by the site would not cause an increase in the flow rate or volume of stormwater being discharged to the City's storm drain system; therefore, the project would not have a cumulatively considerable impact on flooding, downstream erosion, or exceedance of storm drainage capacity.

I. NOISE AND VIBRATION

This section describes the noise and vibration setting at the project site; defines noise and vibration terminology; summarizes the relevant State and local regulatory policies and guidance for evaluating noise and vibration; and assesses the potential noise and vibration impacts of Eastline project implementation.

1. Setting

The following discussion provides background information on noise and vibration and summarizes the existing noise environment.

a. Noise and Vibration Context

The following sub-sections provide general information about noise and vibration to provide context for the remaining section.

(1) General Information on Noise

Noise is commonly defined as unwanted sound that annoys or disturbs people and that can have an adverse psychological or physiological effect on human health. Sound is measured in units of decibels (dB) on a logarithmic scale. Decibels describe the purely physical intensity of sound based on changes in air pressure, but cannot accurately describe sound as perceived by the human ear, which is only capable of hearing sound within a limited frequency range. Thus, to obtain a single number that better characterizes the noise level perceived by a human ear, a decibel scale called A-weighting (dBA) is typically used. On this scale, the low and high frequencies are given less weight than the middle frequencies. Decibels and other technical terms are defined in Table V.I-1. Typical A-weighted noise levels at specific distances are shown for different noise sources in Table V.I-2.

In an unconfined space, such as outdoors, noise attenuates with distance. Noise levels at a known distance from point sources are reduced by 6 dBA for every doubling of that distance for hard surfaces (e.g., cement or asphalt) and by 7.5 dBA for every doubling of distance for soft surfaces (e.g., undeveloped or vegetative).[1] Noise levels at a known distance from line sources (e.g., roads, highways, and railroads) are reduced by 3 dBA for every doubling of the distance for hard surfaces and 4.5 dBA for every doubling of distance for soft surfaces. Greater decreases in noise levels can result from the presence of intervening structures or buffers.

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[1] California Department of Transportation (Caltrans), 1998. Technical Noise Supplement: A Technical Supplement to the Traffic Noise Analysis Protocol.

TABLE V.I-1 DEFINITION OF ACOUSTICAL TERMS

Term	Definition
Decibel (dB)	A unit describing the amplitude of sound on a logarithmic scale. Sound described in decibels is usually referred to as sound or noise “level.” This unit is not used in this analysis because it includes frequencies that the human ear cannot detect.
Frequency (Hz)	The number of complete pressure fluctuations per second above and below atmospheric pressure.
A-Weighted Sound Level (dBA)	The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound, in a manner similar to the frequency response of the human ear, and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted.
Equivalent Noise Level (L_{eq})	The average A-weighted noise level during the measurement period. For this CEQA evaluation, L_{eq} refers to a 1-hour period unless otherwise stated.
Community Noise Equivalent Level (CNEL)	The average A-weighted noise level during a 24-hour day, obtained after addition of 5 decibels to sound levels during the evening from 7:00 to 10:00 p.m. and after addition of 10 decibels to sound levels during the night between 10:00 p.m. and 7:00 a.m.
Day/Night Noise Level (L_{dn})	The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to sound levels during the night between 10:00 p.m. and 7:00 a.m.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Vibration Decibel (VdB)	A unit describing the amplitude of vibration on a logarithmic scale.
Peak Particle Velocity (PPV)	The maximum instantaneous peak of a vibration signal.
Noise Criteria (NC)	The NC method for rating noise is a single number rating defined by American Society of Heating, Refrigeration and Air Conditioning Engineers that quantifies steady-state noise. It is based on a family of curves that includes noise from 63 to 8,000 Hz. NC is somewhat sensitive to the relative loudness and speech interference properties of a given noise spectrum and is typically used to quantify background noise in a room (e.g., from Heating, Ventilation and Air Conditioning systems).
Root Mean Square (RMS) Velocity	The average of the squared amplitude of a vibration signal.

Sources: Charles M. Salter Associates, Inc., 1998. Acoustics – Architecture, Engineering, the Environment. William Stout Publishers. Federal Transit Administration, 2006. Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06). American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), 2011. 2011 ASHRAE Handbook, HVAC Applications, October 17.

TABLE V.I-2 TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY

Noise Source (Distance in Feet)	A-Weighted Sound Level in Decibels (dBA)
Jet Aircraft (200)	112
Subway Train (30)	100
Truck/Bus (50)	85
Vacuum Cleaner (10)	70
Automobile (50)	65
Normal Conversation (3)	65
Whisper (3)	42

Source: Charles M. Salter Associates Inc., 1998. Acoustics – Architecture, Engineering, the Environment, William Stout Publishers.

A typical method for determining a person's subjective reaction to a new noise is by comparing it to existing conditions. The following describes the general effects of noise on people:[2]

- A change of 1 dBA cannot typically be perceived except in carefully controlled laboratory experiments.
- A 3-dBA change is considered a just-perceivable difference.
- A minimum of 5-dBA change is required before any noticeable change in community response is expected.
- A 10-dBA change is subjectively perceived as approximately a doubling or halving in loudness.

Because sound pressure levels are based on a logarithmic scale, they cannot be simply added or subtracted. For instance, if one noise source emits a sound level of 90 dBA and a second source is placed beside the first and also emits a sound level of 90 dBA, the combined sound level is 93 dBA, not 180 dBA. When the difference between two noise levels is 10 dBA or more, the amount to be added to the higher noise level is zero. In such cases, no adjustment factor is needed because adding in the contribution of the lower noise source makes no perceptible difference in what people can hear or measure. For

[2] Charles M. Salter Associates, Inc., 1998. Acoustics – Architecture, Engineering, the Environment. William Stout Publishers.

example, if one noise source generates a noise level of 95 dBA and another noise source is added that generates a noise level of 80 dBA, the higher noise source dominates and the combined noise level will be 95 dBA.

(2) General Information on Groundborne Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Several different methods are used to quantify vibration. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors to vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment. Vibration amplitudes are usually expressed as either PPV or as RMS velocity. PPV is defined as the maximum instantaneous peak of the vibration signal. PPV is appropriate for evaluating potential damage to buildings, but it is not suitable for evaluating human response to vibration because it takes the human body time to respond to vibration signals. The response of the human body to vibration is dependent on the average amplitude of a vibration. Thus, RMS is more appropriate for evaluating human response to vibration. PPV and RMS are normally described in units of inches per second (in/sec), and RMS is also often described in VdB.

(3) General Information on Groundborne Noise

The rumbling sound caused by the vibration of room surfaces is called groundborne noise. Like airborne noise, groundborne noise is usually measured in decibels (dB or dBA). Groundborne noise is typically dominated by low-frequency components, and the non-linearity of human hearing causes sounds dominated by low-frequency components to seem louder than broadband sounds with the same sound level.[3] As a result, groundborne noise has the potential to disturb people at lower sound levels than does broadband noise.

The relationship between groundborne vibration and groundborne noise depends on the frequency content of the vibration. For example, groundborne noise measured in dBA is approximately 40 dBA less than the groundborne vibration measured in VdB if the spectrum peak is around 30 Hertz (Hz), and 25 dBA lower if the spectrum peak is around 60 Hz. Environmental vibration is rarely of sufficient magnitude to be perceptible or to cause audible groundborne noise unless a specific vibration source (such as a rail line) is nearby.

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[3] Federal Transit Administration, 2006. Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06).

b. Local Noise Environment

The local noise environment in the vicinity of the project site, including sensitive receptors and existing noise conditions, is described below.

(1) Surrounding Receptors

The adjacent receptors to the project site are an apartment building (Mercy Housing) and a church (First Baptist Church), approximately 90 feet to the west across Telegraph Avenue; commercial land uses (the Paramount Theater, a surface parking lot, and a bar) approximately 50 feet to the south across 21st Street; commercial land uses (a gas station, a surface parking lot, and an office building) approximately 50 feet to the north across 22nd Street; and commercial land uses (small retail, restaurants, a jazz venue, the Pan Theater, and the Kapor Center for Social Impact, which contains a restaurant and a mix of office and social spaces) approximately 90 feet to the east across Broadway. The surface parking lots and gas station are not considered susceptible to noise or vibration disturbance because they do not contain noise-sensitive activities or uses.

(2) Ambient Noise Environment

The primary sources of noise in the vicinity of the project site are traffic on Interstate (I-) 980 and along major roadways near the project site. Sources of noise from major roadways include (1) traffic on Telegraph Avenue, which runs north to south adjacent to the western border of the project site; (2) traffic on Broadway, which runs north to south adjacent to the east border of the project site; and (3) traffic on West Grand Avenue, which runs east to west approximately 225 feet north of the project site. Based on the roadway noise contours for 2025 in the City of Oakland General Plan, traffic noise levels range from 65 to 70 dBA L_{dn} at the project site and vicinity.[4,5] Further characterization of the local noise environment is described below.

Noise Monitoring

On May 13, 2016, short-term (15-minute) noise levels were measured at three areas at the project site to further characterize ambient noise levels. The collected noise level measurements were found to be generally consistent with the City of Oakland General Plan's characterization of the noise environment.

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[4] City of Oakland, 2005. City of Oakland General Plan, Noise Element, March.

[5] The City of Oakland General Plan notes that existing traffic noise levels are not expected to change substantially over the 20-year period between 2005 and 2025 (i.e., changes in noise levels would not be distinguishable) given the minor changes expected to occur in traffic levels. Therefore, existing noise levels at the project site and vicinity from traffic along the surrounding streets are assumed to be the same as indicated in the 2025 roadway noise contours.

A Casella CEL-633C2 noise meter was used for the noise level measurements. The meter was calibrated in the field before each measurement to ensure accuracy. The locations of the ambient noise level measurements are shown on Figure V.I-1 and described in detail below. Numerical summaries of the ambient noise level measurements are provided on Table V.I-3.

During the noise measurements, weather conditions were overcast with temperatures ranging from approximately 53 degrees Fahrenheit (°F) to 58°F, and humidity ranging from 74 to 80 percent. Wind was generally from the west, ranging from 10 miles per hour (mph) to 11mph.

M-1

Location M-1 is near the western border of the project site, approximately 26 feet east of the edge of Telegraph Avenue. Telegraph Avenue has a bike lane and parking lane on the east side; therefore, location M-1 was approximately 43 feet east from the nearest traffic lane on Telegraph Avenue. The primary source of noise was found to be traffic on Telegraph Avenue. The 15-minute L_{eq} was 60.8 dBA.

M-2

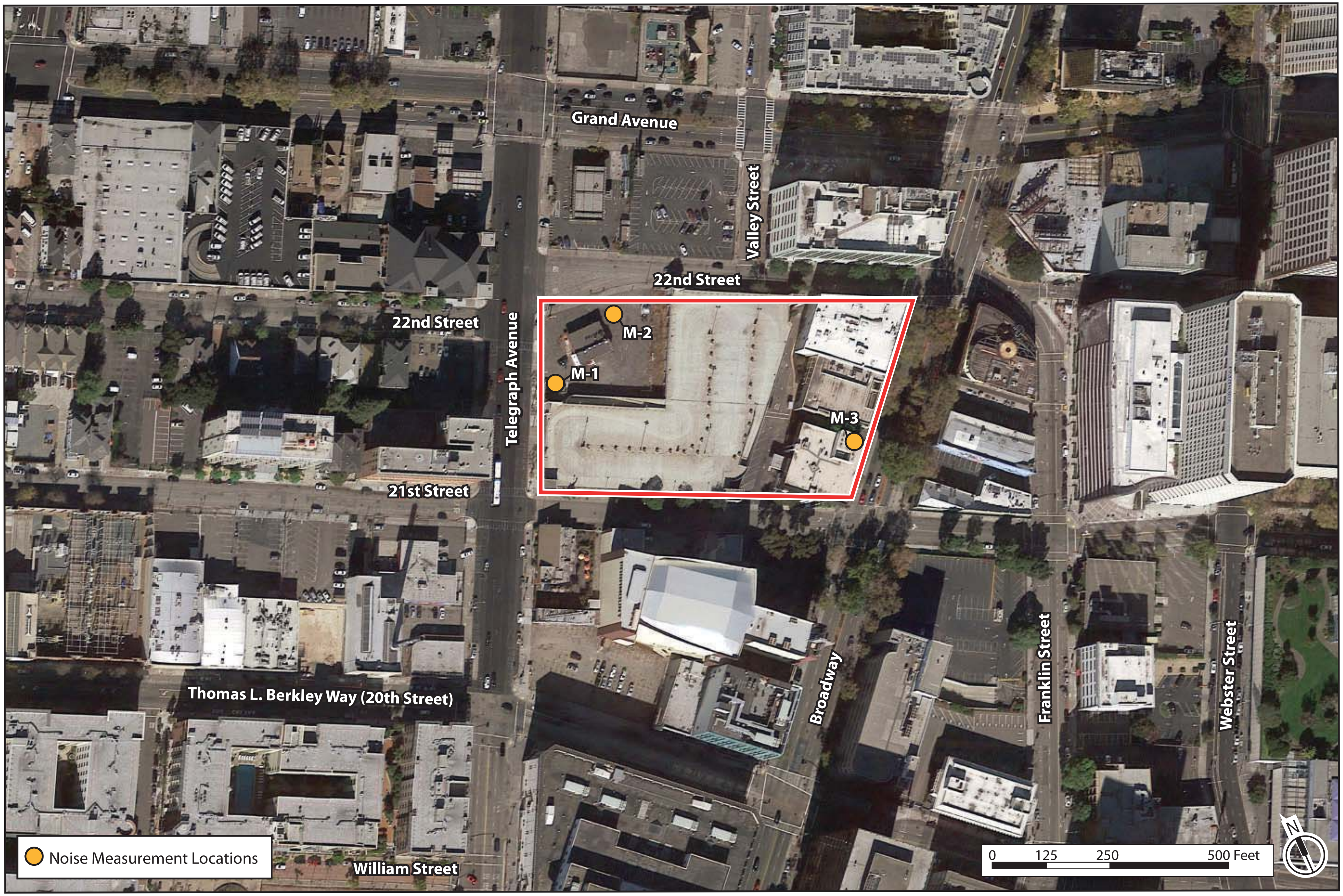
Location M-2 is near the northern border of the project site, approximately 28 feet south of the edge of 22nd Street. 22nd Street has a parking lane on the south side; therefore, location M-2 was approximately 35 feet south from the nearest traffic lane on 22nd Street. The primary sources of noise were determined to be traffic on 22nd Street, Telegraph Avenue, and West Grand Avenue. The 15-minute L_{eq} was 62.3 dBA.

M-3

Location M-3 is near the eastern border of the project site, approximately 19 feet west of the edge of Broadway. Broadway has a parking lane on the west side; therefore, location M-3 was approximately 26 feet west of the nearest traffic lane on Broadway. The primary sources of noise were found to be traffic on Broadway. The 15-minute L_{eq} was 67.4 dBA.

(3) Ambient Vibration Environment

As described above, Bay Area Rapid Transit (BART) runs underground northwest to southeast beneath the project site (see Figure III-2). This underground BART line could be a source of both perceptible vibration and groundborne noise.



Source: Urban Planning Partners, Google Earth, 2017

Eastline Project - 2100 Telegraph EIR

Figure V.I-1
Noise Measurement Locations

TABLE V.I-3 STATISTICAL SUMMARY OF AMBIENT NOISE MEASUREMENTS

Location ID	Measurement Duration	A-weighted Noise Level, dBA			Primary Noise Source
		L_{eq}	L_{max}	L_{min}	
M-1	15 minutes	60.8	77.1	52.1	Traffic on Telegraph Avenue
M-2	15 minutes	62.3	82.4	54.2	Traffic on 22nd Street, Telegraph Avenue, and West Grand Avenue
M-3	15 minutes	67.4	85.3	56.7	Traffic on Broadway

Source: Short-term ambient noise level measurements were collected by BASELINE Environmental Consulting on May 13, 2016.

Vibration Monitoring

On-site noise measurements to characterize the existing groundborne noise environment were performed on July 25 and August 2, 2016.[6] The ambient noise level in the empty bank lobby of the existing on-site credit union building (2101 Broadway) is noise criteria (NC) 25. As discussed above, the annoyance potential of groundborne noise is usually measured in dBA. Because the groundborne noise measured in NC during the vibration monitoring survey was mostly low frequencies, the NC levels were on average equal to the dBA levels.[7] Maximum groundborne noise levels at the ground floor of the existing credit union building were measured at NC 35 to NC 45 while a BART train was passing by. These levels are clearly audible in the empty bank lobby. Noise levels were estimated to be 3 NC points quieter on the second floor of the credit union. In addition, the noisiest trains passed by approximately four times an hour during the “rush hour” (4:00 p.m. to 5:00 p.m.) measurement period.

On-site measurements to characterize perceptible groundborne vibration were performed on July 25, 2016 by Charles M. Salter Associates Inc. [8] Six measurements were taken at the ground floor of the existing buildings (the credit union building, a commercial building, and the parking garage), and vibration levels were found to be approximately 63 to 81 VdB. Two measurements were taken on the second floor of the existing buildings (the credit union building and parking garage), with vibration levels found to be approximately 72 to 76 VdB.

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[6] Charles M. Salter Associates Inc., 2016a. Uptown Parcels (2100 Telegraph) BART Train Structure-Borne Noise Comments, October 5.

[7] Decker, Jeremy L. of Charles M. Salter Associates, Inc., 2016. Personal communication with Seth Orgain of Gensler, October 14.

[8] Charles M. Salter Associates Inc., 2016b. Uptown Parcels (2100 Telegraph) BART Train Vibration Study, October 3.

2. Regulatory Setting

Noise standards in the City of Oakland (City) are promulgated by the State as well as by the City of Oakland General Plan and local ordinances. In California, noise is primarily regulated at the local level, through the implementation of general plan policies and local noise ordinances, and the State provides guidance for the preparation of general plan noise elements. The purpose of a local general plan is to identify the general principles intended to guide land use and development, and the purpose of the ordinances is to specify the standards and requirements for implementing the principles of the general plan.

a. State

The California Noise Act and the applicable sections of the California Building Code are summarized below.

California Noise Control Act

Sections 46000 to 46080 of the California Health and Safety Code codify the California Noise Control Act of 1973. This act established the Office of Noise Control under the California Department of Health Services. It requires that the Office of Noise Control adopt, in coordination with the Office of Planning and Research, guidelines for the preparation and content of noise elements for general plans. The most recent guidelines are contained in the California Office of Planning and Research's General Plan Guidelines.[9] The document provides land use compatibility guidelines for cities and counties to use in general plans to reduce conflicts between land use and noise. The City has adopted a modified version of the State's land use compatibility guidelines, as discussed below.

California Building Standards Code

The 2016 California Building Standards Code specifies that buildings containing non-residential uses (e.g., retail spaces and offices) that are exposed to exterior noise levels at or above 65 dBA L_{eq} or CNEL shall maintain interior noise level below 50 dBA L_{eq} in occupied areas during any hour of operation.[10] An acoustical analysis documenting compliance with this interior sound level is required. The 2016 California Building Standards Code also specifies that interior noise levels attributable to exterior sources shall not exceed 45 dBA L_{dn} in any habitable room.[11] The noise metric used (either L_{dn} or CNEL) shall be consistent with the noise element of the local general plan.[12]

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[9] California Office of Planning and Research, 2003. General Plan Guidelines.

[10] California Code of Regulations, Title 24, Part 11, Section 5.507.

[11] Habitable space is a space in a building for living, sleeping, eating or cooking. Bathrooms, toilet rooms, closets, halls, storage or utility spaces and similar areas are not considered habitable spaces.

b. City of Oakland

The following section summarizes relevant noise policies and standards from the General Plan, Noise Ordinances, and Standard Conditions of Approval (SCAs).

(1) General Plan

The Noise Element of the City of Oakland General Plan contains the following noise policies and action items that are applicable to the project: [13]

Policy 1: Ensure the compatibility of existing and, especially, of proposed development projects not only with neighboring land uses but also with their surrounding noise environment.

Action 1.1: Use the noise-land use compatibility matrix (Figure 6 of the Noise Element [Table V.I-4 below]) in conjunction with the noise contour maps (especially for roadway traffic) to evaluate the acceptability of residential and other proposed land uses and also the need for any mitigation or abatement measures to achieve the desired degree of acceptability.

Action 1.2: Continue using the City's zoning regulations and permit processes to limit the hours of operation of noise-producing activities which create conflicts with residential uses and to attach noise-abatement requirements to such activities.

Policy 2: Protect the noise environment by controlling the generation of noise by both stationary and mobile noise sources.

Action 2.2: As resources permit, increase enforcement of noise-related complaints and also of vehicle speed limits and of operational noise from cars, trucks and motorcycles.

Policy 3: Reduce the community's exposure to noise by minimizing the noise levels that are received by Oakland residents and others in the City. (This policy addresses the reception of noise whereas Policy 2 addresses the generation of noise.)

Action 3.1: Continue to use the building-permit application process to enforce the California Noise Insulation Standards regulating the maximum allowable interior noise level in new multi-unit buildings.

Policy N3.9: Orienting Residential Development. Residential developments should be encouraged to face the street and to orient their units to desirable sunlight and views, while avoiding unreasonably blocking sunlight and views for neighboring buildings, respecting the privacy needs of residents of the development and surrounding properties, providing for sufficient conveniently located on-site open space, and avoiding undue noise exposure.

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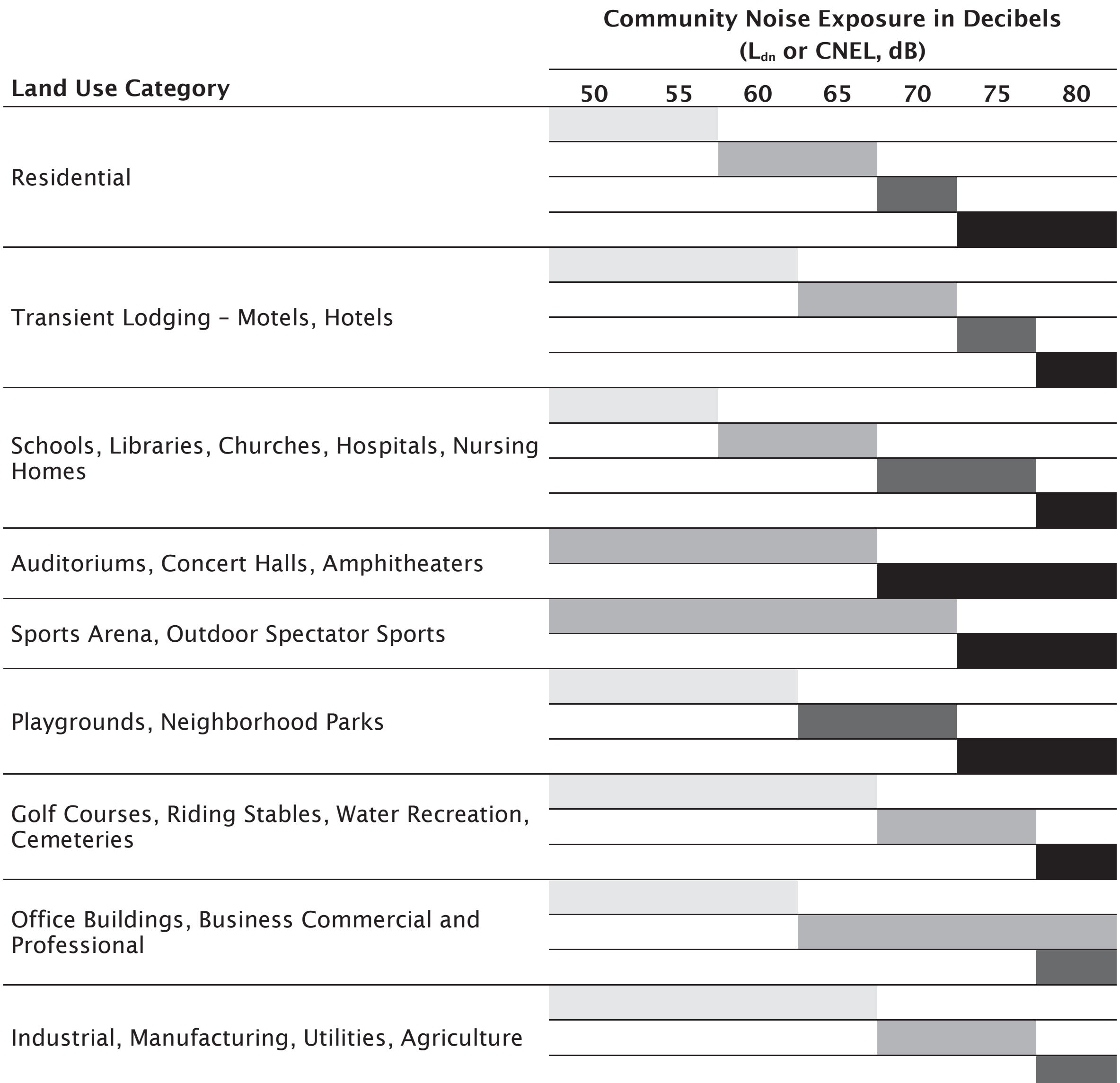
[12] California Code of Regulations, Title 24, Part 2, Vol. 1, Section 1207.4.
[13] City of Oakland, 2005. City of Oakland General Plan, Noise Element, March.

TABLE V.I-4 OAKLAND GENERAL PLAN NOISE LAND USE COMPATIBILITY MATRIX



NORMALLY ACCEPTABLE Development may occur without an analysis of potential noise impacts to the proposed development (though it might still be necessary to analyze noise impacts that the project might have on its surroundings).	NORMALLY UNACCEPTABLE Development should generally de discouraged; it may be undertaken only if a detailed analysis of the noise-reduction requirements is conducted, and if highly effective noise insulation, mitigation or abatement features are included in the design.
CONDITIONALLY ACCEPTABLE Development should be undertaken only after an analysis of noise-reduction requirements is conducted, and if necessary noise-mitigating features are included in the design. Conventional construction will usually suffice as long as it incorporates air conditioning or forced-air-supply systems, though it will likely require that project occupants maintain their windows closed.	CLEARLY UNACCEPTABLE Development should not be undertaken.

Source: City of Oakland, 2005. City of Oakland General Plan, Noise Element. March. Figure 6.

Policy N5.2: Buffering residential areas. Residential areas should be buffered and reinforced from conflicting uses through the establishment of performance-based regulations, the removal of non-conforming uses, and other tools.

(2) Noise Ordinances

Chapter 17.120.050 of the Municipal Code establishes performance standards to control dangerous or objectionable environmental effects of noise. The operational noise level standards for residential and commercial zones are presented in Table V.I-5. The construction and demolition noise level standards for residential, commercial/ industrial land uses are presented in Table V.I-6. Noise from mechanical heating, ventilation, and air conditioning (HVAC) systems is prohibited from exceeding the nighttime noise levels presented in Table V.I-5, and the systems are required to be housed within an enclosure if located within 200 feet of a residential zone. Chapter 17.120.060 prohibits activities from generating vibration that is perceptible without instruments by the average person at or beyond the lot line of the lot containing such activities. Vibration generated by motor vehicles, trains, and temporary construction or demolition work is exempt from this standard.

Chapter 8.18.010 of the Municipal Code defines nuisance noises and establishes noise enforcement procedures and penalties for excessive and annoying noises. Noise that conflicts with the performance standards established in Chapter 17.120.050 is considered a nuisance noise. Chapter 8.18.020 prohibits noises that would disturb the peace and comfort of any person between the hours of 9:00 p.m. and 7:00 a.m. Additionally; the following construction noise control measures are required:

a) All construction equipment powered by internal combustion engines shall be properly muffled and maintained.

b) Unnecessary idling of internal combustion engines is prohibited.

c) All stationery noise-generating construction equipment such as tree grinders and air compressors are to be located as far as is practical from existing residences.

d) Quiet construction equipment, particularly air compressors, are to be selected whenever possible.

e) Use of pile drivers and jack hammers shall be prohibited on Sundays and holidays, except for emergencies and as approved in advance by the Building Official.

TABLE V.I-5 CITY OF OAKLAND OPERATIONAL NOISE STANDARDS AT RECEIVING PROPERTY LINE, DBA

Receiving Land Use	Cumulative Number of Minutes in a 1-Hour Period	Maximum Allowable Noise Level (dBA)[a,b] Daytime 7:00 a.m. to 10:00 p.m.	Nighttime 10:00 p.m. to 7:00 a.m.
Residential and Civic[c]	20	60	45
	10	65	50
	5	70	55
	1	75	60
	0 (L_{max}[d])	80	65
		Anytime	
Commercial	20	65	
	10	70	
	5	75	
	1	80	
	0 (L_{max}[d])	85	
Industrial	20	70	
	10	75	
	5	80	
	1	85	
	0 (L_{max}[d])	90	

[a] These standards are reduced by 5 dBA for simple tone noise, noise consisting primarily of speech or music, or recurring impact noise.
[b] If the ambient noise level exceeds these standards, the standard shall be adjusted to equal the ambient noise level.
[c] Legal residences, schools and childcare facilities, health care or nursing home, public open space, or similarly sensitive land uses.
[d] L_{max} = maximum instantaneous noise level
Source: City of Oakland Municipal Code Section 17.120.050 Noise.

TABLE V.I-6 CITY OF OAKLAND CONSTRUCTION NOISE STANDARDS AT RECEIVING PROPERTY LINE, dBA

	Daily 7:00 a.m. to 7:00 p.m.	Weekends 9:00 a.m. to 8:00 p.m.
Short-Term Operation[a]		
Residential	80	65
Commercial, Industrial	85	70
Long-Term Operation[b]		
Residential	65	55
Commercial, Industrial	70	60

Notes: If the ambient noise level exceeds these standards, the standard shall be adjusted to equal the ambient noise level. Nighttime noise levels from construction and demolition between the hours of 7:00 p.m. and 7:00 a.m. on weekdays and between 8:00 p.m. and 9:00 a.m. on weekends and federal holidays are prohibited from exceeding the applicable nighttime operational noise level standards (see Table IV.I-5).
[a] Short-term construction or demolition operation is less than 10 days.
[b] Long-term construction or demolition operation is 10 days or more.
Source: City of Oakland Municipal Code Section 17.120.050 Noise.

(3) Standard Conditions of Approval

The City's SCAs[14] that are relevant to noise and vibration are listed below. The SCAs are adopted as requirements for all projects approved within the City of Oakland.

SCA-NOI-1: Construction Days/Hours (#58)
Requirement: The project applicant shall comply with the following restrictions concerning construction days and hours:

a. Construction activities are limited to between 7:00 a.m. and 7:00 p.m. Monday through Friday, except that pier drilling and/or other extreme noise generating activities greater than 90 dBA shall be limited to between 8:00 a.m. and 4:00 p.m.
b. Construction activities are limited to between 9:00 a.m. and 5:00 p.m. on Saturday. In residential zones and within 300 feet of a residential zone, construction activities are allowed from 9:00 a.m. to 5:00 p.m. only within the interior of the building with the doors and windows closed. No pier drilling or other extreme noise generating activities greater than 90 dBA are allowed on Saturday.
c. No construction is allowed on Sunday or federal holidays.

[14] City of Oakland Planning and Zoning Division. Conditions of Approval and Uniformly Applied Development Standards Imposed as Standard Conditions of Approval. As amended through July 22, 2015.

Construction activities include, but are not limited to, truck idling, moving equipment (including trucks, elevators, etc.) or materials, deliveries, and construction meetings held on-site in a non-enclosed area.

Any construction activity proposed outside of the above days and hours for special activities (such as concrete pouring which may require more continuous amounts of time) shall be evaluated on a case-by-case basis by the City, with criteria including the urgency/emergency nature of the work, the proximity of residential or other sensitive uses, and a consideration of nearby residents'/occupants' preferences. The project applicant shall notify property owners and occupants located within 300 feet at least 14 calendar days prior to construction activity proposed outside of the above days/hours. When submitting a request to the City to allow construction activity outside of the above days/hours, the project applicant shall submit information concerning the type and duration of proposed construction activity and the draft public notice for City review and approval prior to distribution of the public notice.
When Required: During construction
Initial Approval: N/A
Monitoring/Inspection: Bureau of Building

SCA-NOI-2: Construction Noise (#59)
Requirement: The project applicant shall implement noise reduction measures to reduce noise impacts due to construction. Noise reduction measures include, but are not limited to, the following:

a. Equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds) wherever feasible.
b. Except as provided herein, impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used, if such jackets are commercially available, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures.
c. Applicant shall use temporary power poles instead of generators where feasible.
d. Stationary noise sources shall be located as far from adjacent properties as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or use other measures as determined by the City to provide equivalent noise reduction.

e. The noisiest phases of construction shall be limited to less than 10 days at a time. Exceptions may be allowed if the City determines an extension is necessary and all available noise reduction controls are implemented.

When Required: During construction
Initial Approval: N/A
Monitoring/Inspection: Bureau of Building

SCA-NOI-3: Extreme Construction Noise (#60)

a. Construction Noise Management Plan Required

Requirement: Prior to any extreme noise generating construction activities (e.g., pier drilling, pile driving and other activities generating greater than 90dBA), the project applicant shall submit a Construction Noise Management Plan prepared by a qualified acoustical consultant for City review and approval that contains a set of site-specific noise attenuation measures to further reduce construction impacts associated with extreme noise generating activities. The project applicant shall implement the approved Plan during construction. Potential attenuation measures include, but are not limited to, the following:

i. Erect temporary plywood noise barriers around the construction site, particularly along on sites adjacent to residential buildings;
ii. Implement "quiet" pile driving technology (such as pre-drilling of piles, the use of more than one pile driver to shorten the total pile driving duration), where feasible, in consideration of geotechnical and structural requirements and conditions;
iii. Utilize noise control blankets on the building structure as the building is erected to reduce noise emission from the site;
iv. Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings by the use of sound blankets for example and implement such measure if such measures are feasible and would noticeably reduce noise impacts; and
v. Monitor the effectiveness of noise attenuation measures by taking noise measurements.

When Required: Prior to approval of construction-related permit
Initial Approval: Bureau of Building
Monitoring/Inspection: Bureau of Building

b. Public Notification Required

Requirement: The project applicant shall notify property owners and occupants located within 300 feet of the construction activities at least 14 calendar days prior to commencing extreme noise generating activities. Prior to providing the notice, the project applicant shall submit to the City for review and approval the proposed type and duration of extreme noise generating activities and the proposed public notice.

The public notice shall provide the estimated start and end dates of the extreme noise generating activities and describe noise attenuation measures to be implemented.
When Required: During construction
Initial Approval: Bureau of Building
Monitoring/Inspection: Bureau of Building

SCA-NOI-4: Construction Noise Complaints (#62)
Requirement: The project applicant shall submit to the City for review and approval a set of procedures for responding to and tracking complaints received pertaining to construction noise, and shall implement the procedures during construction. At a minimum, the procedures shall include:

a. Designation of an on-site construction complaint and enforcement manager for the project;
b. A large on-site sign near the public right-of-way containing permitted construction days/hours, complaint procedures, and phone numbers for the project complaint manager and City Code Enforcement unit;
c. Protocols for receiving, responding to, and tracking received complaints; and
d. Maintenance of a complaint log that records received complaints and how complaints were addressed, which shall be submitted to the City for review upon the City's request.

When Required: Prior to approval of construction-related permit
Initial Approval: Bureau of Building
Monitoring/Inspection: Bureau of Building

SCA-NOI-5: Exposure to Community Noise (#63)
Requirement: The project applicant shall submit a Noise Reduction Plan prepared by a qualified acoustical engineer for City review and approval that contains noise reduction measures (e.g., sound-rated window, wall, and door assemblies) to achieve an acceptable interior noise level in accordance with the land use compatibility guidelines of the Noise Element of the Oakland General Plan. The applicant shall implement the approved Plan during construction. To the maximum extent practicable, interior noise levels shall not exceed the following:

a. 45 dBA: Residential activities, civic activities, hotels
b. 50 dBA: Administrative offices; group assembly activities
c. 55 dBA: Commercial activities
d. 65 dBA: Industrial activities

When Required: Prior to approval of construction-related permit
Initial Approval: Bureau of Planning
Monitoring/Inspection: Bureau of Building

SCA-NOI-6: Operational Noise (#64)
Requirement: Noise levels from the project site after completion of the project (i.e., during project operation) shall comply with the performance standards of chapter 17.120 of the Oakland Planning Code and chapter 8.18 of the Oakland Municipal Code. If noise levels exceed these standards, the activity causing the noise shall be abated until appropriate noise reduction measures have been installed and compliance verified by the City.
When Required: Ongoing
Initial Approval: N/A
Monitoring/Inspection: Bureau of Building

SCA-NOI-7: Exposure to Vibration (#65)
Requirement: The project applicant shall submit a Vibration Reduction Plan prepared by a qualified acoustical consultant for City review and approval that contains vibration reduction measures to reduce groundborne vibration to acceptable levels per Federal Transit Administration (FTA) standards. The applicant shall implement the approved Plan during construction. Potential vibration reduction measures include, but are not limited to, the following:

a. Isolation of foundation and footings using resilient elements such as rubber bearing pads or springs, such as a "spring isolation" system that consists of resilient spring supports that can support the podium or residential foundations. The specific system shall be selected so that it can properly support the structural loads, and provide adequate filtering of groundborne vibration to the residences above.
b. Trenching, which involves excavating soil between the railway and the project so that the vibration path is interrupted, thereby reducing the vibration levels before they enter the project's structures. Since the reduction in vibration level is based on a ratio between trench depth and vibration wavelength, additional measurements shall be conducted to determine the vibration wavelengths affecting the project. Based on the resulting measurement findings, an adequate trench depth and, if required, suitable fill shall be identified (such as foamed styrene packing pellets [i.e., Styrofoam] or low-density polyethylene).
   When Required: Prior to approval of construction-related permit
   Initial Approval: Bureau of Planning
   Monitoring/Inspection: Bureau of Building

3. Impacts, Standard Conditions of Approval, and Mitigation Measures

This section analyzes impacts related to noise and vibration that could result from implementation of the Eastline project. The section begins with the criteria of significance that establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the project and identifies SCAs and/or mitigation measures to address these impacts as needed.

a. Significance Criteria

Implementation of the Eastline project would result in a significant noise and vibration impact if it would:

1. Generate noise in violation of the City of Oakland Noise Ordinance (Oakland Planning Code Section 17.120.050) regarding construction noise (Table V.I-6), except if an acoustical analysis is performed that identifies recommended measures to reduce potential impacts.[15] During the hours of 7:00 p.m. to 7:00 a.m. on weekdays and 8:00 p.m. to 9:00 a.m. on weekends and federal holidays, noise levels received by any land use from construction or demolition shall not exceed the applicable nighttime operational noise level standard (Table V.I-5).
2. Generate noise in violation of the City of Oakland nuisance standards (Oakland Municipal Code Section 8.18.020) regarding persistent construction-related noise.
3. Generate noise in violation of the City of Oakland Noise Ordinance (Oakland Planning Code Section 17.120.050) regarding operational noise.
4. Generate noise resulting in a 5-dBA permanent increase in ambient noise levels in the project vicinity above levels existing without the project, or, if under a cumulative scenario where the cumulative increase results in a 5-dBA permanent increase in ambient noise levels in the project vicinity without the project (i.e., the cumulative condition including the project compared to the existing conditions) and a 3-dBA permanent increase is attributable to the project (i.e., the cumulative condition including the project compared to the cumulative baseline condition without the project).[16]
5. Expose persons to interior L_{dn} or CNEL greater than 45 dBA for multi-family dwellings, hotels, motels, dormitories, and long-term care facilities (may be extended by local legislative action to include single-family dwellings) per California Noise Insulation Standards (Title 24 of the California Code of Regulations, Part 2).

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[15] The acoustical analysis must identify, at a minimum: (a) the types of construction equipment expected to be used and the noise levels typically associated with the construction equipment; and (b) the surrounding land uses, including any sensitive land uses (e.g., schools and childcare facilities, health care and nursing homes, public open space). If sensitive land uses are present, the acoustical analysis must recommend measures to reduce potential impacts.

[16] Outside of a laboratory, a 3-dBA change is considered a just-perceivable difference. Therefore, 3 dBA is used to determine if the project-related noise increases are cumulatively considerable. Project-related noise should include both vehicle trips and project operations.

6. Expose the project to community noise in conflict with the land use compatibility guidelines of the City of Oakland General Plan (Table V.I-4) after incorporation of all applicable SCAs.[17]
7. Expose persons to or generate noise levels in excess of applicable standards established by a regulatory agency (e.g., occupational noise standards of the Occupational Safety and Health Administration).
8. During either project construction or project operation, expose persons to or generate groundborne vibration that exceeds the criteria established by the FTA.[18]
9. Be located within an airport land use plan and expose people residing or working in the project area to excessive noise levels.
10. Be located within the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels.

b. Approach to Analysis

Four development scenarios are presented in the Planned Unit Development/Preliminary Development Plan (PUD/PDP) to illustrate the range of scenarios that could occur under the PUD/PDP: Maximum Office Scenario; Maximum Residential Scenario; and the Residential/Office Mix Scenario and All Office Scenario. Each scenario would result in similar impacts related to the exposure of surrounding off-site receptors to construction-generated noise and vibration, and the exposure of future on-site receptors to traffic and aircraft noise. However, each scenario would involve different potential impacts related to the generation of traffic noise by vehicle trips to and from the project site as well as exposure of future on-site receptors to groundborne noise and vibration from BART train pass-bys. A discussion of impacts unique to specific development scenarios is provided when applicable.

c. Less-than-Significant Noise and Vibration Impacts

The following discussion describes the less-than-significant impacts associated with noise and vibration that would result from the Eastline project.

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[17] The evaluation of land use compatibility should consider the following factors: type of noise source; sensitivity of the noise receptor; the noise reduction likely to be provided by structures; the degree to which the noise source may interfere with speech, sleep, or other activities characteristic of the land use; seasonal variations in noise source levels; existing outdoor ambient levels; general societal attitudes toward the noise source; prior history of the noise source; and tonal characteristics of the noise source. To the extent that any of these factors can be evaluated, the measured or computed noise exposure values may be adjusted to more accurately assess local sentiments toward acceptable noise exposure.

[18] The FTA criteria were developed to apply to transit-related groundborne vibration. However, these criteria may also be applied to non-transit-related sources of vibration.

(1) Construction Noise (Criteria 1 and 2)

The primary noise impacts from construction of the Eastline project would occur from noise generated by the operation of heavy construction equipment on the project site. Secondary sources of noise during construction include increased traffic flow from the transport of workers, equipment, and materials to the project site. These impacts would be similar under all development scenarios being analyzed.

Construction Traffic Noise

Vehicles used during construction would travel to the site from I-980, then exit the highway and travel north along Castro Street, turn east on 20th Street, and then turn north on Telegraph Avenue, before entering the site. Vehicle used during construction would exit the site from Telegraph Avenue, turn west on West Grand Avenue, and turn south on Brush Street before entering I-980. Because these are major roadways and a highway, exposure to high traffic flow is an existing condition. Based on the additive properties of noise, traffic volumes would be required to nearly double in order to substantially increase noise levels. Therefore, the additional vehicle trips from worker's personal vehicles during construction would not generate a perceptible increase in existing noise levels. In addition, construction of the project could generate up to 245 hauling truck trips per day during the demolition period and up to 103 hauling truck trips during the grading period.[19] Assuming an 8-hour work day, the demolition-period hauling truck trips would generate noise levels up to approximately 60.8 dBA L_{eq}, and the grading-period hauling truck trips would generate noise levels up to approximately 57.0 dBA L_{eq}.[20] As discussed above, ambient noise levels in the project vicinity were measured at 60.8 to 67.4 dBA L_{eq}. Therefore, hauling trucks during the demolition and grading periods would potentially increase noise levels along local area roadways by a maximum of approximately 3.0 dBA and 1.5 dBA, respectively. An increase of 3.0 dBA is a just-perceivable increase and an increase of 1.5 dBA is generally not perceptible. Therefore, hauling truck trips would generate a temporary increase in noise levels that would be below even the 5-dBA threshold for permanent noise. For these reasons, increased vehicle and hauling truck trips along local roadways during construction would not be a significant source of construction-generated noise.

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[19] Hauling truck trips are calculated based on the California Emissions Estimator Model (CalEEMod) Trips and Construction Schedule (see *Section V.D, Air Quality* and Appendix D).

[20] Traffic noise model outputs are included in Appendix C.1. FHWA TNM Version 2.5 model was used for this result.

Construction Equipment Noise

Construction of the project would involve demolition of all existing structures, site improvements, and landscaping on the project site. Construction is expected to occur over a period of approximately 24 to 30 months and would temporarily increase noise levels in the vicinity of the project site. Construction noise levels would vary from day to day, depending on the quantity and condition of the equipment being used, the types and duration of activity being performed, the distance between the noise source and the receptor, and the presence or absence of barriers, if any, between the noise source and receptor. Demolition, excavation/grading, and foundation work are typically the noisiest phases of construction, and would occur during the first phases of construction. The later phases of construction include activities that are typically quieter and that occur within the building under construction, thereby providing a barrier for noise between the construction activity and any nearby receptors. Although pile driving can generate extreme levels of noise, pile driving is not proposed as part of this project. Instead, drilled displacement piles would be used for the project,[21] which would generate noise levels similar to an auger drill.

Table V.I-7 shows typical noise levels associated with various types of construction equipment that may be used at the project site.[22] Noise levels are presented in Table V.I-7 to characterize the noise impact from the project at the nearest commercial receptors to the north and south of the project site at 50 feet, the commercial receptors to east of the project site at 90 feet, and Mercy Housing and the First Baptist Church to the west of the project site at 90 feet. These points of measurement are shown in Figure V.I-1.

As indicated in Table V.I-7, any piece of heavy equipment used during construction of the project would generate exterior noise levels above the 65-dBA long-term construction noise standard (Table V.I-6) at the Mercy Housing and the First Baptist Church at 90 feet, and above the 70 dBA long-term construction noise standard (Table V.I-6) at the nearest commercial receptors at 50 feet. Construction noise levels also have the potential to exceed 90 dBA at the adjacent receptors when multiple pieces of heavy equipment are used simultaneously within the same distance to the nearest receptors. However, it should be noted that a typical building façade with windows closed provides a noise level reduction of approximately 25 dBA;[23] therefore, interior noise levels at these receptors would be substantially lower than exterior noise levels. The impacts from construction

[21] Patrick Sutton, BASELINE Environmental Consulting, 2016. Personal communication with Urban Planning Partners, October 14.

[22] The types of construction equipment are based on the California Emissions Estimator Model (CalEEMod) equipment list (see *Section V.D, Air Quality* and Appendix D).

[23] Charles M. Salter Associates, Inc., 1998. Acoustics – Architecture, Engineering, the Environment. William Stout Publishers.

TABLE V.I-7 TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT (dBA)

Phase	Equipment	Noise Level at 50 Feet	Noise Levels at 90 Feet
Demolition	Concrete/Industrial Saws	76	71
	Excavators	85	80
	Rubber Tired Dozers	85	80
Site Preparation	Rubber Tired Dozers	85	80
	Tractors/Loaders/Backhoes	80	75
Grading	Excavators	85	80
	Cranes	88	83
	Graders	85	80
	Bore/Drill Rigs	85	80
	Rubber Tired Dozers	85	80
	Tractors/Loaders/Backhoes	80	75
Building Construction	Cranes	88	83
	Generator Sets	81	76
	Tractors/Loaders/Backhoes	80	75
	Welders	73	68
Paving	Cement and Mortar Mixers	85	80
	Pavers	85	80
	Rollers	74	69
	Tractors/Loaders/Backhoes	80	75
Architectural Coating	Air Compressors	81	76

Notes: The types of construction equipment are based on the California Emissions Estimator Model (CalEEMod) equipment list (see *Section V.D, Air Quality* and Appendix D). An auger drill rig, although not listed on the CalEEMod equipment list, is anticipated to generate similar noise levels when displacement piles are being installed.
The following propagation adjustment was applied to estimate noise levels at 90 feet, assuming:

$dBA2 = dBA1 + 10 \times Log_{10} (D1/D2)^{2}$

Where:
dBA1 reference noise level at a specified distance (in this case, 50 feet).
dBA2 is the calculated noise level.
D1 is the reference distance (in this case, 50 feet).
D2 is the perpendicular distance from receiver.

Sources: Federal Transit Administration, 2006. Transit Noise and Vibration Impact Assessment (FTA-VA-90-1003-06). U.S. Department of Transportation, 2006. FHWA Highway Construction Noise Handbook.

equipment noise would be reduced by the implementation of SCA-NOI-1: Construction Days/Hours (#58), SCA-NOI-2: Construction Noise (#59), SCA-NOI-3: Extreme Construction Noise (#60), and SCA-NOI-4: Construction Noise Complaints (#62).

SCA-NOI-1: Construction Days/Hours (#58), provides limits on the days and hours of construction to avoid generating noise when it would be most objectionable to neighboring residences. These limitations, which limit construction activities to between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday (among other restrictions), would prevent the disturbance of sleep for a majority of residents located near the project site. This SCA also requires any extension of these work hours to be approved in advance by the City and requires property owners and occupants within 300 feet of the project site to be notified of such an extension. SCA-NOI-2: Construction Noise (#59) requires all construction projects to implement basic noise-reduction measures during construction. Because the construction of the project could generate noise levels greater than 90 dBA at the nearest receptors, SCA-NOI-3: Extreme Construction Noise (#60), would be triggered, requiring the project applicant to prepare and implement a Construction Noise Management Plan that contains site-specific noise attenuation measures to reduce construction impacts associated with extreme noise-generating activities. SCA-NOI-4: Construction Noise Complaints (#62) provides additional measures to respond to and track construction noise complaints during construction to allow sources of potentially disruptive construction noise to be quickly controlled or eliminated.

The proximity of the project site to sensitive receptors, and the type of construction equipment that would be used as part of the project are similar to other projects in downtown Oakland and other urban areas. Because the project site and vicinity are part of an established urbanized area, periodic exposure to construction-related noise and vibration are existing conditions. Implementation of the City's SCAs would lessen the impacts of noise generated by construction to receptors in the vicinity of the project site, and would require the preparation of a Construction Noise Management Plan with site-specific noise attenuation measures. Implementation of the required SCAs would ensure that the impact of construction-generated noise on nearby receptors is reduced to a less-than-significant level.

(2) Operational Noise (Criteria 3 and 4)

The primary noise generation from the long-term operation of the project would occur under either of the maximum development scenarios as a result of (1) the use of HVAC systems; (2) delivery trucks for retail components; and (3) increased vehicular traffic on area roads.

HVAC Systems

Noise generated from HVAC systems would be subject to SCA-NOI-6: Operational Noise (#64), which requires all operational noise to comply with the performance standards of Chapter 17.120 of the Oakland Planning Code and Section 8.18 of the Oakland Municipal Code. Implementation of SCA-NOI-6: Operational Noise (#64) would ensure the project would not violate the City's operational noise standards (Table V.I-5) and no significant impacts would occur. In addition, given the existing high ambient noise levels at the project site, which include noise generated by traffic and similar HVAC systems at surrounding buildings, the noise generated by HVAC systems at the project site would not result in a perceptible (i.e., 3-dBA) increase in ambient noise levels. For these reasons, the potential for noise generated by the HVAC systems to result in a significant permanent noise increase at the project site is less than significant.

Delivery Trucks

Truck loading and unloading at the project site would be a source of noise during project operation. The loading dock space under any of the development scenarios is planned to be located on 22nd Street. Under all four scenarios, the only opening in the loading dock space would be a one-story opening on the north side that would face 22nd Street at the ground level; otherwise, the loading dock space would have walls on the other three sides (east, south, and west) and would be covered by a ceiling. The only receptors that would be exposed to noise from operations in the loading dock space are a gas station, a surface parking lot, and an office building across 22nd Street; the receptors to the east, south, and west would be shielded from noise in the loading dock space by the walls and ceiling surrounding the space.

As discussed above, the surface parking lot and gas station are not considered susceptible to potential noise impacts from the loading dock space because they do not contain noise-sensitive activities or uses. Furthermore, only the portions of the office building across 22nd Street with line of sight to the loading dock space would be exposed to noise from loading and unloading operations. The remainder of the office building would be shielded or partially shielded from noise in the loading dock space by the walls and ceiling surrounding the space. Given the existing high ambient noise levels at the project site and vicinity, which include noise generated by similar trucks and loading activities at nearby commercial land uses, the noise generated by delivery trucks at the project site would be consistent with existing noise sources and land uses surrounding the project site, and therefore would not have the potential to generate a perceptible increase in ambient noise levels surrounding the project site. Additional parking for delivery trucks would be at the basement level; any noise generated below ground would be shielded on all sides, and thus would not generate any noise audible to surrounding receptors. For these reasons, the potential for noise generated by delivery trucks to result in a significant permanent noise increase at the project site would be less than significant.

Traffic-Generated Noise

Implementation of the project would result in increased traffic on local area roadways. As indicated in Criterion 4, a project is considered to generate a significant increase in ambient traffic noise if it results in a 5-dBA permanent increase in noise levels in the project vicinity.

Project-generated traffic volumes are different for each of the four scenarios being evaluated as part of the PUD/PDP. The AM and PM peak hour traffic volumes were assessed for the Maximum Office Scenario,[24] which represents the highest project-generated traffic volumes and thus represents a worst-case analysis.

Under the Maximum Office Scenario, the assessment of AM and PM peak hour traffic volumes at 13 intersections near the project site indicates that the highest project-generated traffic volumes would occur along 21st Street between Telegraph Avenue and Broadway (903 vehicles per hour during the PM peak hour). According to the noise level measurements collected by BASELINE Environmental Consulting, ambient traffic noise levels are approximately 60.8 dBA L_{eq} near this roadway segment.[25] The ambient traffic noise levels, project-generated traffic volumes, and predicted project-generated traffic noise for this roadway segment are summarized in Table V.I-8 below. Traffic noise is expected to increase by about 4.6 dBA L_{eq} along 21st Street between Telegraph Avenue and Broadway. Because this is the roadway segment with the greatest predicted increase in traffic volumes, traffic noise increases along other roadway segments would be less than 4.6 dBA L_{eq}. This is below the 5-dBA significance threshold for project-generated traffic noise. Therefore, implementation of the Maximum Office Scenario would not result in a significant increase in traffic noise. Because the Maximum Office Scenario represents the highest project-generated traffic volumes among the four scenarios, implementation of any of the development scenarios that could occur under the proposed PUD/PDP would not result in a significant increase in traffic noise along local area roadways.

[24] Fehr & Peers, 2017. Appendix C.

[25] The noise measurement result at M-1 was used because this is the closest measurement location to 21st Street.

TABLE V.I-8 AMBIENT TRAFFIC NOISE, PROJECT-GENERATED TRAFFIC VOLUMES AND PREDICTED PROJECT-GENERATED TRAFFIC NOISE

Scenario	Roadway Segment	Existing Ambient Traffic Noise Levels (dBA L_{eq})	Project-Generated Traffic Volume (Vehicle/ Hour)	Predicted Project Generated Traffic Noise (dBA L_{eq} at 50 Feet)	Existing+ Project Traffic Noise Levels (dBA L_{eq})	Estimated Increase in Noise (dBA L_{eq})
Maximum Office Scenario	21st Street between Telegraph Avenue and Broadway (PM Peak Hour)	60.8	903	63.5	65.4	4.6

Source: BASELINE Environmental Consulting, 2017.
Notes: Traffic noise model outputs are included in Appendix C.1. FHWA TNM Version 2.5 model was used for these results.

(3) Exposure of Persons to Significant Noise during Construction and Operation (Criteria 5-7)

Construction Period

Construction workers could be exposed to excessive noise from the heavy equipment used during construction of the project (Table V.I-7). However, noise exposure of construction workers is regulated by the California Occupational Safety and Health Administration (Cal/OSHA). Title 8, Subchapter 7, Group 15, Article 105 of the California Code of Regulations (Control of Noise Exposure) sets noise exposure limits for workers, and requires employers that have workers that may be exposed to noise levels above these limits to establish a hearing conservation program, make hearing protectors available, and keep records of employee noise exposure measurements. The construction contractor for the project would be subject to these regulations, and compliance with these Cal/OSHA regulations would ensure that the potential for construction workers to be exposed to excessive noise is less than significant.

Project Operation

Upon completion of project construction, future occupants of the project could be exposed to noise levels in excess of regulatory standards. As described above, traffic noise levels from I-980 range from 65 to 70 dBA L_{dn} at the project site. This noise environment is regarded as “conditionally acceptable” to “normally unacceptable” for residential and commercial land uses (Table V.I-4). The City of Oakland General Plan indicates that development within a “conditionally acceptable” environment requires an analysis of noise-reduction requirements and, if necessary, noise mitigation features in the design. Development within a "normally unacceptable" environment may be undertaken only if a detailed analysis of the noise reduction requirements is conducted, and if highly effective noise insulation and abatement features are included in the design.

The project would be subject to SCA-NOI-5: Exposure to Community Noise (#63), which requires noise reduction to be incorporated into building design based on the recommendations of a qualified acoustical engineer. The noise reduction measures would be required to reduce interior noise levels to 45 dBA L_{dn} for residential units and 50 dBA L_{eq} for non-residential spaces (e.g., retail spaces and offices) in accordance with the 2016 California Building Standards Code. Sound Transmission Class (STC) rated windows, exterior doors (such as balcony doors), and exterior walls are commonly used to control interior noise from exterior sources. A STC rating roughly equals the decibel reduction in noise volume that a wall, window, or door can provide.[26] Given that the ambient noise environment at the project site currently ranges from about 65 to 70 dBA L_{dn}, the use of sound-rated windows, exterior doors, and exterior walls with STC ratings ranging from about STC 20 to about STC 25 would be required to reduce interior noise levels from exterior sources to about 45 dBA L_{dn} for residential units and 50 dBA L_{eq} for non-residential spaces, thereby satisfying the interior noise standards for both residential and non-residential spaces. The noise control measures are required to be submitted to the City for review and approval prior to the issuance of a construction-related permit. Compliance with this SCA would therefore reduce the potential for future occupants of the project to be exposed to excessive or incompatible noise levels to a less-than-significant level.

(4) Groundborne Vibration during Project Construction (Criterion 8)

Construction activities can result in varying degrees of ground vibration, depending on the equipment, activity, and relative proximity to sensitive receptors. Vibration levels for construction equipment that could be used at the project site are presented in Table V.I-9 to characterize the vibration impact from the project at the nearest commercial receptors to the north and south of the project site at 50 feet, the commercial receptors to the east of the project site at 90 feet, and Mercy Housing and the First Baptist Church to the west of the project site at 90 feet. These vibration levels were calculated based on the reference levels at 25 feet (which is also shown in Table V.I-9). Although the table provides one vibration level for each piece of equipment, it should be noted that there is considerable variation in reported ground vibration levels from construction activities, primarily due to variation in soil characteristics. Construction vibration is exempt from the standard indicated in Chapter 17.120.060 of the City of Oakland Municipal Code; therefore, the

[26] United States Department of Housing and Urban Development, undated. Noise Notebook, Chapter 4 Supplement, Sound Transmission Class Guidance.

vibration generated by construction would not have the potential to exceed any regulatory standards.

TABLE V.I-9 VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV at 25 Feet (in/sec)	PPV at 50 Feet (in/sec)	PPV at 90 Feet (in/sec)	RMS at 25 Feet (VdB)	RMS at 50 Feet (VdB)	RMS at 90 Feet (VdB)
Vibratory roller	0.210	0.074	0.031	94	85	77
Large bulldozer	0.089	0.031	0.013	87	78	70
Caisson drilling	0.089	0.031	0.013	87	78	70
Loaded truck	0.076	0.027	0.011	86	77	69
Small bulldozer	0.003	0.001	<0.001	58	49	41

Note: Based on vibration levels at 25 feet, the following propagation adjustment was applied to estimate PPV vibration levels at 50 feet and 90 feet assuming:
$PPV2 = PPV1 \times (D1/D2)^{1.5}$
Where: PPV1 is the reference vibration level at a specified distance.
PPV2 is the calculated vibration level.
D1 is the reference distance (in this case, 25 feet).
D2 is the distance from the equipment to the receiver.
Based on vibration levels at 25 feet, the following propagation adjustment (FTA, 2006) was applied to estimate RMS vibration levels at 50 feet and 90 feet assuming:
$RMS2 = RMS1 - 30 \, Log_{10} \, (D2/D1)$
Where: RMS1is the reference vibration level at a specified distance.
RMS2 is the calculated vibration level.
D1 is the reference distance (in this case, 25 feet).
D2 is the distance from the equipment to the receiver.
Source: PPV and RMS vibration levels at 25 feet from the FTA (2006) Transit Noise and Vibration Impact Assessment FTA-VA-90-1003-06.

Table V.I-10 and Table V.I-11 summarize the vibration criteria to prevent disturbance of occupants and to prevent damage to structures, respectively. In this analysis, the “Occasional Events” disturbance criterion is applied; the same kind of vibration events are not expected to occur over 70 times per day because the types of equipment and their location on the project site would vary each day during construction. The 75-RMS VdB Occasional Events threshold is applied to Mercy Housing and the First Baptist Church because they could be most sensitive to vibration disturbance, while the 78-RMS VdB Occasional Events threshold is applied to the other adjacent receptors.

As indicated in Table V.I-9, construction-generated vibration levels could be as high as 77 RMS VdB at the commercial receptors located 90 feet east of the project site. This vibration level would not exceed the 78-RMS VdB Occasional Events threshold of daytime use disturbance at institutional buildings (Table V.I-10). Vibration levels could be as high as 85 RMS VdB at the nearest commercial receptors located 50 feet north and south of the

TABLE V.I-10 VIBRATION CRITERIA TO PREVENT DISTURBANCE – RMS (VDB)

Land Use Category	Frequent Events[a]	Occasional Events[b]	Infrequent Events[c]
Residences and buildings where people normally sleep	72	75	80
Institutional land uses with primarily daytime use	75	78	83

[a] More than 70 vibration events of the same kind per day or vibration generated by a long freight train.
[b] Between 30 and 70 vibration events of the same kind per day.
[c] Fewer than 30 vibration events of the same kind per day.
Source: FTA, 2006. Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06.

TABLE V.I-11 VIBRATION CRITERIA TO PREVENT DAMAGE TO STRUCTURES

Building Category	PPV (in/sec)	RMS (VdB)
Reinforced-concrete, steel or timber (no plaster)	0.5	102
Engineered concrete and masonry (no plaster)	0.3	98
Non-engineered timber and masonry buildings	0.2	94
Buildings extremely susceptible to vibration damage	0.12	90

Source: FTA, 2006. Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06.

project site, which would exceed the 78-RMS VdB Occasional Events threshold of daytime use disturbance at institutional buildings. Additionally, vibration levels could be as high as 77 RMS VdB at Mercy Housing and the First Baptist Church located 90 feet west of the project site, which would exceed the 75-RMS VdB Occasional Events threshold of residences and buildings where people normally sleep.

Although the nearest receptors to the north, south, and west of the project site could be exposed to vibration levels above the 75- and 78-RMS VdB disturbance thresholds, vibration levels would only exceed these thresholds when construction equipment is operated in close proximity to project boundaries. This is because groundborne vibration attenuates rapidly with distance from the source of the vibration.

Based on the vibration disturbance thresholds and the attenuation of groundborne vibration with distance, only construction equipment operating within approximately 40 feet of the northern and southern borders of the project site, and within approximately 25 feet of the western border of the project site, would have the potential to disturb the adjacent receptors.[27] Furthermore, because the types and locations of construction equipment would vary over time across the project site, including within the areas described above where potential disturbance impacts could occur, the exposure of any given receptor to vibration in excess of the thresholds would not be expected to last more than a few days at a time. In addition, the impacts from construction vibration would be reduced by the implementation of SCA-NOI-2: Construction Noise (#59), SCA-NOI-3: Extreme Construction Noise (#60), SCA-NOI-4: Construction Noise Complaints (#62), and SCA-NOI-5: Exposure to Community Noise (#63).

SCA-NOI-2: Construction Noise (#59) limits the use of impact tools, which would limit the use of equipment that could generate high vibration levels. SCA-NOI-2 also requires stationary construction equipment to be located as far as possible from adjacent properties. As discussed above, because groundborne vibration attenuates rapidly with distance from the source of the vibration, SCA-NOI-2 would limit vibration impacts from any stationary construction equipment.

SCA-NOI-3: Extreme Construction Noise (#60) requires the development of a Construction Noise Management Plan and implementation of site-specific mitigation measures to reduce extreme noise. Because high-noise-generating construction activities often generate high vibration levels, compliance with SCA-NOI-3 would reduce vibration impacts from potential high-vibration-generating construction activities. SCA-NOI-4: Construction Noise Complaints (#62) requires the implementation of measures to respond to and track complaints, which would allow sources of potentially disruptive construction vibration to be quickly controlled or eliminated. For these reasons, the potential for construction-generated vibration to disturb the occupants of nearby buildings is less than significant.

Construction of the project does not have the potential to damage nearby buildings. As indicated in Table V.I-9, construction-generated vibration levels may reach 0.074 PPV in/sec at 50 feet and 0.031 PPV in/sec at 90 feet. These vibration levels are below even the 0.12-PPV in/sec threshold (Table V.I-11) to cause damage to buildings extremely susceptible to vibration damage. Therefore, the potential for construction-generated vibration to cause damage to nearby buildings is less than significant.

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[27] Based on vibration levels at 25 feet, the following propagation adjustment (FTA, 2006) was applied to estimate RMS vibration levels at 90 feet and 115 feet assuming

$$RMS2 = RMS1 - 30 \log_{10} (D2/D1)$$

Where: RMS1is the reference vibration level at a specified distance.
RMS2 is the calculated vibration level.
D1 is the reference distance (in this case 25 feet).
D2 is the distance from the equipment to the receiver.

Vibration levels are calculated to be just below 75 RMS VdB at 115 feet and just below 78 RMS VdB at 90 feet. Based on the distance from the nearest receptors to the project boundaries, only equipment within 25 feet of the western border of the project site and within 40 feet of the northern and southern borders of the project site would generate vibration levels in exceedance of the disturbance thresholds.

(5) Aircraft Noise (Criteria 9 and 10)

Oakland International Airport, approximately 7 miles to the southeast, is the closest airport to the project site. The project site is not located within an airport land use plan[28] or within the vicinity of a private airstrip. Therefore, the potential for people residing or working in the project area to be exposed to excessive airport noise is less than significant.

d. Significant Noise and Vibration Impacts

Implementation of the project would not result in any significant impacts related to noise and vibration.

e. Issues for Future Users of the Project – Discussion for Informational Purposes

The development of the project could expose future occupants of the project to perceptible groundborne vibration and groundborne noise when BART trains cross underneath the project site during the operation of the project. However as discussed in the introduction to *Chapter V*, CEQA does not require that potential effects of the environment on the project be analyzed or mitigated. Nevertheless, an analysis of vibration related effects associated with BART on the project is included in order to provide information to the public and decision-makers.

Because the underground BART tunnel is an existing environmental condition and because CEQA generally does not require the analysis of the impact from the existing environmental conditions on a project's future users or residents, the following discussion with regard to groundborne vibration and groundborne noise on future occupants of the project is for informational purposes.

The long-term operation of the project would not involve the use of any equipment or processes that would generate perceptible levels of groundborne vibration or perceptible levels of groundborne noise. However, because an underground BART tunnel runs beneath the project site, users of the site could be exposed to perceptible groundborne vibration and groundborne noise when BART trains are passing under the site.

As described above, Charles M. Salter Associates, Inc. (Salter Associates) performed site measurements to characterize the existing perceptible groundborne vibration and existing groundborne noise environment. Based on the results of the noise measurements, Salter Associates then analyzed potential impacts and reduction measures

[28] Alameda County Community Development Agency, 2010. Oakland International Airport, Airport Land Use Compatibility Plan, December. Available at: https://www.acgov.org/cda/planning/generalplans/documents/OAK_ALUCP_122010_FULL.pdf, accessed November 29, 2016.

associated with perceptible groundborne vibration and groundborne noise for the Residential/Office Mix Scenario. The Residential/Office Mix Scenario consists of (1) a commercial building with offices and six levels of parking above ground-floor retail; and (2) a single residential tower on the northeast corner of project site, near 22nd Street and Broadway.

With regard to perceptible groundborne vibration, the BART Train Vibration Study (Vibration Study)[29] indicates that BART vibration would not exceed the 72-VdB disturbance threshold at the residential tower and would not exceed the 75-VdB disturbance threshold at the office levels of the commercial building per FTA standards (Table V.I-10). However, BART vibration would likely exceed the 75-VdB threshold at the ground-floor areas of the commercial building that would be located over the BART right-of-way. In addition, the conclusions from the Vibration Study are based on the assumption that amplification of vibration at elevated floors is similar to the effects apparent in the existing structures. The Vibration Study recommends the following groundborne vibration controls measure: structurally decouple the ground-floor slab from the columns and upper-floor structures by providing an isolation joint around the BART "area of influence" if feasible.

With regard to groundborne noise, the BART Train Structure-Borne Noise Comments (Groundborne Noise Study)[30] indicates that the estimated groundborne noise levels at upper floors would not exceed the 35-dBA threshold at the residential tower and would not exceed the 40-dBA threshold at the commercial building per FTA standards (Table V.I-12). However, the following potential groundborne noise issues were identified: (1) train noise levels at the ground-floor circulation and retail spaces of the development would be clearly audible in a quiet retail space; (2) the noisiest train events could be audible in quiet enclosed rooms (e.g., meeting spaces) in the proposed commercial office buildings starting from the lowest office floor at the fifth level to the ninth level; and (3) train pass-bys could be audible in the residential tower from the second level to the fifth level if the background noise levels are low during evening and nighttime hours.

The Groundborne Noise Study recommended the following groundborne noise reduction measures: (1) disclose the potential for groundborne noise to be audible at the ground floor and consider this factor in the selection of ground-floor retail tenants; (2) structurally decouple the ground-floor slab from the columns and upper-floor structures by providing an isolation joint around the BART "area of influence"; (3) implement floating floor and isolated wall and ceiling construction; (4) deepen the double-cased sections of the foundation piles to below the elevation of the train tunnels; and (5) consider replacing

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[29] Charles M. Salter Associates Inc., 2016b. Uptown Parcels (2100 Telegraph) BART Train Vibration Study, October 3.

[30] Charles M. Salter Associates Inc., 2016a. Uptown Parcels (2100 Telegraph) BART Train Structure-Borne Noise Comments, October 5.

residential spaces at the lower floors with a less sensitive use, particularly in the corner of the building closest to the BART right-of-way.

SCA-NOI-7: Exposure to Vibration (#65), requires the implementation of a Vibration Reduction Plan that contains vibration reduction measures to reduce groundborne vibration to acceptable levels per FTA standards (Tables V.I-11 and V.I-12). With the implementation of SCA-NOI-7, as well as the perceptible groundborne vibration control measures recommended in the Vibration Study,

TABLE V.I-12 GROUNDBORNE NOISE CRITERIA TO PREVENT DISTURBANCE – RMS (DBA)

Land Use Category	Frequent Events[a]	Occasional Events[b]	Infrequent Events[c]
Residences and buildings where people normally sleep	35	38	43
Institutional land uses with primarily daytime use	40	43	48

[a] More than 70 vibration events of the same kind per day or vibration generated by a long freight train.
[b] Between 30 and 70 vibration events of the same kind per day.
[c] Fewer than 30 vibration events of the same kind per day.
Source: FTA, 2006. Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06.

the potentially significant groundborne vibration impacts would address this non-CEQA effect. It is noted that SCA-NOI-7 does not address groundborne noise or its performance standards.

Additionally, the potential impacts and reduction measures summarized above are based on the design plan of the Residential/Office Mix Scenario, and thus would not necessarily apply to the other three scenarios: the Maximum Office Scenario, the All Office Scenario, and the Maximum Residential Scenario. The Maximum Office Scenario generally contains less-sensitive development compared to the Residential/Office Mix Scenario because the lower levels under the Maximum Office Scenario (from second level to fourth level) would be used for parking, which is not a use that is sensitive to either perceptible groundborne vibration or groundborne noise. Therefore, the Maximum Office Scenario would not require any additional groundborne noise and vibration reductions measures to those identified in the Vibration Study and the Groundborne Noise Study for the Residential/Office Mix Scenario.

The lower levels under the All Office Scenario (from second level to fourth level) would be used for office at the northeast corner of the building which is located over the BART right-of-way. This use could be sensitive to perceptible groundborne vibration and groundborne noise. Because the floor plans are different between the All Office Scenario and the Residential/Office Mix Scenario, the All Office Scenario would potentially require additional and/or different groundborne noise and vibration reductions measures from those recommended in the Vibration Study and the Groundborne Noise Study for the Residential/Office Mix Scenario. This should be considered as part of the implementation of SCA-NOI-7.

The Maximum Residential Scenario generally contains more sensitive land uses at the lower levels compared to the Residential/Office Mix Scenario, with residential land uses proposed to begin at the second level throughout the project site. Therefore, the Maximum Residential Scenario would potentially require additional groundborne noise and vibration reductions measures to those recommended in the Vibration Study and the Groundborne Noise Study for the Residential/Office Mix Scenario. This should be considered as part of the implementation of SCA-NOI-7.

f. Cumulative Impacts

Cumulative impacts related to noise and vibration are discussed below.

Construction

The impacts from construction noise and vibration at the project site would be reduced to less-than-significant levels with implementation of the City's SCAs for construction noise. In the event that multiple construction projects occur in the vicinity at the same time, all projects would be subject to the same construction noise and vibration SCAs, thereby reducing potential cumulative construction noise impacts to a less-than-significant level.

Operation

Cumulative traffic noise levels generated by past, present, and probable future projects, including this project, could result in a significant cumulative noise increase along local area roadways. As indicated in Criterion 4, a project is considered to contribute to a significant cumulative impact if (1) the cumulative increase results in a 5-dBA permanent increase in ambient noise levels in the project vicinity, and (2) 3 dBA of the cumulative increase is attributable to the project.

Because project-generated traffic volumes are different for each of the four scenarios, the cumulative increase in noise levels is also different for each scenario. Under a cumulative scenario, which considers traffic generated by past, present, and probable future projects, including this project, traffic volume increases in surrounding roadways were assessed for the Maximum Office Scenario. This scenario represents the maximum buildout, which would be anticipated to generate the highest project-generated traffic volumes and thereby the highest cumulative traffic volumes.

Under a cumulative scenario with the Maximum Office Scenario, the assessment of AM and PM peak hour traffic volumes at 13 intersections surrounding the project site indicates that the highest two traffic volume increases would occur along Grand Avenue between Northgate Avenue and Telegraph Avenue during the AM peak hour (1,460 vehicles per hour) and the PM peak hour (1,420 vehicles per hour). According to the noise levels measurements collected by BASELINE Environmental Consulting, ambient traffic noise levels are approximately 62.3 dBA L_{eq} near Grand Avenue between Northgate Avenue and Telegraph Avenue.[31] The existing and cumulative traffic volumes and predicted traffic noise for this roadway segment are summarized in Table V.I-13, below. Cumulative traffic noise is expected to increase by about 5.0 dBA L_{eq} along Grand Avenue between Northgate Avenue and Telegraph Avenue during the AM peak hour. This noise level increase is at the 5-dBA significance threshold for cumulative impacts. Traffic noise is expected to increase by about 4.9 dBA L_{eq} along Grand Avenue between Northgate Avenue and Telegraph Avenue during the PM peak hour, which is below the 5-dBA significance threshold for cumulative impacts. Because this is the roadway segment with the greatest predicted increase in traffic volume, traffic noise increases along other roadway segments would be less than 4.9 dBA L_{eq}, and therefore would be below the 5-dBA significance threshold for cumulative impacts.

Although a significant cumulative noise increase of about 5.0 dBA L_{eq} is anticipated to occur along Grand Avenue between Northgate Avenue and Telegraph Avenue during the AM peak hour, it should be noted that the maximum noise level predicted for this roadway segment is approximately 65.6 dBA L_{eq}. This noise level is not unusual for a dense urban area, particularly one located near a major highway, and is consistent with the roadway noise contours for 2025 in the City of Oakland General Plan, which indicate that traffic noise levels range from 65 to 70 dBA L_{dn} at the project site and vicinity.[32] Furthermore, Table V.I-13 indicates that 1.3 dBA L_{eq} of the cumulative increase is attributable to the project. Therefore, the contribution of the project to the significant cumulative noise increase is below the 3-dBA L_{eq} cumulative contribution significance threshold under the Maximum Office Scenario. Because the Maximum Office Scenario represents the highest project-generated traffic volumes among the four scenarios, the contribution of any of the development scenarios that could occur under the proposed PUD/PDP to the significant cumulative traffic noise increase is not cumulatively considerable Maximum Office Scenario.

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[31] The noise measurement result at M-2 was used because this is the closest measurement location to Grand Avenue.

[32] Generally, during the peak traffic hour under normal traffic conditions, L_{dn} is within ±2 dBA of the L_{eq} (Caltrans, 1998). Therefore, based on the City of Oakland's traffic noise contours, peak hour L_{eq} in the vicinity of the project site is anticipated to be approximately 63 to 77 dBA L_{eq}.

TABLE V.I-13 EXISTING AND CUMULATIVE TRAFFIC VOLUMES AND PREDICTED TRAFFIC NOISE

	Roadway Segment	Cumulative + Project Traffic "Volume Increase (VPH)[a]	Cumulative Traffic Volume Increase (VPH)[a]	Cumulative + Project Traffic Noise (dBA L_{eq} at 50 Feet)	Cumulative Traffic Noise (dBA L_{eq} at 50 Feet)	Existing[b] + Cumulative + Project Noise (dBA L^{eq})	Existing[b] + Cumulative Noise (dBA L^{eq})	Difference Between Existing[b] Noise and Existing + Cumulative + Project Noise (dBA L^{eq})	Project Contribution to Cumulative Noise Impact[c] (dBA L^{eq})
Maximum Office Scenario	Grand Avenue east of Northgate Avenue (AM Peak Hour)	1,460	887	65.6	63.5	67.3	66.0	**5.0**	1.3
	Grand Avenue west of Telegraph Avenue (PM Peak Hour)	1,420	991	65.5	64.0	67.2	66.2	4.9	--

Notes: -- = Not applicable because there is no cumulative impact.
Bold numbers indicate exceedance of the 5-dBA significance threshold, which requires further analysis of project contribution to the cumulative traffic noise increase.
Traffic noise model outputs are included in Appendix C. FHWA TNM Version 2.5 model was used for these results.
[a] Vehicles per Hour (VPH) increase relative to existing traffic volumes.
[b] "Existing" noise is assumed to equal 62.3 dBA L_{eq} in these calculations. This is the noise level measurement collected by BASELINE Environmental Consulting near Grand Avenue between Northgate Avenue and Telegraph Avenue on May 13, 2016.
[c] The "Project Contribution to Cumulative Noise" is equal to the difference between (Existing + Cumulative + Project Noise) and (Existing + Cumulative Noise).
Source: Fehr & Peers, 2017. Appendix C.

J. AESTHETICS, SHADE AND SHADOW, AND WIND

This section describes the existing setting with respect to visual resources in the vicinity of the project site, discusses the state and local regulations related to visual resources, identifies the potential impacts that could result from implementation of the project, and provides mitigation measures for those impacts where appropriate. The analysis in this section is based on (1) field surveys of the project site; (2) a review of the data provided by the project applicant, including visual simulations and massing diagrams; (3) shade/shadow simulations of existing buildings and of the proposed building prepared by PreVision Design; and (4) a Wind Impact Assessment prepared by RWDI.

Under CEQA Section 21099(d), "Aesthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site located within a transit priority area shall not be considered significant impacts on the environment."[1] Accordingly, aesthetics is no longer considered in determining if a project has the potential to result in significant environmental effects for projects that meet all three of the following criteria:

1. The project is in a transit priority area.[2]
2. The project is on an infill site.[3]
3. The project is residential, mixed-use residential, or an employment center.[4]

The project meets all three of the above criteria because it is (1) situated one block from the 19th Street BART Station; (2) on a site that was previously developed and within an urban area of Oakland that includes commercial, office, and residential uses; and (3) a mixed-use project with the opportunity to develop residential uses and/or large-floor-plate office. Thus, this section does not consider aesthetics and the adequacy of parking in determining the significance of project impacts under CEQA. Nevertheless, the City of Oakland (City) recognizes that the public and decision makers may be interested in information about the aesthetic effects of a proposed project; therefore, the information contained in this section related to aesthetics is provided solely for informational purposes and is not used to determine the significance of environmental impacts pursuant to CEQA.

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[1] CEQA Section 21099(d)(1).

[2] CEQA Section 21099(a)(7) defines a "transit priority area" as an area within ½ mile of an existing or planned major transit stop. A "major transit stop" is defined in CEQA Section 21064.3 as a rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the AM and PM peak commute periods.

[3] CEQA Section 21099(a)(4) defines an "infill site" as either (1) a lot within an urban area that was previously developed; or (2) a vacant site where at least 75 percent of the site perimeter adjoins (or is separated by only an improved public right-of-way from) parcels that are developed with qualified urban uses.

[4] CEQA Section 21099(a)(1) defines an "employment center" as a project situated on property zoned for commercial uses with a FAR of no less than 0.75 and located within a transit priority area.

1. Setting

This section describes the visual character of the project site, its surroundings, and views in the vicinity of the site, as well as the existing shade, shadow, and wind conditions in the area.

a. Local Context

The 3.21-acre project site is within an urbanized portion of Oakland, bordered by two major arterials (Broadway and Telegraph Avenue). The physical environment immediately around the project site is generally characterized by low-rise residential and commercial office buildings ranging from one to six stories (to the west) and several high-rise buildings, including the 20-story 2101 Webster building (to the east). On-street parking is allowed on both sides of the streets in this area. Surrounding land uses include commercial, office, institutional, community services, and residential.

b. Visual Character of the Project Site


Aerial view of the project site looking west

As discussed in *Chapter III, Project Description*, the project site includes a vacant single-story building that was previously used as a fast-food restaurant (most recently occupied by Space Burger), a two-level public parking structure, and three two-story buildings on Broadway. The majority of the site is bordered by large trees that range from one to four stories in height. The Space Burger building exemplifies the mid-twentieth-century Googie-style drive-in restaurant. A surface parking lot surrounds the restaurant and occupies most of this parcel. The L-shaped Telegraph Plaza Public Parking facility is of concrete construction; both the entrance and exit are on Telegraph Avenue. Behind the parking structure is a one-way alley with additional angled parking spaces for the commercial buildings that front Broadway. 2101–2115 Broadway includes a (currently vacant) two-story marble-clad building that formerly housed a branch of Security Pacific National Bank; the character of this building is Corporate Mid-Century Modernism. 2127–2115 Broadway consists of a two-story Bank of the West building that was constructed in 1975. 2135–2147 Broadway contains the two-story Sherman Clay building, which was built in 1917.

c. Visual Character of the Surrounding Area

The surrounding area is an eclectic urban environment with a combination of building types and architectural styles and a mix of old and new landscaping. The buildings range

View of Telegraph Plaza Public Parking facility

from one to 28 stories in height, with high-rises concentrated east of Broadway and lower-rise buildings west of Telegraph Avenue. Mature trees line Broadway, 21st Street, and 22nd Street, as well as portions of Telegraph Avenue in the project area. Newer landscaping, including drought-tolerant bioswales and both trees and boxed plants, exist along 22nd Street in front of the Kapor Center and Franklin Plaza. There are several early-twentieth-century historic buildings in the area with diverse architectural styles, including Art Deco, Georgian Revival, International, and Doric. These historic buildings are mixed with those of a more modern architectural style, including the Broadway Grand and Uptown Apartments (both completed in 2008). Numerous surface parking lots are also scattered throughout the area. Following is a brief discussion of the visual character of the areas surrounding the project site.

- **North.** Directly north of the project site is a gas station (A&A Gas & Food Mart); a privately-owned surface parking lot; and the historic Breuner Building, an eight-story office building with a green-glazed terra cotta tile clad façade and Art Deco motifs. Further north are the six-story Broadway Grand Apartments, with ground-floor commercial; the Downtown Oakland YMCA; and the Hive, a neighborhood center that includes a collection of local businesses, social entrepreneurs, and artists.
- **South.** South of the project site is a BART-owned surface parking lot, the six-story Paramount Theater, several small restaurants, and the four-story I. Magnin Building. The major architectural features of the Paramount Theater at 2025 Broadway include two 20-foot by 120-foot murals of glazed, terra cotta tiles that depict the god and goddess of cinema, separated by an electrified neon blade signage on the main street-facing façade, and interior Art Deco elements. Similar to the Breuner Building, the I. Magnin Building is another Art Deco building with a green-glazed terra cotta façade. Farther south are the newer six-story Uptown Apartments and the historic Fox Theater and the former Emporium-Capwell building, which has been renamed Uptown Station and is currently being renovated for reuse as a four-story mixed-use project to include offices for as-yet-unknown tenants.
- **East.** East of the project site is a small public plaza (Franklin Plaza), a mix of restaurants, and two community services centers: The Kapor Center for Social Impact and Building Opportunities for Self Sufficiency (BOSS). Franklin Plaza is on the corner of Broadway and 22nd Street and fronts several restaurants within a one-story building. The area is shaded by four mature trees and includes drought-tolerant landscaping and tables and chairs. Across 22nd Street from Franklin Plaza is the four-story Kapor Center, which opened in 2016 after extensive renovations to restore the 93-year old

Classic Chicago-style building; it includes a ground-floor restaurant and a rooftop garden.[5] Farther east are additional high-rise buildings, including the 15-story Caltrans Building, the 20-story 2101 Webster building, the Kaiser Center and Ordway building, both of which are 28 stories tall.

- **West.** Existing uses to the west include First Baptist Church of Oakland, the six-story old YMCA Building (now Hamilton Apartments operated by Mercy Housing), and a surface parking lot. First Baptist Church includes minimal Georgian Revival design elements while the old YMCA Building includes International Style cornice and parapet details and Doric-styled pilasters on the building's main façade. Farther to the west is a mix of single-family homes and apartments, small commercial uses, the USPS Carrier Annex, Alameda County Social Services, and a Greyhound Bus Station.

d. Views from the Project Site

Given the urban nature of the project area, views from the project site are primarily limited to the immediate developments adjacent to the site. Views to the north consist of street trees, a gas station, a surface parking lot, and the eight-story Breuner Building. Views from the project site to the south are dominated by the six-story Paramount Theater and a single-story beer garden and restaurant (Lost & Found). To the southwest, the top of the four-story Uptown Station building is visible. Views from the project site to the east include one- to two-story retail, restaurant, and office buildings on Broadway. Views beyond are obstructed by the 20-story Pandora building. Views from the project site to the west are primarily obstructed by the six-story Mercy Housing building and First Baptist Church of Oakland, although some two-story housing is visible in the background.

e. Views of the Project Site

Views of the project site from the surrounding area are generally limited due to the developed nature of this area and the significant tree canopy along Broadway and both 21st and 22nd Streets. The three buildings on Broadway and the Telegraph Plaza Public Parking facility do not provide any north-south visual access through the site on the ground plane level. A narrow one-way alley and a small surface parking lot traverse the site between 22nd and 21st Streets, permitting limited east-west visibility between the public parking facility and the buildings fronting Broadway. From the adjacent Franklin Plaza, existing views of the site consists of the three two-story office buildings and mature trees that line Broadway. Photos of existing views through and from the site and beyond are presented in Figures V.J-2 through Figure V.J-5, with Figure V.J-1 showing the locations of the viewpoints.

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[5] Kapor Center for Social Impact, 2016. "Kapor Center for Social Impact Inaugurates New Building in Uptown Oakland." PRNewswire. July 20. Available at: http://www.prnewswire.com/news-releases/kapor-center-for-social-impact-inaugurates-new-building-in-uptown-oakland-300301829.html, accessed January 28, 2017.

Source: Urban Planning Partners, Google Earth, 2017

Eastline Project - 2100 Telegraph EIR

Figure V.J-1
Viewpoint Locations Map

Viewpoint 1: Looking east at project site from Telegraph Avenue

Viewpoint 2: Looking north at project site from Telegraph Avenue and 21st Street

Source: Urban Planning Partners, 2017

Figure V.J-2
Views of Existing Structures
on Telegraph Avenue

Viewpoint 3: Looking southwest at project site from Broadway and 22nd Street

Viewpoint 4: Looking northwest at project site from Broadway and 21st Street

Source: Urban Planning Partners, 2017

Figure V.J-3
Views of Existing Buildings on Broadway

Viewpoint 5: Looking northeast from project site at Broadway and 22nd Street

Viewpoint 6: Looking northwest towards project site from Broadway and 20th Street

Source: Urban Planning Partners, 2017

Figure V.J-4
Views of the Franklin Plaza and the Paramount Theater

Viewpoint 7: Looking northwest of project site from Telegraph Avenue and 21st Street

Viewpoint 8: Looking southeast of project site from Telegraph Avenue and 22nd Street

Source: Urban Planning Partners, 2017

Figure V.J-5
Views of the Old YMCA Building,
First Baptist Church, and Fox Theater

f. Shade and Shadow

Shadow pattern simulations were prepared by PreVision Design for the existing conditions surrounding the project site for the following dates: June 21 (the summer solstice, when the sun is at its highest point in the sky); December 21 (the winter solstice, when the sun is at its lowest point in the sky); March 21 and September 21 (the spring and fall equinoxes, respectively, when day and night are approximately the same lengths).

Simulations were prepared for three times during each day: 9:00 a.m. (morning); 12:00 p.m. (noon); and 3:00 p.m. (afternoon). See Appendix E for shadow diagrams of all development scenarios.

g. Wind

Wind statistics recorded at Oakland International Airport between 1984 and 2014 were analyzed for annual existing wind conditions. Winds are frequent from the northwest through west-southwest directions throughout the year, as indicated by the wind rose. Strong winds with an average speed greater than 20 miles per hour (mph) measured at the airport (at an anemometer height of 33 feet) occur 3.5 percent of the year.

The City considers a significant wind impact to have occurred if a project were to "Create winds exceeding 36 mph for more than 1 hour during daylight hours during the year." A wind analysis is only necessary if the project is 100 feet or greater in height (measured to the roof) and one of the following conditions exists: (1) the project is located adjacent to a substantial water body (i.e., Oakland Estuary, Lake Merritt, or San Francisco Bay); or (2) the project is in Downtown Oakland. Because the project exceeds 100 feet in height and is located in Downtown, it is subject to the thresholds of significance. The area around the project site meets the wind hazard threshold established by the City, which is discussed later in this section (and detailed in Appendix E).

2. Regulatory Setting

This section discusses applicable regulatory provisions, including policies from the City of Oakland General Plan, the Oakland Planning Code, and the City's Standard Conditions of Approval (SCAs).

a. General Plan

The Land Use and Transportation Element of the General Plan contains the following goals and policies related to aesthetics and shade and shadow impacts.

- Cars parked in downtown lots should be screened from public view through the use of ground floor store fronts, parks and landscaping, or other pedestrian-friendly, safe, and attractive means. (Policy T3.8 Screening Downtown Parking)
- The city should make major efforts to improve the visual quality of streetscapes. Design of the streetscape, particularly in neighborhoods and commercial centers, should be pedestrian-oriented and include lighting, directional signs, trees, benches, and other support facilities. (Policy T6.2 Improving Streetscapes)
- Downtown development should be visually interesting, harmonize with its surrounding respecting and enhance important views in and of the downtown, respect the character, history, and pedestrian-orientation of the downtown, and contribute to an attractive skyline. (Policy D2.1 Enhancing the Downtown)
- Housing in the downtown should be safe and attractive, of high quality design, and respect the downtown's distinct neighborhoods and its history. (Policy D10.5 Design Housing)
- Commercial development should be designed in a manner that is sensitive to surrounding residential uses. (Policy N1.5 Designing Commercial Development)

The Open Space, Conservation, and Recreation (OSCAR) Element promotes the preservation and good design of open space and the protection of natural resources to improve aesthetic quality in Oakland. The following objectives and policies are relevant to visual resources concerns associated with the project.

- Protect the character of existing scenic views in Oakland, paying particular attention to: (a) views of the Oakland Hills from the flatlands; (b) views of downtown and Lake Merritt; (c) views of the shoreline; and (d) panoramic views from Skyline Boulevard, Grizzly Peak Road, and other hillside locations. (Policy OS-10.1: View Protection)
- Encourage site planning for new development which minimizes adverse visual impacts and takes advantage of opportunities for new vistas and scenic enhancement. (Policy OS-10.2: Minimizing Adverse Visual Impacts)
- Enhance Oakland's underutilized visual resources, including the waterfront, creeks, San Leandro Bay, architecturally significant buildings or landmarks, and major thoroughfares. (Policy OS-10.3: Underutilized Visual Resources)

b. Oakland Planning Code – Design Review

The City of Oakland Planning Code contains the following regulations related to the design of new projects. The following performance criteria are utilized as part of the City's design review process.

17.136.050 – Regular Design Review Criteria

A. For Residential Facilities.

1. That the proposed design will create a building or set of buildings that are well related to the surrounding area in their setting, scale, bulk, height, materials, and textures;
2. That the proposed design will protect, preserve, or enhance desirable neighborhood characteristics;
3. That the proposed design will be sensitive to the topography and landscape.
4. That, if situated on a hill, the design and massing of the proposed building relates to the grade of the hill;
5. That the proposed design conforms in all significant respects with the Oakland General Plan and with any applicable design review guidelines or criteria, district plan, or development control map which have been adopted by the Planning Commission or City Council.

B. For Nonresidential Facilities and Signs.

1. That the proposal will help achieve or maintain a group of facilities which are well related to one another and which, when taken together, will result in a well-composed design, with consideration given to site, landscape, bulk, height, arrangement, texture, materials, colors, and appurtenances; the relation of these factors to other facilities in the vicinity; and the relation of the proposal to the total setting as seen from key points in the surrounding area. Only elements of design which have some significant relationship to outside appearance shall be considered, except as otherwise provided in Section 17.136.060;
2. That the proposed design will be of a quality and character which harmonizes with, and serves to protect the value of, private and public investments in the area;
3. That the proposed design conforms in all significant respects with the Oakland General Plan and with any applicable design review guidelines or criteria, district plan, or development control map which have been adopted by the Planning Commission or City Council.

c. Standard Conditions of Approval

The City's SCAs relevant to this impact topic are listed below for reference. If the project is approved by the City, the SCAs would be adopted as requirements to help ensure that no significant impacts (for the applicable topic) occur as a result of the project. Therefore, the SCAs are not listed as mitigation measures.

SCA-AES-1: Graffiti Control (#16)

Requirement:

a. During construction and operation of the project, the project applicant shall incorporate best management practices reasonably related to the control of graffiti and/or the mitigation of the impacts of graffiti. Such best management practices may include, without limitation:
   i. Installation and maintenance of landscaping to discourage defacement of and/or protect likely graffiti-attracting surfaces.
   ii. Installation and maintenance of lighting to protect likely graffiti-attracting surfaces.
   iii. Use of paint with anti-graffiti coating.
   iv. Incorporation of architectural or design elements or features to discourage graffiti defacement in accordance with the principles of Crime Prevention Through Environmental Design (CPTED).
   v. Other practices approved by the City to deter, protect, or reduce the potential for graffiti defacement.
b. The project applicant shall remove graffiti by appropriate means within seventy-two (72) hours. Appropriate means include the following:
   i. Removal through scrubbing, washing, sanding, and/or scraping (or similar method) without damaging the surface and without discharging wash water or cleaning detergents into the City storm drain system.
   ii. Covering with new paint to match the color of the surrounding surface.
   iii. Replacing with new surfacing (with City permits if required).

When Required: Ongoing
Initial Approval: N/A
Monitoring/Inspection: Bureau of Building

SCA-AES-2: Landscape Plan (#17)

a. Landscape Plan Required

Requirement: The project applicant shall submit a final Landscape Plan for City review and approval that is consistent with the approved Landscape Plan. The Landscape Plan shall be included with the set of drawings submitted for the construction-related permit and shall comply with the landscape requirements of chapter 17.124 of the Planning Code.

When Required: Prior to approval of construction-related permit
Initial Approval: Bureau of Planning
Monitoring/Inspection: N/A

b. Landscape Installation
Requirement: The project applicant shall implement the approved Landscape Plan unless a bond, cash deposit, letter of credit, or other equivalent instrument acceptable to the Director of City Planning, is provided. The financial instrument shall equal the greater of $2,500 or the estimated cost of implementing the Landscape Plan based on a licensed contractor's bid.
When Required: Prior to building permit final
Initial Approval: Bureau of Planning
Monitoring/Inspection: Bureau of Building

c. Landscape Maintenance
Requirement: All required planting shall be permanently maintained in good growing condition and, whenever necessary, replaced with new plant materials to ensure continued compliance with applicable landscaping requirements. The property owner shall be responsible for maintaining planting in adjacent public rights-of-way. All required fences, walls, and irrigation systems shall be permanently maintained in good condition and, whenever necessary, repaired or replaced.
When Required: Ongoing
Initial Approval: N/A
Monitoring/Inspection: Bureau of Building

SCA-AES-3: Lighting (#18)
Requirement: Proposed new exterior lighting fixtures shall be adequately shielded to a point below the light bulb and reflector to prevent unnecessary glare onto adjacent properties.
When Required: Prior to building permit final
Initial Approval: N/A
Monitoring/Inspection: Bureau of Building

3. Impacts, Standard Conditions of Approval, and Mitigation Measures

For informational purposes, this section describes potential impacts related to aesthetics that could result from implementation of the Eastline project. As previously noted, CEQA Section 21099(d) states, "Aesthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site located within a transit priority area shall not be considered significant impacts on the environment." The project meets all three criteria; thus, this section does not consider aesthetics in determining the significance of project impacts under CEQA, but a discussion of the criteria that relate to aesthetics is provided for informational purposes and to evaluate the merits of the project. However, this section also describes potential CEQA impacts related to shade and shadow and wind that could result from implementation of the Eastline project.

a. Significance Criteria

Implementation of the Eastline project would result in a significant impact related to shade and shadow or wind if it would result in any of the following:

1. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the areas. (not a CEQA consideration).
2. Introduce landscape that would now or in the future cast substantial shadows on existing solar collectors (in conflict with California Public Resource Code sections 25980-25986).
3. Cast shadow that substantially impairs the function of a building using passive solar heat collection, solar collectors for hot water heating, or photovoltaic solar collectors.
4. Cast a shadow that substantially impairs the beneficial use of any public or quasi-public park, lawn, garden, or open space.
5. Cast shadow on an historic resource, as defined by CEQA Guidelines section 15064.5(a), such that the shadow would materially impair the resource's historic significance by materially altering those physical characteristics of the resource that convey its historical significance and that justify its inclusion on or eligibility for listing in the National Register of Historic Places, California Register of Historical Resources, Local Register of historical resources, or a historical resource survey form (DPR Form 523) with a rating of 1-5.
6. Require an exception (variance) to the policies and regulations in the General Plan, Planning Code, or Uniform Building Code, and the exception causes a fundamental conflict with policies and regulations in the General Plan, Planning Code, and Uniform Building Code addressing the provision of adequate light related to appropriate uses.
7. Create winds that exceed 36 mph for more than one hour during daylight hours during the year.

This EIR also includes a discussion of the Eastline Project relative to the City's aesthetic resources criteria for informational purposes to assist in evaluating the merits of the project, but this discussion is not considered as part of determining the project's significance under CEQA. Would the project:

- Affect a scenic vista. *(Not a CEQA consideration.)*
- Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a State scenic highway. *(Not a CEQA consideration.)*
- Substantially degrade the existing visual character or quality of the site and its surroundings. *(Not a CEQA consideration.)*

b. Project Relationship to Aesthetics Significance Criteria

The project's relationship to the criteria related to aesthetics is described below for informational purposes.

(1) Scenic Vistas

The OSCAR element of the City of Oakland General Plan identifies views of downtown and Lake Merritt, the Oakland Hills, and panoramic views from Skyline Boulevard and Grizzly Peak Road as scenic resources that need to be protected. The OSCAR has determined that these views should be protected through a combination of development review, zoning standards (including height limits in appropriate areas), design review, and proper management of park and open space areas. Given the urban nature and relatively flat topography of the project area, views of the area from and through the project site are generally limited to the immediate developed area adjacent to the site. As shown in Figures V.J-2 through V.J-5, there are no existing views of Lake Merritt or the Oakland Hills from or through the site at the ground plane. Views through the site beyond to San Francisco Bay, the hillsides, and Lake Merritt exist only from the upper floors of some nearby mid- and high-rise buildings. Although the Eastline project would alter views from the surrounding buildings, impacts to views from private development would not be considered significant under CEQA. As a result, the project would not significantly impact scenic vistas identified in the OSCAR.

(2) Scenic Resources within a State Scenic Highway

The State Scenic Highways in Alameda County are as follows:

- Interstate (I-) 580, from the San Joaquin County line to State Route (SR) 205, and from San Leandro city limits to SR 24 in Oakland
- I-680, from Mission Boulevard in Fremont to the Contra Costa County line[6]

The project site is approximately 1.1 miles south of the State Scenic Highways segment of I-580 that terminates at SR 24. Because the I-580/SR 24 interchange is elevated and the project would be the tallest development in Oakland, it would likely be visible to motorists on the designated scenic highway. However, the project is not expected to damage view of scenic resources for motorists on I-580 because its size and scale would not substantially interfere with the view from the I-580/SR 24 interchange. Therefore, the project would not impact State Scenic Highways and associated resources under CEQA.

[6] California Department of Transportation (Caltrans), 2017. California Scenic Highway Mapping System. Available at: http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm, accessed January 18.

Visual simulations of the Residential/Office Mix Scenario, All Office Scenario, Maximum Residential Scenario, and Maximum Office Scenario are shown below in Figure V.J-6a through Figure V.J-8b for informational purposes, and not related to an assessment of CEQA impacts.

(3) Visual Character

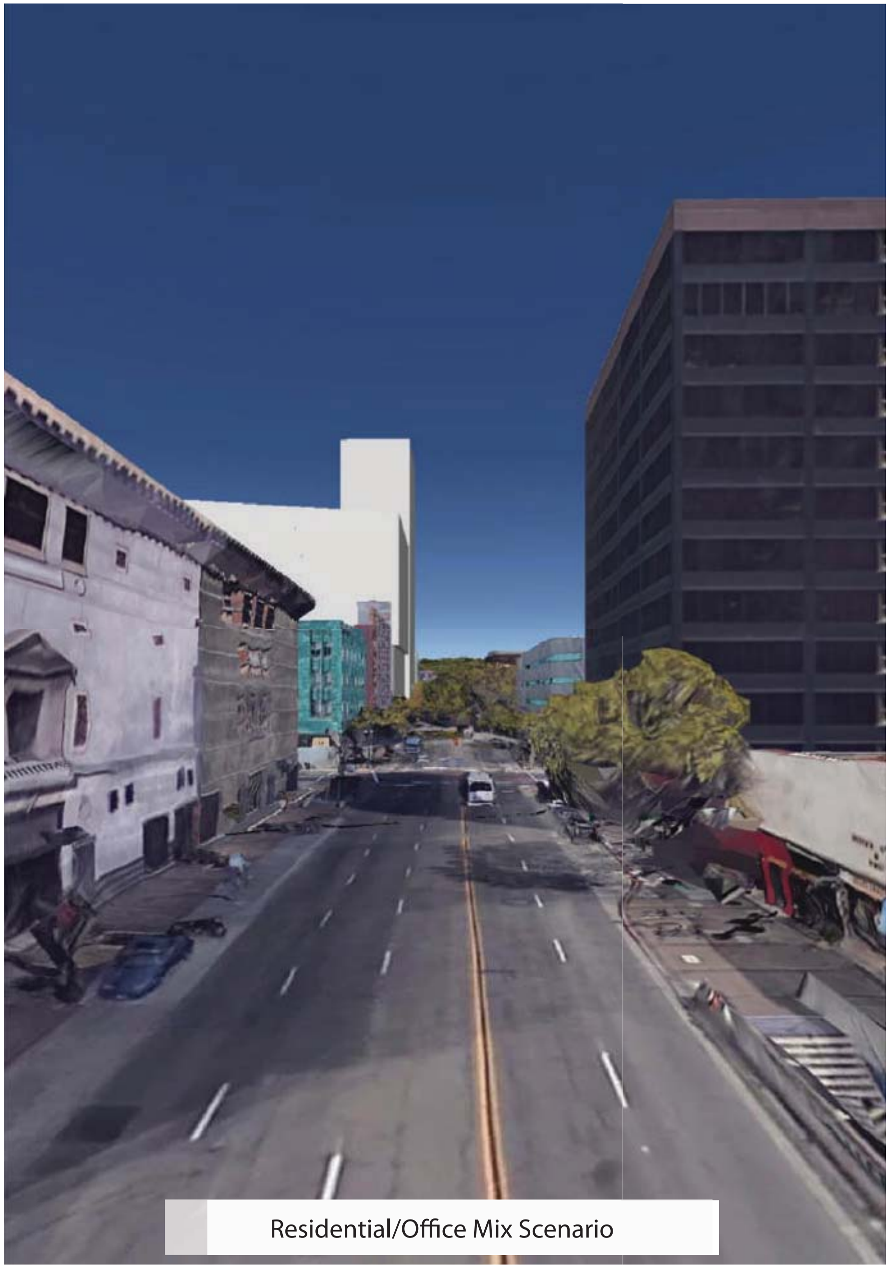
As previously described, the existing visual character of the site is composed of a vacant single-story fast-food restaurant building, a two-level public parking structure, and three two-story office buildings. The dominance of parking on the project site coupled with a lack of daytime and nighttime uses contributes to the underutilization of these parcels, contrasting with the vibrancy of the various commercial and entertainment uses in the surrounding Uptown District. Implementation of the project would change the visual character of the site by demolishing the existing structures and constructing a mixed-use development. The proposed buildings are of a scale and form that would be much larger than those in the immediately surrounding area, but similar to those of the Kaiser Center, just ½ mile east of the project site. Therefore, these changes would not be incompatible with the character of the surrounding area, nor would they degrade the visual quality of the site. As shown in Figure V.J-8a and V.J-8b, views of the project site from Lake Merritt show all four development scenarios would blend in with buildings in the area. However, views of the project site from Broadway show all four development scenarios are significantly higher than immediately adjacent buildings (as shown in Figure V.J-6a and V.J-6b). In Figure V.J-7a, the Maximum Residential Scenario blends in with surrounding buildings against the skyline looking towards the project site from I-980. However, the Maximum Office Scenario would stand out as a prominent feature of the skyline from I-980. In Figure V.J-7b both the Residential/Office Mix Scenario and All Office Scenario blend in with the surrounding buildings.

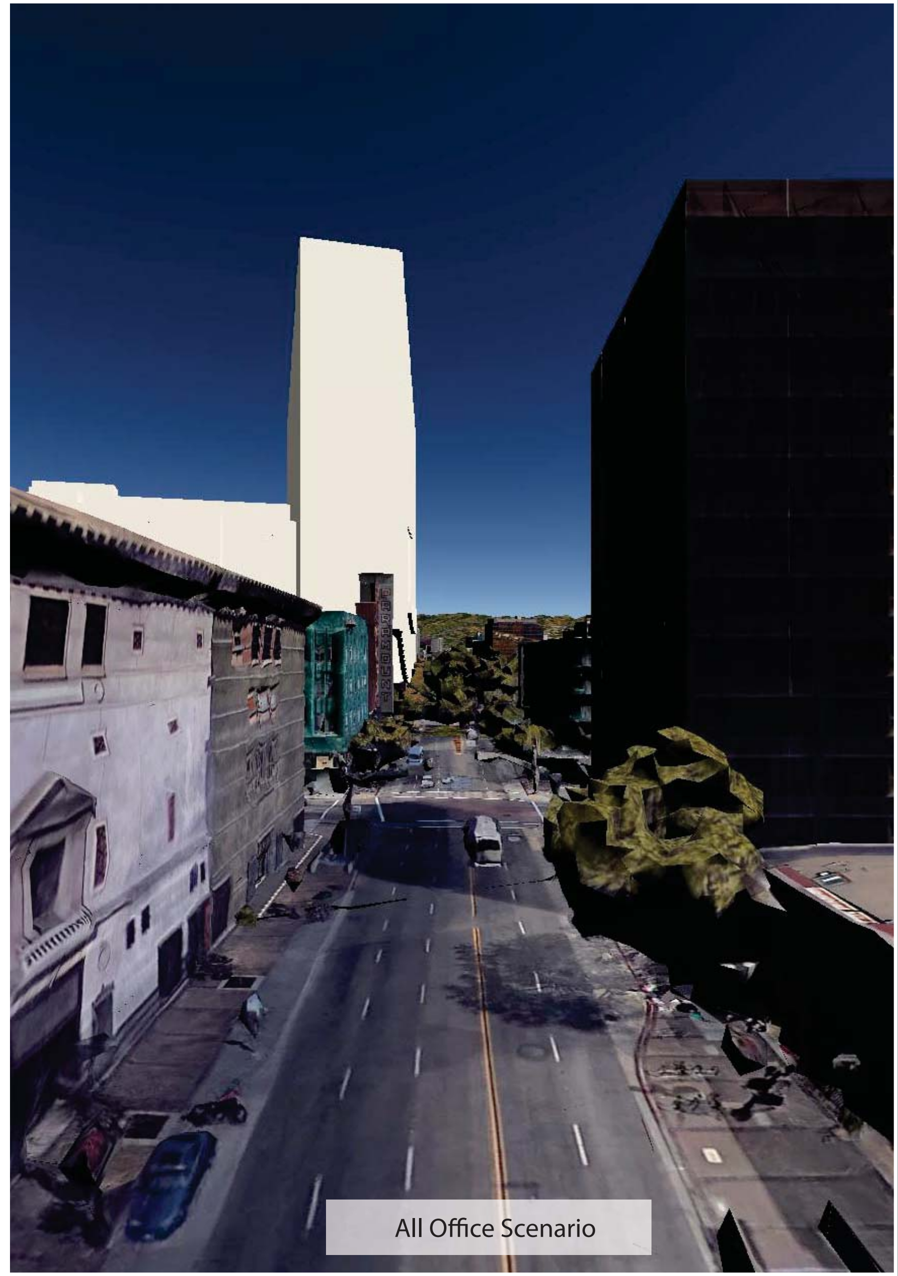
The Eastline project would develop parcels within the project site that are currently underutilized and would introduce ground-floor retail and a new resident and/or employee population, which would increase activity near the 19th Street BART Station and along two major commercial corridors in Oakland: Telegraph Avenue and Broadway. The project would also further increase the visual appeal of this portion of the Uptown District with streetscape improvements, and the development of indoor and outdoor ground-floor open space would enhance visual quality within the project site

The Eastline project would involve the construction of a mixed-use development with ground-floor retail, a three to six-level parking garage, and residential uses and/or large-floor-plate office. Depending on the development scenario, the buildings could range from 41 to 63 stories (397 to 940 feet) in height. Implementation of any development scenario within the Planned Unit Development (PUD)/Preliminary Development Plan (PDP) would result in the largest building in Oakland. The buildings in the area represent examples of

Source: Urban Planning Partners and Gensler, Google Earth, 2017

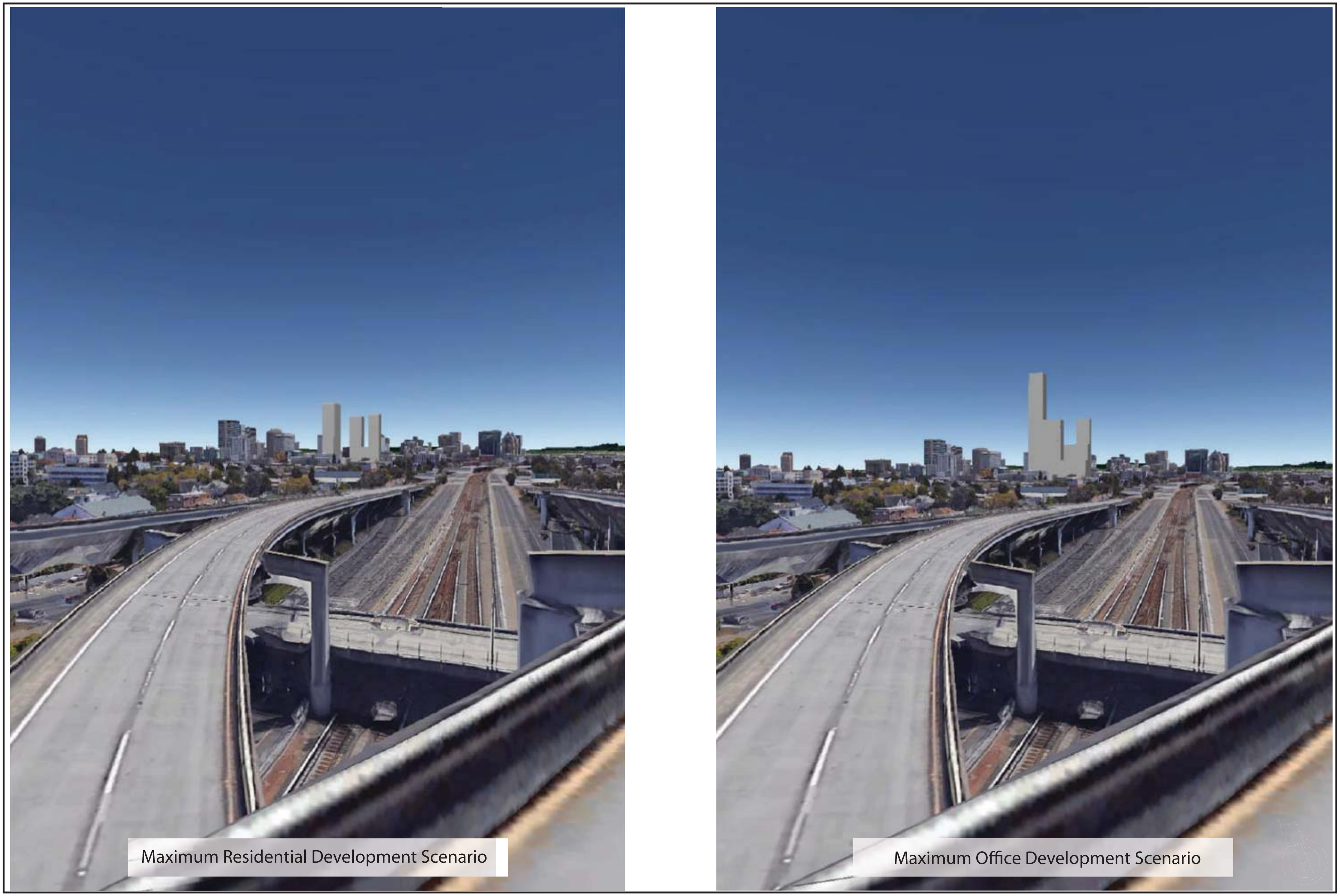
Figure V.J-6a
Visual Simulations - Broadway Looking North at Project Site
Maximum Residential and Maximum Office Scenarios





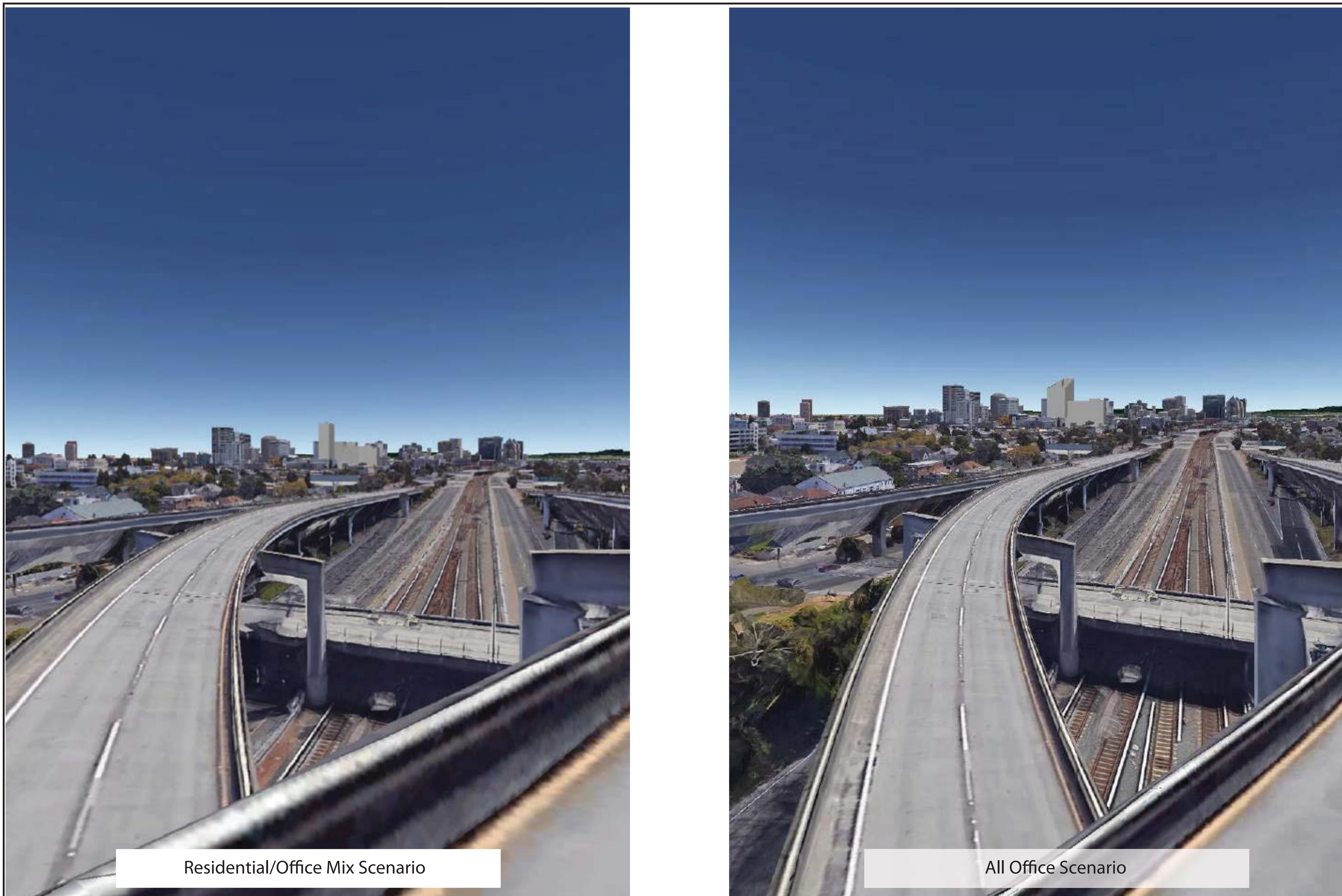
Source: Urban Planning Partners and Gensler, Google Earth, 2017

Figure V.J-6b
Visual Simulations - Broadway Looking North at Project Site
Residential/Office Mix and All Office Scenarios



Source: Urban Planning Partners and Gensler, Google Earth, 2017

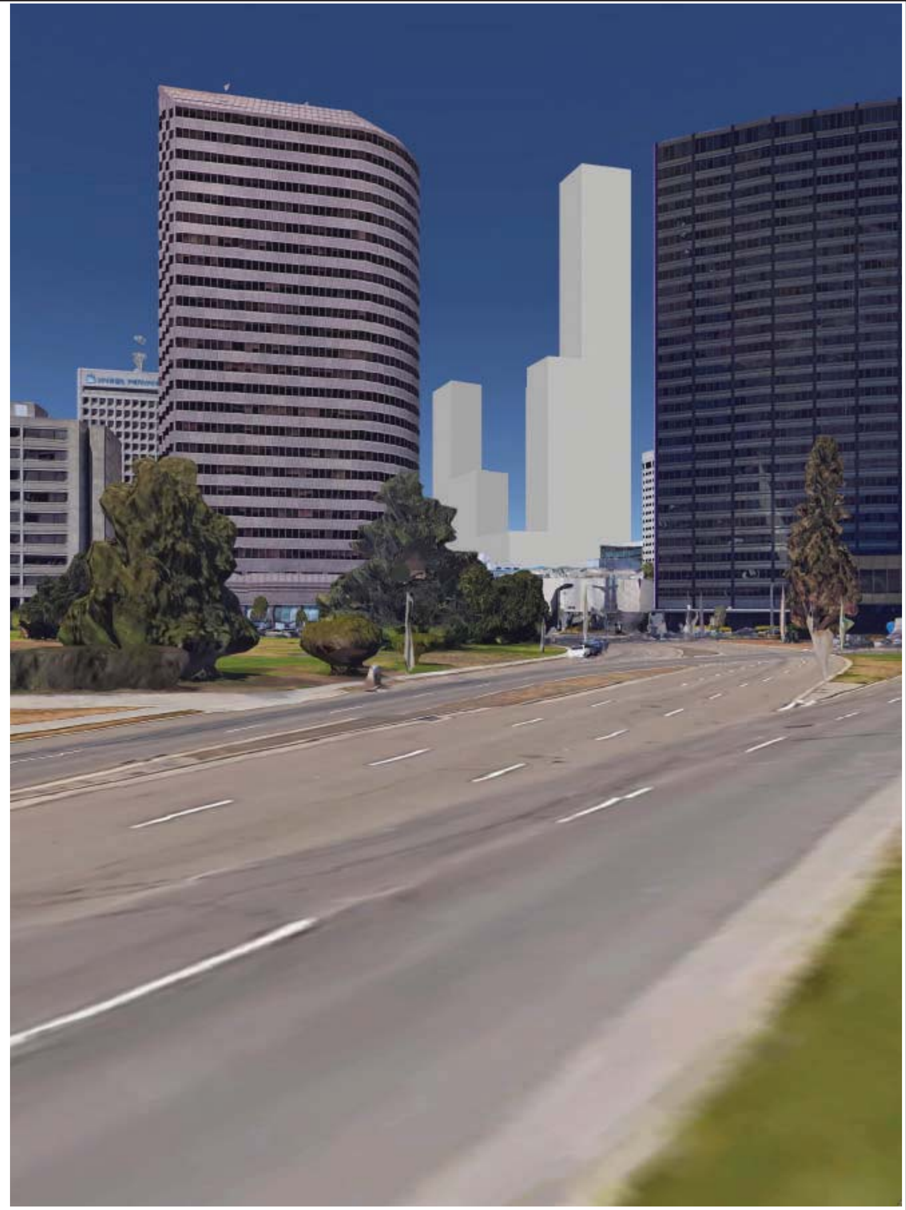
Figure V.J-7a
Visual Simulations - I-980 Looking South at Project Site
Maximum Residential and Maximum Office Development Scenarios



Source: Urban Planning Partners and Gensler, Google Earth, 2017

Figure V.J-7b
Visual Simulations - I-980 Looking South at Project Site
Residential/Office Mix and All Office Scenarios

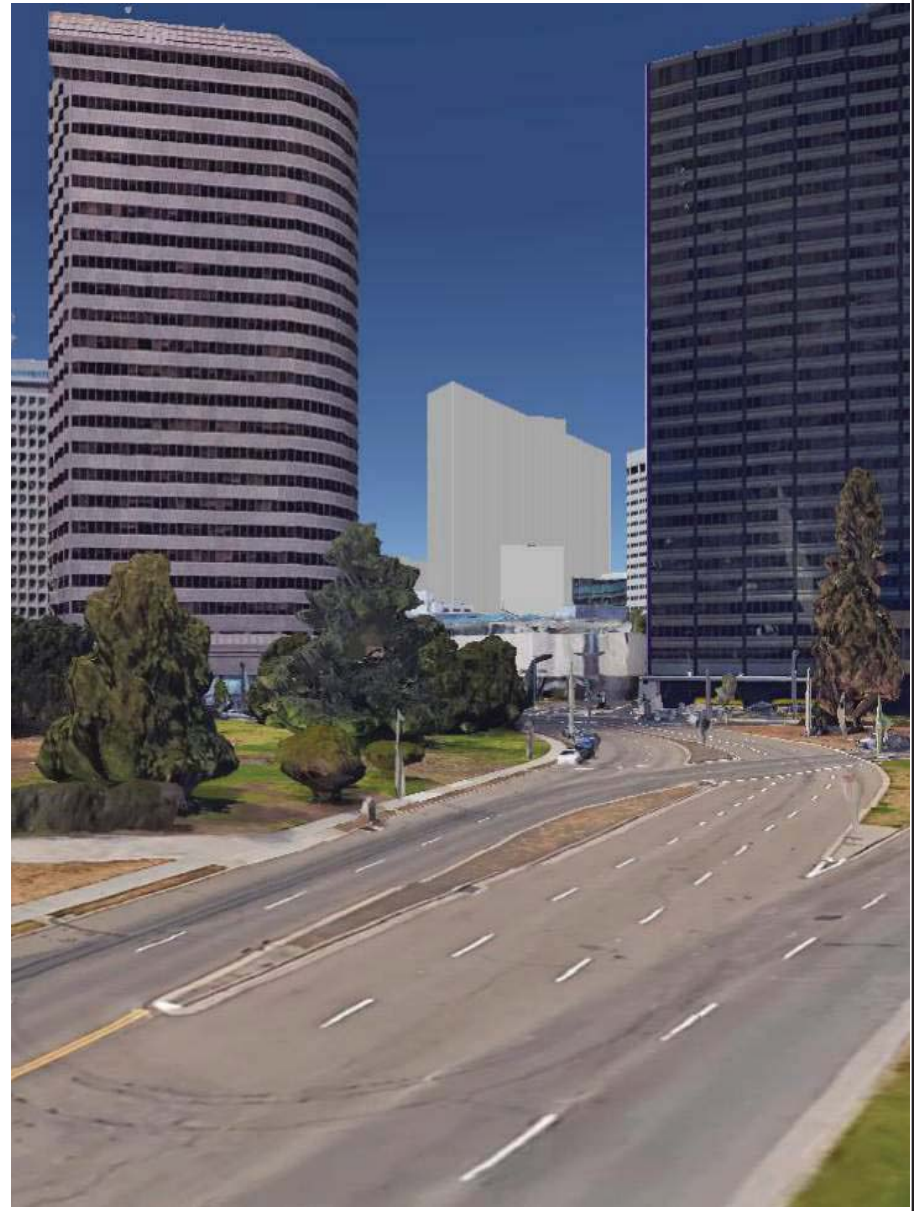

Maximum Residential Scenario


Maximum Office Scenario

Source: Urban Planning Partners and Gensler, Google Earth, 2017

Figure V.J-8a
Visual Simulations - Lakeside Drive Looking Northwest at Project Site
Maximum Residential and Maximum Office Development Scenarios

Residential/Office Mix Scenario



All Office Scenario

Source: Urban Planning Partners and Gensler, Google Earth, 2017

Figure V.J-8b

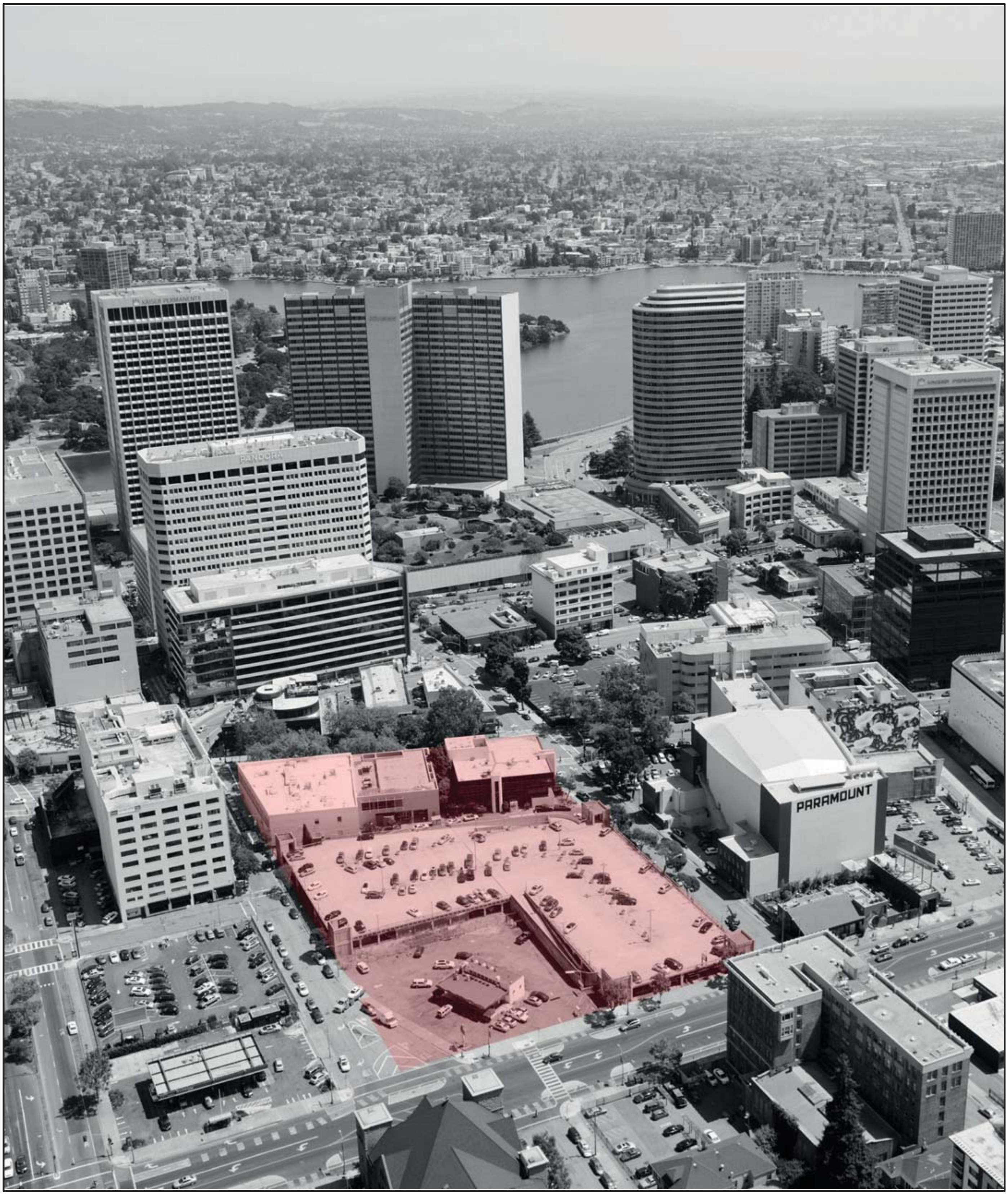
Visual Simulations - Lakeside Drive Looking Northwest at Project Site
Residential/Office Mix and All Office Scenarios

a variety of building styles, heights, and densities that have been developed since Oakland was officially incorporated in 1852. The closest buildings to the project site include the Paramount Theatre, Breuner Building, First Baptist Church, and YMCA Building. All are identified historic resources that were built in the early twentieth century, and each building is no more than eight stories high. Implementation of the project would result in a significant height difference between the proposed 41- to 63-story building (397 to 940 feet) and the historic buildings bordering the site. As such, the project would generally not be of a similar scale to the buildings in the vicinity of the project site. Figure V.J-10 through Figure V.J-13 illustrates the potential massing of all four development options.

In addition to considerable differences in height, there is also a difference in architectural styles between the proposed development and existing structures in the surrounding area. The proposed development would have a contemporary style, which would contrast with the combination of Art Deco, Georgian Revival, International, and Doric-style architecture in the area. However, while the project would be of a different scale and architectural style than the immediately surrounding buildings, this would not result in a significant visual impact. The juxtaposition of historic and modern buildings is part of what creates an interesting urban fabric, and provides evidence of the way that cities continually grow and change.

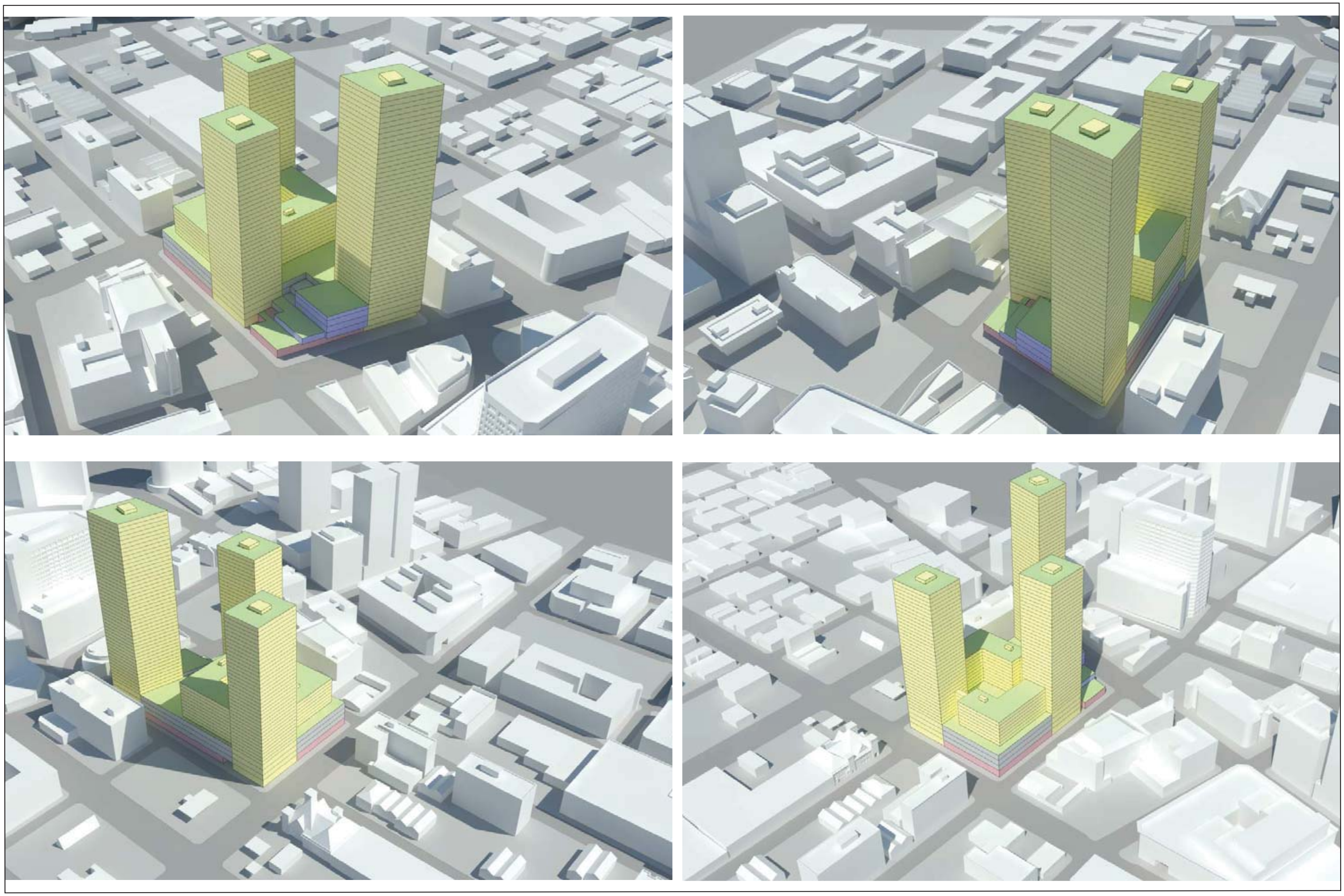
Both the Residential/Office Mix and All Office Scenarios would not be incompatible with other buildings in the vicinity of the project site. Currently, the tallest building in Oakland is the Ordway Building, at 2150 Valdez Street; the Ordway Building is 28 stories (404 feet) tall. The Ordway Building is approximately ⅓ mile north of the project site. Two other buildings in the vicinity (within ½ mile) of the project site are of similar height: the Kaiser Center building at 300 Lakeside Drive is 28 stories (390 feet) tall and the Lake Merritt Plaza building at 1999 Harrison Street is 27 stories (371 feet) tall. The heights of the buildings surrounding the project site are shown in Figure V.J-9.

While implementation of either the Residential/Office Mix or All Office Scenarios would result in massing that is generally taller than adjacent historic structures, the height would be similar to other high-rise buildings within the project area. However, the Maximum Residential and Maximum Office Scenarios—at 51 stories (590 feet) and 63 stories (940 feet) tall, respectively—would be significantly higher than other buildings in Oakland. Massing diagrams for each of the development scenarios are presented in Figures V.J-10 through V.J-13. Under all scenarios in the PUD/PDP, the Eastline project would be highly visible from locations along public streets within the project vicinity as well as from more distant vantage points such as Lake Merritt and other locations along I-580 and I-980; as well under all development scenarios, it would stand out as a prominent feature against Oakland's skyline. However, under all scenarios, the project would follow the design guidelines approved by the City to ensure the construction of a high-quality development that would not visually degrade the surrounding area.



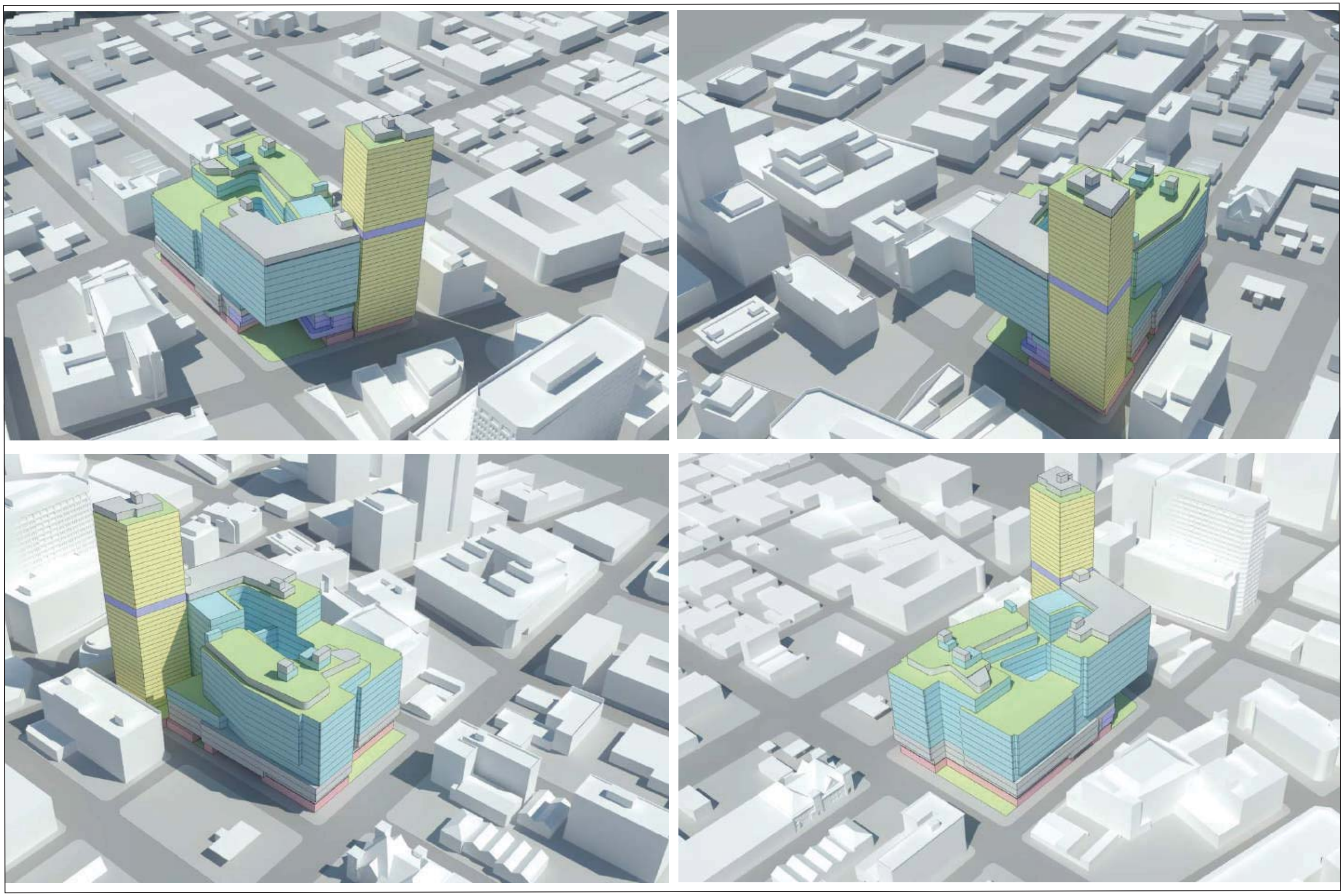
Source: Gensler, 2016

Figure V.J-9
Height of Surrounding Buildings



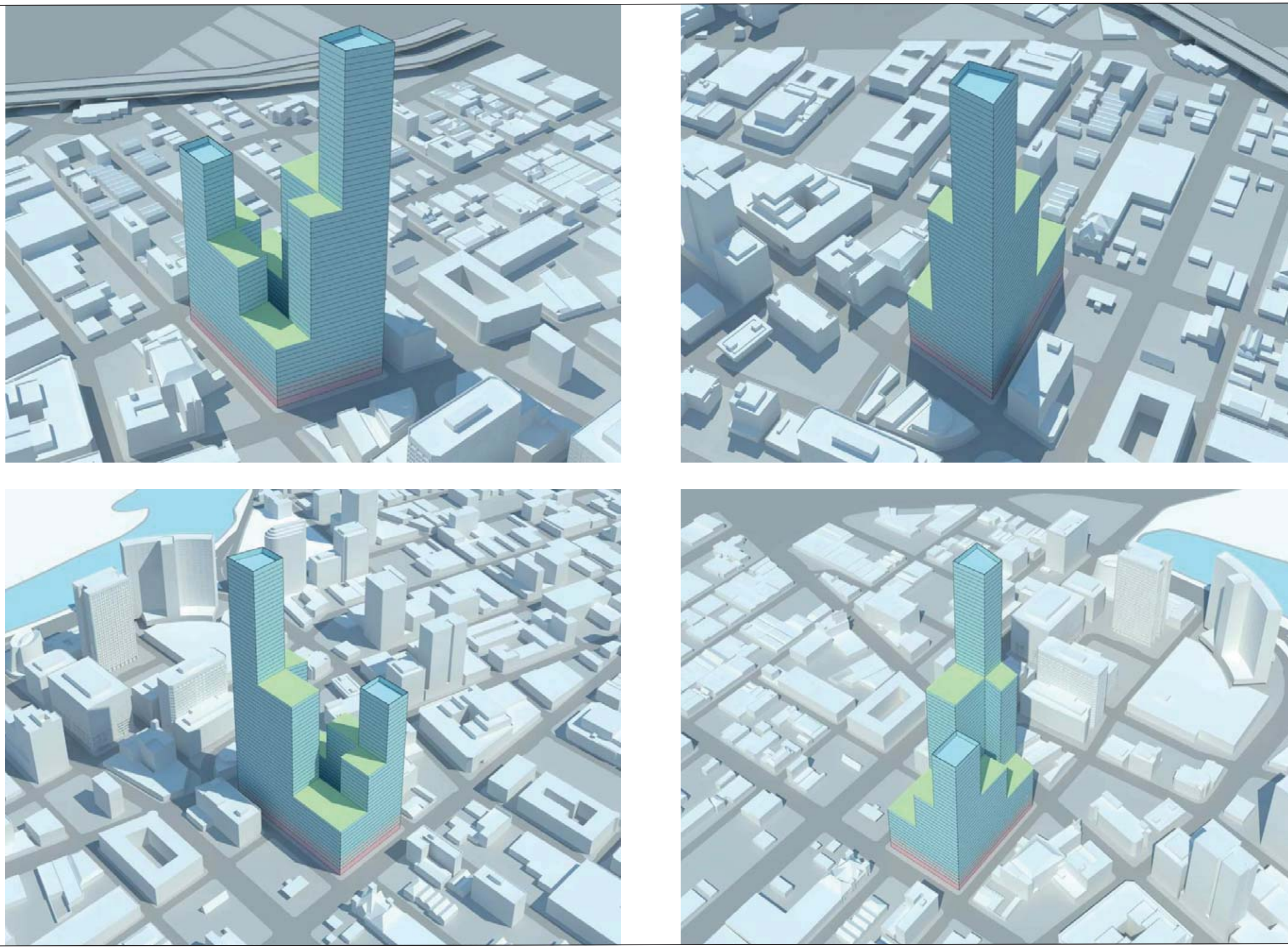
Source: Gensler, 2016

Figure V.J-10
Maximum Residential Scenario Massing Diagram



Source: Gensler, 2017

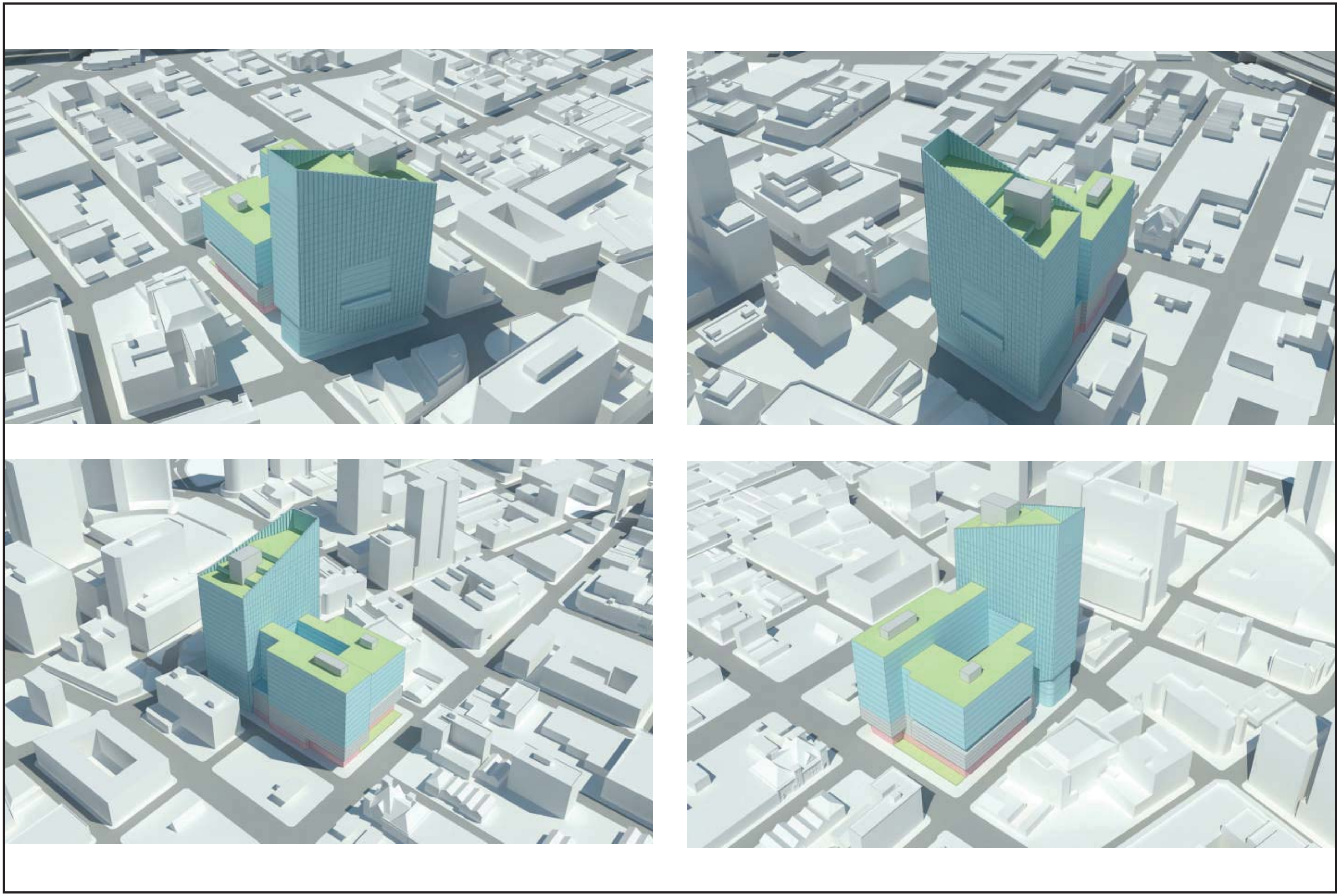
Figure V.J-11
Residential/Office Mix Scenario Massing Diagram



Source: Gensler, 2016

Eastline Project - 2100 Telegraph EIR

Figure V.J-12
Maximum Office Scenario Massing Diagram



Source: Gensler, 2017

Eastline Project - 2100 Telegraph EIR

Figure V.J-13
All Office Scenario Massing Diagram

For these reasons, the project would have a less-than-significant impact on the visual character of the project site if the project was subject to a review of aesthetics under CEQA.

c. Less-Than-Significant Light and Glare, Shade and Shadow, and Wind Impacts

Discussed below are the less-than-significant impacts related to light and glare and shade and shadow that could result from development of the Eastline project.

(1) Light and Glare (Criterion 1)

The proposed development would provide additional sources of nighttime lighting within Downtown Oakland. In addition, during daylight hours, pedestrians and motorists could experience some degree of glare due to light reflecting off the new building façades. Implementation of SCA-AES-3: Lighting Plan, would ensure that the use of reflective exterior materials is minimized and that proposed reflective material would not create additional daytime or nighttime glare.

(2) Shade and Shadow (Criterion 2, 3, 4 and 5)

Shade and shadow impacts occur when a structure's height or width (or a combination of these two characteristics) reduces the access to sunlight enjoyed by a public open space area. In a built urban environment like the project area, nearly all land uses create shade and shadow for neighboring structures and, in turn, are subject to shade and shadows from those same structures. Below is a summary of the shadow results for all four development scenarios. *Section V.C, Cultural and Historical Resources* contains an analysis of shade and shadow impacts to historic resources, which determined one significant shadow impact to a cultural resource (the First Baptist Church) under all four development scenarios. No parks or public open spaces would be shaded by any of the development scenarios at any point between 9:00 a.m. and 3:00 p.m. year-round, with the exception of the adjacent Franklin Plaza at the corner of Broadway and 22nd Street. See Appendix E for shadow diagrams for all development scenarios.

Residential/Office Mix Scenario

The shadow analysis finds that the Residential/Office Mix Scenario would cast new shadows between 9:00 a.m. and 3:00 p.m. throughout the year northward as far as 24th Street, westward as far as Northgate Avenue, eastward across Valdez Street, southward across 21st Street, and north to the 2300 block of Telegraph Avenue. New shading by this scenario on specific features is discussed below.

Shading on Parks/Public Open Spaces

From early April through late August, the northwest corner of Franklin Plaza would receive new shadow from the project after 2:45 p.m. New shadow would also fall over the western half of the plaza for a short period from early to mid-November and again from early to mid-March, arriving as early as 2:45 p.m. The portions of the plaza that would be affected prior to 3:00 p.m. consist of a raised planter and paved pedestrian sidewalk paths; however, the majority of the western half of the plaza would experience project-generated shadow in the later afternoon/evening year-round. There are also three mature trees in the affected area, which could serve to capture some or all of the project's shadow.

Shading on Solar Collectors

Solar collectors on the rooftop of 420 Grand Avenue would receive new shading starting in mid-October and lasting through the first week of March. New shadows would reach the solar collectors by 11:30 a.m. and would continuously block sun to individual solar panels for a period of up to 1 hour.

Maximum Residential Scenario

The shadow analysis finds that the Maximum Residential Scenario would cast new shadows between 9:00 a.m. and 3:00 p.m. throughout the year northward as far as 26th Street, westward as far as I-980, eastward across Valdez Street, and southward across 21st Street. New shading on specific features under this scenario is discussed below.

Shading on Parks / Public Open Spaces

From early April through late August, the western three-quarters of Franklin Plaza would receive new shadow from the project after 2:30 p.m. New shadow would also fall over the western half of the plaza for a short period from early to mid-November and again from early to mid-March, arriving as early as 2:50 p.m. The portions of the plaza that would be affected prior to 3:00 p.m. consist of raised planters on the northern and southern corners as well as a seating area with tables and chairs (not fixed) and paved pedestrian sidewalk paths; the entire plaza would experience project-generated shadow in the later afternoon/evening during summer months, with smaller amounts of shading occurring in the western half of the plaza year-round. There are also four mature trees in the plaza, which could serve to capture some or all of the project's shadow at various times.

Shading on Solar Collectors

New shadows would be generated by the Maximum Residential Scenario on the following sites:

- Solar collectors on the rooftop of 420 Grand Avenue would receive new shading starting in mid-September and lasting through late March. New shadows would reach the solar collectors around 11:45 a.m. and would continuously block sun to individual solar panels for a period of up to 1 hour and 15 minutes.
- Solar collectors on the rooftop of 540 21st Street would receive new shading for a brief period from mid-September to late September. New shadows would be present at 9:00 a.m., but would be gone a few minutes later.

All Office Scenario

The shadow analysis finds that the All Office Scenario would cast new shadows between 9:00 a.m. and 3:00 p.m. throughout the year northward close to 24th Street, westward across Northgate Avenue, eastward across Webster Street and southward across 21st Street. New shading by the project on specific features is discussed below:

Shading on Parks/Public Open Spaces

From early April through late August Franklin Plaza would receive no new shadow from the project prior to 3pm. In the spring and fall new shadow would also fall over the western third of the plaza for a short period starting no early than 2:50 p.m. Over the winter months, new shadows would fall over the western half of the plaza starting as early as 2:10 p.m. The portions of the plaza that would be affected prior to 3:00 p.m. consist of a raised planter and paved pedestrian sidewalk paths; however, the majority of the western half of the plaza would also experience project-generated shadow in the later afternoon and evening year-round. There are also three mature trees in the affected area, which may serve to capture some or all of the project's shadow. No other public parks/open space would be shaded by the project at any point between 9:00 a.m. and 3:00 p.m. year-round.

Shading on Solar Collectors

Solar collectors located on the rooftop of 420 West Grand Avenue would receive new shading during starting in mid-October and lasting through the first week of March. New shadows reach the solar collectors by 11:00 a.m. and would continuously block sun to individual solar panels for a period of up to 1½ hours.

Maximum Office Scenario

The shadow analysis finds that the Maximum Office Scenario would cast new shadows between 9:00 a.m. and 3:00 p.m. throughout the year northward as far as 29th Street, westward just beyond San Pablo Avenue, eastward across Valdez Street, and southward across 21st Street. New shading on specific features under this scenario is discussed below.

Shading on Parks / Public Open Spaces

The project would shade Franklin Plaza year-round, as early as 2:15 p.m. in the summer months and 2:55 p.m. in the fall, winter, and spring. The plaza features that would be affected prior to 3:00 p.m. consist of raised planters on the northern and southern corners as well as a seating area with tables and chairs (not fixed) and paved pedestrian sidewalk paths; the entire plaza would experience project-generated shadow in the later afternoon/evening during summer months, with smaller amounts of shading occurring in the western half of the plaza year-round. There are also four mature trees in the plaza, which could serve to capture some or all of the project's shadow at various times.

Shading on Solar Collectors

New shadows would be generated by the Maximum Office Scenario on the following sites:

- Solar collectors on the rooftop of 420 Grand Avenue would receive new shading starting in early-August and lasting through mid-May. During the spring and fall, new shadows would reach the solar collectors between approximately 12 and 2:00 p.m. and would continuously block sun to individual solar panels for a period of 1 hour and 30 minutes. During the winter, new shadows would reach the solar collectors as early as 11:00 a.m. and would continuously block sun to individual solar panels for a period of up 4 hours.
- Solar collectors on the rooftop of 635 22nd Street would receive new shading from mid-August through early October. New shadows would be present at 9:00 a.m., but would be gone by 9:15 a.m.
- Solar collectors on the rooftop of 618 21st Street would receive new shading from early August through mid-September. New shadows would be present at 9:00 a.m., but would be gone by 9:20 a.m.
- Solar collectors on the rooftop of 540 21st Street would receive new shading from mid-March to late March and again in early August through late September. New shadows would be present at 9:00 a.m. and would remain for up to 1 hour and 15 minutes.

- Solar collectors on the rooftop of 2600 Valdez Street would receive new shading from mid-December through early January starting around 2:50 p.m. and remaining for up to 25 minutes.

Although each of the development scenarios would result in new shading on solar collectors in the area, the shading would generally last a minimal amount of time and be present only during certain months of the year. Additionally, existing buildings already cast shadows on this plaza in the morning year-round and in the late afternoon during winter months. Such shading impacts are to be expected in an urbanized area along a major corridor. Therefore, the project would not result in significant shade- and shadow-related impacts.

(3) Aesthetic Resources Policies (Criterion 6)

The proposed project is generally consistent with applicable visual resources policies in the General Plan; see *Chapter IV, Planning Policy*, for a more detailed discussion. The project would result in the development of a mixed-use project on an infill site that is currently characterized by surface parking and underutilized development. By creating a more unified and active streetscape, the proposed project would result in a more visually comfortable pedestrian environment than currently exists within the project vicinity.

The proposed project would undergo design review prior to final project approval; during this time, the project design could be subject to refinement to ensure compatibility with the Design Review Criteria listed earlier in this section under Regulatory Setting. Based on preliminary plans, it is anticipated that there would be no major conflicts between the proposed design of the project and the Design Review Criteria.

d. Significant Aesthetic, Shade and Shadow, and Wind Impacts and Mitigation Measures

Implementation of the project would not result in any impacts related to aesthetic resources, shade, or shadow with implementation of the City's SCAs as discussed above.

Impact AES-1: Under the All Office Scenario and Maximum Office Scenario, wind levels could exceed the City's wind hazard criterion of winds above 36 mph for more than 1 hour per year during daylight hours during the year. (S)

A wind analysis was conducted for the project as the development would be over 100 feet tall and would be situated in Downtown Oakland in close proximity to Lake Merritt. The wind analysis (found in Appendix E) was conducted using a scale model of the existing site, the project, and the surrounding cityscape, which were constructed and tested in a wind tunnel facility. Detailed results of that analysis are provided in Appendix E.

For all development scenarios, wind speeds were measured from 76 locations near the project site. An exceedance of the wind criterion would occur if the project would create winds above 36 mph for more than 1 hour per year during daylight hours during the year.

According to the wind analysis, implementation of the Residential/Office Mix Scenario and Maximum Residential Scenario would not exceed the City of Oakland's wind hazard criterion at any location.

Implementation of the Maximum Office Scenario would result in six exceedances of the wind hazard criterion at ground level (as shown in Appendix E). Seven additional locations on the project rooftops would also exceed the criteria under this scenario, but these do not represent impacts of the project and thus would not require mitigation. Considering all grade-level locations, the average wind speed is predicted to be 30 mph, exceeding the wind threshold for a total of 27 hours per year.

Implementation of the All Office Scenario would result in one exceedance of the wind hazard criterion at ground level (as shown in Appendix E). Three additional locations on the project rooftops would also exceed the criteria under this scenario, but these do not represent impacts of the project and thus would not require mitigation. Considering all grade-level locations, the average wind speed is predicted to be 28 mph, exceeding the wind threshold for a total of 5 hours per year.

Implementation of the following mitigation measure would require additional wind testing to reduce wind speeds; however, at this time while design review is still in progress, this impact is conservatively deemed to be significant and unavoidable.

> Mitigation Measure AES-1: Wind testing shall be repeated to reduce wind hazards, as feasible. The testing results shall be reviewed and approved by the City prior to submittal of an application for building permit(s). (SU)

e. Cumulative Aesthetics, Shade and Shadow, and Wind Impacts

As analyzed throughout this section, none of the four development scenarios would result in a significant impact to aesthetic resources. The project is consistent with the City's General Plan Land Use designation for the site, and together with the majority of past, present, existing, pending, and reasonably foreseeable future development projects, is subject to the City's design review process. The purpose of the design review process is to consider the design treatment and relationship of buildings to the surrounding built environment and ensure that no significant adverse aesthetic impacts would result. Thus, the project would not combine with, or add to, any potential adverse aesthetic impacts that may be associated with other cumulative development.

Cumulative development, in combination with the Eastline project, has and would continue to result in new buildings of varying size and scale being developed on infill or vacant sites throughout the area. A review of cumulative development, including past, present, existing, pending, and reasonably foreseeable future development, reveals several approved residential towers proposed in Downtown Oakland, including two 33-story high-rise apartment buildings at 1900 and 1640 Broadway and a 24-story high-rise building at 1700 Webster (all within ½-mile of the project site). The project is generally consistent with adopted plans and the overall vision for the area. Based on the information in this section and for the reasons summarized above, the project would not contribute to any significant adverse cumulative aesthetic impacts when considered together with past, present, existing, pending, and reasonably foreseeable future development.

A test of potential wind conditions under cumulative levels of development was conducted as part of the wind analysis. A wind tunnel model was used with existing and proposed landscaping for all four development scenarios. Under cumulative conditions for the Residential/Office Mix Scenario, there were no exceedances of significance thresholds. Under the Maximum Residential, All Office, and Maximum Office Scenarios, there were one, one, and four exceedances of significance thresholds, respectively (as shown in Appendix E). Implementation of Mitigation Measure AES-2, would require additional wind testing to reduce wind speeds to a less-than-significant level; however, at this time, while design review is still in progress this impact is conservatively deemed to be significant and unavoidable.

<u>Impact AES-2</u>: **Under the Maximum Residential Scenario, All Office Scenario, and Maximum Office Scenario, cumulative wind levels could exceed the City's wind hazard criterion of winds above 36 mph for more than 1 hour per year during daylight hours during the year. (S)**

<u>Mitigation Measure AES-2</u>: Implement Mitigation Measure AES-1. (SU)

K. PUBLIC SERVICES, UTILITIES, AND RECREATION

This section describes the existing public services, utilities systems, and recreation in the vicinity of the project site; discusses State and local regulations and policies pertinent to public services, utilities, and recreation; assesses the projects potentially significant impacts that could result from implementation of the project; and provides mitigation measures and SCAs, where appropriate, to reduce the identified impacts to a less-than-significant level.

1. Setting

This following section describes existing public services, utilities, and recreation locations, capacities, and expansion possibilities in the vicinity of the project site.

a. Fire Protection

The Oakland Fire Department provides fire suppression, prevention, life safety, and hazardous material response and containment services for the City of Oakland (city). The Oakland Fire Department is composed of eight divisions: Fiscal and Administration Services; Emergency Management Services Division; Medical Services Division; Fire Prevention & Support Services Bureau; and Field Operations Bureau. The Field Operations Bureau includes 500 uniformed personnel (filling three complete shifts of response personnel) that respond out of 25 fire stations; these stations are located throughout the city and at Oakland International Airport (Oakland Airport), operating a fleet of 24 engines, 7 trucks, and numerous other special operations, support, and reserve units throughout three battalions. The Oakland Fire Department responds to approximately 60,000 emergency calls annually, over 80 percent of which are emergency medical services calls.[1] Department staffing, facilities, equipment, and response times are described below. The information in this section is based on communications with Oakland Fire Department Deputy Chief Mark Hoffmann.[2]

Two fire stations are equidistance from the project site. Oakland Fire Station 1 is at 455 27th Street, ½-mile from the project site. Station 1 has a staff of nine on duty at any given time. Fire Station 15 is also ½-mile from the project site, at 455 27th Street and has a staff of nine on duty at any given time.

The Oakland Fire Department meets a 7½-minute response time for fire calls 90 percent of the time, and meets an 8-minute response time standard for medical calls. The average

[1] Oakland Fire Department, 2016. Oakland Fire Department. Available at: http://www2.oaklandnet.com/government/o/OFD/index.htm, accessed October 11, 2016.

[2] Hoffmann, Deputy Chief Mark, Oakland Fire Department, 2016. Personal communication with Urban Planning Partners, September 6.

response time to the area of the project site, under 5 minutes, is consistent with that record.[3]

b. Police Services

Police protection services are provided to the project site by the Oakland Police Department, which is headquartered in Downtown Oakland at 455 7th Street. For the purposes of police protection, the city is divided into six geographic areas with 57 patrol beats (1X through 35Y). The project site is located within the Police Services Agency's Community Policing Area 1 and in Beat 4X.

Oakland Police Department's 2015 Annual Management Report states that Area 1, traditionally known as West Oakland, is bordered by the city of Emeryville and Area 2 on the north, Lake Merritt on the east, the Oakland Estuary on the south, and San Francisco Bay on the west.[4] Area 1 is a diverse community with multiple thriving business districts, including Jack London Square, Downtown Oakland, and City Hall (Frank Ogawa Plaza), as well as Chinatown, the Port of Oakland, and West Oakland extending to the Emeryville Border. Patrol Beat 4X is generally bounded by West Grand Avenue to the north, Lakeside Drive to the east, 14th Street to the south, and the Grove Shafter Freeway portion of State Route 24 to the west.

Between 88 to 91 officers are assigned to Area 1 with seven officers assigned to Beat 4x—including foot patrol (one sergeant and three officers, Monday through Friday, 8:00 a.m. to 4:00 p.m.); specialized units (Tuesday through Friday, and including the crime reduction team); community response officers; and 24-hour patrol.[5] Calls placed to the Oakland Police Department are prioritized and, based on the priority of the call; the nearest police officer is dispatched. An officer from any of the six areas may be dispatched on a call, depending on his or her location within the City and the priority of the call.

Additionally, a Neighborhood Crime Prevention Council, part of Oakland's community policing program, is organized for each police beat area. For each Neighborhood Crime Prevention Council, a Neighborhood Services Coordinator is assigned to help residents work together and in partnership with the police and other City departments to identify and solve problems, set priorities, and develop strategies to improve public safety and

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[3] Hoffman, Deputy Chief Mark, Oakland Fire Department, 2017. Personal communication with Urban Planning Partners, February 16.

[4] Oakland Police Department, 2015. Annual Management Report, page 6.

[5] Birch, Police Services Manager, Oakland Police Department, 2017. Personal communication with Urban Planning Partners. March 28.

crime. The Neighborhood Crime Prevention Council for Beat 4X meets at City Hall on the first Wednesday of the month at 7:00 p.m.[6]

c. Schools

The project site is served by the Oakland Unified School District (OUSD). The OUSD operates 86 schools, including 49 elementary schools, 5 grade K–8 schools, 13 middle schools, 1 alternative middle school, 3 grade 6–12 schools, 7 high schools, 7 alternative or continued-education schools, and 1 independent study school. There are also 37 OUSD-authorized charter schools. Total enrollment in OUSD schools and authorized charter schools for the 2015 to 2016 school year was 49,052 students (37,075 OUSD students and 11,977 charter school students).[7]

Neighborhood schools serving the project site are Lafayette Elementary School (991 14th Street, approximately 1 mile from the project site); Lincoln Elementary School (225 11th Street, approximately 1 mile from the project site), Westlake Middle School (2629 Harrison Street, 0.7 mile from the project site); West Oakland Middle School, (991 14th Street, approximately 1 mile from the project site), and Oakland Technical High School (4351 Broadway, 1.7 miles from the project site).[8] The existing capacity and current enrollment at these schools, is listed in Table V.K-1. While Lincoln Elementary and Oakland Technical High School are at or above maximum capacity, Lafayette Elementary, Westlake Middle and West Oakland Middle schools are currently operating well below design capacity. The OUSD currently collects a facilities fee of $3.48 per square foot for residential development

TABLE V.K-1 NEIGHBORHOOD SCHOOLS

School	Capacity	2016–2017 Enrollment	2017-2018 Projected Enrollment
Lafayette Elementary School	250	170	587
Lincoln Elementary School	739	739	726
Westlake Middle School	730	391	348
West Oakland Middle School	500	180	156
Oakland Technical High School	2,000	2,038	2,025

Sources: Wilson, Charles, Executive Director, Enrollment and Registration Management, 2017. Personal communication with Urban Planning Partners, April 14.

[6] Oakland Police Department, 2017. Neighborhood Councils. Available at: http://www2.oaklandnet.com/Government/o/OPD/s/NSD/s/ncpc/index.htm, accessed January 20, 2017.

[7] Oakland Unified School District (OUSD), 2015. Fast Facts. Department of Research, Assessment & Data. Available at: http://www.ousd.org/cms/lib07/CA01001176/Centricity/domain/4/fast%20facts/Fast%20Facts%20-%202015-16%20-%20OUSD%20Districtwide.pdf, accessed January 20, 2017.

[8] Oakland Unified School District (OUSD), 2016a. Map Center & School Finder. Available at: http://www.ousd.k12.ca.us/domain/51, accessed September 19, 2016.

and $0.56 per square foot for commercial development.[9]

d. Libraries

The City of Oakland has 16 public library branches: a Main Library, a Second Start Adult Literacy Program, the Tool Lending Library, and the African-American Museum and Library.[10]

Library facilities serving the project site include:

- **Main Library** - Approximately 1 mile from the project site at 125 14th Street, has 350,000 reference and circulating books, and 33 computers with internet access, in addition to magazine, newspaper, sheet music, and map collections. The library provides many services including computer training, tax assistance, lawyer assistance, homework assistance, and storytime.
- **Branch Libraries** - Three are located a little over 1 mile from the project site including:
  - Asian Branch at 388 9th Street, houses four Asian language collections: Chinese, Japanese, Korean, and Vietnamese. Additionally, the branch has an Asian Interest collection in English focusing specifically on Asia, Asian heritage, culture, and history, an Asian American Experience collection, and Asian immigrant history.
  - Lakeview Branch at 550 Embarcadero has approximately 35,000 books, compact disks, videos, DVDs, audio books, audiocassettes, and magazines and newspapers for all ages. Circulating materials are largely of popular interest, with a strong emphasis on best sellers and Books on Tape and Books on CD.
  - West Oakland Branch at 1801 Adeline Street has approximately 38,000 books, compact discs, DVDs, audio books, magazines, and newspapers for all ages. Circulating materials are largely of popular interest with a strong emphasis on practical how-to topics and local history. Special interest collections include the African American nonfiction collection, a small Arabic collection for children and adults, and Spanish language materials for children.

The Library's Master Facilities Plan (Facilities Plan) identifies a need for expansion of all three branches. The Asian Branch is currently 8,500 square feet and the Facilities Plan calls for an expansion to 10,500-12,000 square feet. The Lakeview Branch is currently 3,800 square feet, and the Facilities Plan calls for an expansion to 5,800-6,300 square

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[9] School Facility Source, 2016. School Facility Fee Justification Report for Residential, Commercial, and Industrial Development Projects for the Oakland Unified School District. Available at: http://www.ousd.org/cms/lib07/CA01001176/Centricity/Domain/95/Oakland%20USD%20-%20Level%20I%202016%20FINAL%2006-06-2016.pdf, accessed January 2, 2017.

[10] Oakland Public Library, 2017. Available at: http://oaklandlibrary.org, accessed January 9.

feet. Finally, the West Oakland Branch is currently 8,000 square feet and is planned to be 16,000-19,000 square feet. The Library will be implementing the new service model at all libraries to improve customer service and increase efficiency. [11]

On June 7, 1994, the electorate of Oakland approved ballot Measure O, the Library Services Retention and Enhancement Act (Measure O), authorizing the assessment of a new annual parcel tax on residential and non-residential real estate parcels in Oakland. By 2003, it became apparent that even with additional revenue provided through Measure O, the library needs of the community could not be maintained with the City's limited available funds. A proposal to amend Measure O was put before the electorate in March 2004 as Measure Q. The passage of Measure Q, served as a confirmation that the community viewed the Oakland Public Library as an essential public service and increased the City's minimum required level of General Purpose Fund (GPF) from $7.8 million to $9.06 million.[12] During the 2015-2016 fiscal year, Measure Q provided $15,054,537 to the Oakland Public Library.[13]

While Measure Q provides funding to the Library system, is does not provide all the funds necessary to initiate all the proposed plans spelled out in the Facilities Plan. Unfortunately, Measure N did not pass in the November 6, 2006 election. This would have resulted in the issuance of $148,000,000 in general obligation bonds to upgrade all City of Oakland Branch libraries, to acquire land and construct to new library facilities, and create a new Main library in the Kaiser Convention Center Arena.[14] The funding mechanism for the remainder of these library improvements has not yet been identified.[15]

e. Parks and Recreation

The City's Open Space, Conservation, and Recreation Element (OSCAR)[16] sets a citywide goal of establishing 10 acres of total park land for each 1,000 residents, with 4 of those acres in local-serving parks. As identified in the OSCAR, the existing average total park acreage citywide is 8.26 acres per 1,000 residents, and the local-serving average citywide

[11] City of Oakland, 2006 Master Facilities Plan, Draft Report. Available at: https://oakland.legistar.com/LegislationDetail.aspx?ID=744002&GUID=4BB26957-6BE5-4D63-9434-F85F17B37FE6&Options=Advanced&Search=, accessed September 12, 2017.

[12] City of Oakland, 2016, Library Advisory Commission Report, February 29.

[13] Oakland Public Library, Annual Report 2015-2016. Available at: http://oaklandlibrary.org/sites/default/files/uploads/2016%20Annual%20Report%20v16%20web-spreads.pdf, accessed on September 12, 2017.

[14] Measure N, Library Improvement and Expansion Bonds City of Oakland, Available at: http://www.smartvoter.org/2006/11/07/ca/alm/meas/N/, accessed September 11, 2017.

[15] City of Oakland, 2006. Agenda Report: Presentation of Implementation Options for the Oakland Public Library's 2006 Draft Master Facilities Plan and Request for Council Direction. Available at: http://clerkwebsvr1.oaklandnet.com/attachments/14046.pdf, accessed January 9, 2017.

[16] City of Oakland, 1996. City of Oakland General Plan, Open Space, Conservation, and Recreation Element. June.

is 1.33 acres per 1,000 residents. The Central/Chinatown area has higher-than-average existing local-serving park acreage: 1.65 acres per 1,000 residents. The OSCAR recognizes the difficulty in meeting the established goals—which it notes would be impossible without massive redevelopment—especially in built-out urban areas, but states that major gains toward the goal can be made through the expansion of existing parks, improvement of creek and shoreline access, acquisition of vacant parcels, and incorporation of new parks in major redevelopment projects.

Oakland has over 100 parks covering 2,500 acres of open space. The Oakland Parks & Recreation Department operates 38 recreation and community centers, 17 community gardens, 44 outdoor tennis courts, 3 golf courses, 66 athletic fields, and 5 swimming pools.[17]

The project site is located in an urban area of Downtown Oakland that contains a number of parks and plazas within an approximately ½-mile walk or drive from the project site. Latham Square and Frank Ogawa Plaza are located ⅓- and ½-mile south of the project site, respectively. The Franklin Plaza at 22nd and Broadway is just east of the project site, and Lake Merritt and Snow Park (4.2 acres) are within ½-mile east and southeast of the project site, respectively. The Henry J. Kaiser Memorial Park (0.5-acre) is about ⅓-mile southwest of the project site, while the 25th Street Mini Park (0.28-acre) is ½-mile north of the project site.

f. Water

The project site is served by existing water supplies, treatment facilities, and distribution systems, which are operated and managed by the East Bay Municipal Utility District (EBMUD) as described below. The information presented in this section is based on the EBMUD Urban Water Management Plan[18] and the Water Supply Assessment[19] prepared for the project (included as Appendix F).

(1) Water Supply

EBMUD provides potable water to approximately 1.4 million people throughout portions of Alameda and Contra Costa counties, including the City of Oakland. EBMUD obtains approximately 90 percent of its water from the Mokelumne River watershed, and transports it through pipe aqueducts to temporary storage reservoirs in the East Bay hills.

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[17] Oakland Parks & Recreation Department, 2016. About Oakland Parks & Recreation. Available at: http://www2.oaklandnet.com/government/o/opr/a/about/index.htm, accessed October 12, 2016.

[18] East Bay Municipal Utility District (EBMUD), 2015b. Urban Water Management Plan 2015. Water Resources Planning Division. September.

[19] East Bay Municipal Utility District (EBMUD), 2017c. Water Supply Assessment for Eastline Project – 2100 Telegraph.

EBMUD has water rights and facilities to divert up to a daily maximum of 325 million gallons per day (mgd). However, this allocation may be constrained by several factors—including upstream water use by prior water right holders; downstream water use and other downstream obligations, including protection of public trust resources; drought, or less-than normal rainfall for more than a year; and emergency outage.

In 2015, the average daily water demand within the EBMUD service area was 190 mgd. This demand is adjusted for conservation and recycled water program savings. Demand is projected to increase to 217 mgd in 2020 and to 230 mgd by 2040. In spite of EBMUD's aggressive conservation and water recycling programs, Mokelumne River and local watershed supply is not sufficient to meet the projected 2040 customer demands during multi-year droughts without achieving potentially significant water use reductions.

To meet projected water needs and address deficient supply during severe droughts, EBMUD is working to identify supplemental water supplies and recycled water programs. New water supplies will come from water transfers, groundwater storage, and regional supply projects. In dry years, EBMUD may use Sacramento River water (up to 100 mgd) via the Freeport Regional Water Facility, located south of Sacramento on the Sacramento River.[20]

In addition, recycled water treatment facilities have been constructed at EBMUD's wastewater treatment plant, located at the foot of the San Francisco-Oakland Bay Bridge. EBMUD stores the recycled water in a 1.5-million-gallon storage tank at the wastewater treatment plant, and uses another 2.4 mgd at the plant for various industrial processes as well as landscape irrigation. EBMUD's Policy 73 requires that, when non-potable water is available, customers use it for non-domestic purposes, including landscape irrigation and industrial uses. One of the programs under this policy is the East Bayshore Recycled Water Project, which supplies recycled water for landscape irrigation in areas of Oakland and Emeryville where recycled water pipelines have been installed. A recycled water transmission pipeline along 4.4 miles of the Eastshore Freeway is largely completed, and 2 miles of transmission pipeline have been installed in Oakland; however, these pipelines do not currently extend to the project site.[21] Historical water use in the project area has been approximately 1,730 gallons per day (gpd).

[20] East Bay Municipal Utility District (EBMUD), 2017a. About Your Water. Available at: http://www.ebmud.com/water-and-drought/about-your-water/, accessed January 6.

[21] East Bay Municipal Utility District (EBMUD), 2015a. East Bayshore Recycled Water Project. Available at: http://www.ebmud.com/water-and-drought/recycled-water/current-recycled-water-users/, accessed October 12, 2016.

(2) Water Treatment Facilities

There are six water treatment plants in the EBMUD water supply and distribution system. These plants combined have a treatment capacity of over 375 mgd. The Orinda Water Treatment Plant, which serves Oakland and the project site, has the largest output with a maximum capacity of 200 mgd. Beginning in 2016, the Orinda Water Treatment Plant underwent necessary maintenance and process upgrades to improve the reliability of its operations. In order to facilitate this essential work, the plant shut down between November 2016 and April 2017.[22] All water delivered to customers is filtered through sand and anthracite, or carbon treatment, with plants providing disinfection, fluoridation, and corrosion control.

(3) Water Distribution Systems

From the water treatment plants, water is distributed throughout EBMUD's service area, which is divided into more than 120 pressure zones ranging in elevation from sea level to 1,450 feet. Approximately 50 percent of treated water is distributed to customers purely by gravity. The EBMUD water distribution network includes 4,200 miles of pipe, 125 pumping plants, and 165 water distribution reservoirs (tanks storing treated drinking water), generating a total capacity of 830 million gallons.[23] The project site is located within EBMUD's Central Pressure Zone, which provides water service to customers within an elevation range of 0–100 feet. Water pressure is generally adequate throughout the city, but pressure may be reduced in some locations with older water mains if they are not sized based on current standards or have lost capacity due to deterioration. EBMUD owns and operates distribution pipelines under all of the streets within the vicinity of the project area. Typically, required pipeline relocations and extensions, in addition to other water distribution infrastructure improvements, are made at the expense of the project applicant in consultation with EBMUD's business office.

g. Wastewater (Sanitary Sewer) System

The City of Oakland provides citywide sanitary sewer collection services to the project area, and EBMUD provides sewage transport, treatment, and discharge services. These services and existing infrastructure are described below.

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[22] East Bay Municipal Utility District (EBMUD), 2017b. Orinda Treatment Plant Maintenance Projects. Available at: http://www.ebmud.com/about-us/construction-my-neighborhood/orinda-treatment-plant-maintenance-projects/, accessed January 26.

[23] East Bay Municipal Utility District (EBMUD), 2015b. Urban Water Management Plan 2015. Water Resources Planning Division. September.

(1) Collection System

Sewer discharge from buildings within Oakland flows through lateral lines to the City's sewer network, which is mostly gravity fed. Currently, the City operates and maintains approximately 930 miles of sewer lines and seven pump stations.[24] Most of the City's wastewater collection system is 50 years old, and some of the existing infrastructure is as old as 100 years.[25] The sewer network is connected directly to trunk lines that convey flows to EBMUD wastewater interceptors and finally to the Municipal Waste Water Treatment Plant (MWWTP) located in West Oakland. EBMUD wastewater interceptors consist of 29 miles of reinforced concrete pipes ranging from 1 to 9 feet in diameter. Wastewater from the project site is conveyed through these interceptors to the MWWTP.

The project site is currently served by existing sewer infrastructure located beneath surrounding roadways. Existing infrastructure consists of a 24-inch pipeline located beneath Broadway, an 18-inch and 15-inch pipeline on Telegraph Avenue, an 8-inch pipeline on 21st Street, and a 16-inch pipeline on 22nd Street. Lateral connections from existing and proposed buildings must be a minimum of 4 inches in diameter.[26] The project site is situated in sewer Sub-basin 5205.[27]

The City of Oakland's infiltration/inflow correction program consists of a 25-year capital improvement program to rehabilitate 30 percent of the sewer system sub-basins based on greatest to least infiltration and inflow of rainwater problems. The program includes a year-by-year prioritization of projects.[28]

(2) Wastewater Treatment Facilities

Wastewater treatment is provided by EBMUD's wastewater service district, known as Special District No. 1. EBMUD owns and operates a network of 15 wastewater pumping stations (with 0.5- to 54.7-mgd capacity) and 8 miles of force mains that convey wastewater to the MWWTP. The City's collection system connects with EBMUD's sewer interceptor system and transports sewage to the EBMUD MWWTP. The MWWTP provides both primary and secondary treatment of wastewater.

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[24] City of Oakland, 2017. Sanitary Sewer System. Available at: http://www2.oaklandnet.com/government/o/PWA/s/Sewer/index.htm, accessed January 6.

[25] East Bay Municipal Utility District (EBMUD), 2016b. Sewer System Management Plan. Available at: http://www.ebmud.com/index.php/download_file/force/1098/805/?2015-ssmp-for-sd-1.pdf, accessed October 12, 2016.

[26] City of Oakland, 2016. Code of Ordinances. Chapter 13,08.530.C- Standards of quality of materials and methods of construction. September 9.

[27] City of Oakland, 2017. Public Works Infrastructure Map. Available at: https://oakbec.s3.amazonaws.com/MapLanding/maps/DEC.html#, accessed January 19.

[28] City of Oakland, 2015. Adopted Capital Improvement Projects, Fiscal Year 2015-2017. June.

The MWWTP provides primary treatment for up to a peak flow of 320 mgd and secondary treatment for a maximum flow of 168 mgd. EBMUD treats domestic, commercial, and industrial wastewater for approximately 685,000 customers in the East Bay, and the average annual daily flow into the plant is approximately 54 mgd. Projected average dry weather flows of collected and treated wastewater discharged from the Special District No. 1 service area through 2040 is 54 mgd. The treated water is then disinfected, dechlorinated and discharged through an outfall 1 mile off the East Bay shore into the San Francisco Bay. Solids are pumped to digesters for stabilization and are then dewatered and hauled offsite. Methane generated by the digesters is used to produce renewable energy. There are no planned improvements to the wastewater treatment plant that would affect treatment capacity.

As noted under subsection V.K.1.f, Water Supply, EBMUD recycles water at its main wastewater treatment facility and has since the early 1970s. Recycled water is suitable for land uses that do not require potable water sources, such as golf courses, some agricultural areas, and industrial uses. EBMUD provided approximately 8.6 mgd of recycled water to customers in 2015 and has a goal to recycle 20 mgd by 2040. Incentives used by EBMUD to encourage customers to utilize recycled water include rate discounts on recycled water, long-term contracts, grants, and low-interest loans used to retrofit buildings so that they can accommodate recycled water.[29]

h. Stormwater

The Alameda County Flood Control District was created in 1949 by the State Legislature to provide flood control services to Alameda County. The District's flood control infrastructure includes hundreds of miles of pipelines, channels, creeks, erosion control measures and pump stations. The city of Oakland is within Zone 12, which also includes the city of Emeryville, and is the largest of the District's zones. Zone 12 has approximately 50 miles of closed conduit, approximately 12 miles of earthen and concrete channels, as well as the existing natural waterways, which move stormwater to the San Francisco Bay. Four pump stations (Lake Merritt, Ettie, McKillop, and Temescal) lift stormwater to the Bay. The project site is within the Oakland Estuary Watershed.[30] Recent Flood Control District projects include: the FEMA Tidal Study; improving levees to meet FEMA certification; Bypass Creek (line J); line K desilting between I-880 and the confluence at line J; Stonehurst Creek crossing improvement at Knight Street (line N); San Leandro Creek floodwall repair in Oakland (line P); line S capacity enhancement—storm drain bypass between 65th Street and San Pablo Avenue, along LaCoste Avenue, 64th Street,

[29] East Bay Municipal Utility District (EBMUD), 2015b. Urban Water Management Plan 2015. Water Resources Planning Division. September.

[30] Alameda County Flood Control and Water Conservation District (ACFCD), 2017. Oakland Estuary Watershed. Available at: http://www.acfloodcontrol.org/resources/explore-watersheds/oakland-estuary-watershed/, accessed January 9.

Overland Avenue, and 62nd Street; Peralta Creek Restoration; and San Leandro Creek rehabilitation of U.S. Army Corps constructed concrete channel.[31]

The city of Oakland's storm drainage system consists of more than 300 miles of storm drainpipes, over 100 miles of open creeks, and 15,000 structures (mostly inlets, manholes, and catch basins). These facilities are both publicly and privately owned. City-owned drainage systems are typically located within easements and rights-of-way.[32] Runoff on the impervious portions of the site is directed by sheetflow primarily towards curbside storm drains. Two underground storm drains serve the majority of the project site; these storm drains convey stormwater eastward along 22nd Street and 21st Street, and then drain into Lake Merritt.[33]

i. Solid Waste and Recycling

Solid waste and green waste (e.g. yard trimmings) within the city of Oakland are collected by Waste Management of Alameda County. These materials are taken to the Davis Street Resource and Recovery Complex in San Leandro for processing, and then hauled to the Altamont Landfill and Resource Facility near the city of Livermore. The Davis Street facility has a permitted maximum daily throughput of 5,600 tons.[34] The Altamont Landfill facility comprises approximately 2,170 acres (472 acres of permitted landfill area) and has a permitted maximum daily disposal of 11,150 tons per day. The Altamont Landfill is projected to have sufficient capacity to operate until 2049 (its expected closure date).[35]

In 2015, the city of Oakland disposed of approximately 254,262 tons (3.4 pounds per day per person, 7.4 pounds per day per employee) of solid waste at various disposal facilities, thereby meeting the recommended daily per-capita targets of 5.8 pounds per day per person, 15.3 pounds per day per employee, established by the California Department of Resources Recycling and Recovery (CalRecycle).[36,37]

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[31] Alameda County Flood Control and Water Conservation District (ACFCD), 2017. Zone 12. Available at: http://www.acfloodcontrol.org/floodplain-management/neighborhood-zones/zone-12/, accessed January 8.

[32] City of Oakland, 2014. Bureau of Engineering and Construction, Storm Drainage Design Standards. October.

[33] Sowers, Janet M. et al., 1993. Creek & Watershed Map of Oakland & Berkeley. Revised 1995 & 2000.

[34] California Department of Resources Recycling and Recovery (CalRecycle), 2016b. Solid Waste Information System facility/site search. Available at: www.calrecycle.ca.gov/SWFacilities/Directory/Search.aspx, accessed October 12, 2016.

[35] Alameda County Waste Management Authority, 2003. Alameda County Integrated Waste Management Plan. Amended March 2015.

[36] California Department of Resources Recycling and Recovery (CalRecycle), 2014. Countywide, Regionwide, and Statewide Jurisdiction Diversion/Disposal Progress Report. Available at: http://www.calrecycle.ca.gov/LGCentral/Reports/Jurisdiction/DiversionDisposal.aspx, accessed October 12, 2016.

[37] CalRecycle was formerly known as the California Integrated Waste Management Board.

j. Electricity and Natural Gas

Pacific Gas and Electric Company (PG&E) provides electricity and natural gas service to the city of Oakland, including the project site. PG&E charges connection and user fees for all new development, in addition to sliding rates for electrical and natural gas service based on use.

Gas supplies in Northern California come primarily from gas fields in the Sacramento Valley.[38] The PG&E gas transmission pipeline system serves approximately 4.2 million gas customers in Northern and Central California. However, PG&E produces much of its energy from renewable sources and has plans in place to increase reliance on renewable energy sources. Of the energy provided to PG&E customers in 2015, approximately 30 percent came from renewable resources. In 2015, 23 percent of energy provided to PG&E customers came from nuclear generation; 17 percent from unspecified sources; 25 percent from natural gas; 6 percent from large hydroelectric facilities; and 30 percent from renewable resources (e.g., wind, geothermal, biomass, small hydroelectric sources, and solar)[39] Because many agencies in California have adopted policies seeking increased use of renewable resources (and have established minimum standards for the provision of energy generated by renewable resources), PG&E is expected to continue to meet future demand for energy via an increasing reliance on renewable resources, including small-scale sources such as photovoltaic panels and wind turbines, in addition to larger-scale facilities such as wind farms.

Regulatory requirements for efficient use of electricity and gas are contained in Title 24, Part 6, of the California Code of Regulations (CCR), entitled "Energy Efficiency Standards for Residential and Nonresidential Buildings." These regulations specify the State's minimum energy efficiency standards and apply to new construction of both residential and nonresidential buildings. The standards regulate energy consumed for heating, cooling, ventilation, water heating, and lighting. Compliance with these standards is verified and enforced through the local building permit process.

(1) Existing Energy Demand

For the baseline conditions for this analysis, electricity demand at the project site was approximately 1,100,000 kWh of electricity per year and 16,000 therms of natural gas per year in the existing buildings.[40]

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[38] California Gas and Electric Utilities, 2016. 2016 California Gas Report. Available at: http://ww.pge.com/pipeline_resources/pdf/library/regulatory/downloads/cgr16.pdf, accessed October 12.

[39] Pacific Gas and Electric Company (PG&E), 2016. Exploring Clean Energy Solutions. Available at: https://www.pge.com/en_US/about-pge/environment/what-we-are-doing/clean-energy-solutions/clean-energy-solutions.page, accessed October 12, 2016.

[40] Sperry, Raphael, Arup, 2017.Personal communication with Urban Planning Partners, June 1.

(2) Existing Electrical and Natural Gas System near the Project Site

The existing electric distribution system includes both overhead and underground facilities. The Existing Conditions Plan in the Residential/Office Mix Scenario Plan set indicates that a 12-kilovolt and 480-volt underground distribution line, located on Telegraph Avenue and 22nd Street, respectively, provide service to the project site. In addition, the project site is served by 2-inch gas lines located along both 21st Street and 22nd Street, in addition to a 4-inch and 6-inch gas line located on Telegraph Avenue and Broadway, respectively.[41]

2. Regulatory Setting

The following describes the State and local regulatory setting as it relates to public services, utilities and infrastructure, and recreation.

a. State

The following State regulations apply to water supply and conservation, wastewater collection, solid waste disposal, and energy conservation, and are applicable to the project.

Water Conservation in Landscaping Act (Assembly Bill 1881, 2006)

The Water Conservation in Landscaping Act of 2006 (Assembly Bill [AB] 1881, Laird) requires cities, counties, and charter cities and charter counties to adopt landscape water conservation ordinances by January 1, 2010. Pursuant to this law, the Department of Water Resources has prepared a Model Water Efficient Landscape Ordinance for use by local agencies. Most new and rehabilitated landscapes are subject to a water efficient landscape ordinance. Public landscapes and private development projects, including developer-installed single-family and multi-family residential landscapes with at least 2,500 square feet of landscape area, are subject to the model water ordinance. Homeowner-provided landscaping at single-family and multi-family homes is subject to the ordinance if the landscape area is at least 5,000 square feet. However, the ordinance does not apply to registered local, State, or federal historic sites; ecological restoration projects; mined-land reclamation projects; or plant collections.

Water Supply Consultation (Senate Bills 610/221)

Senate Bill (SB) 610, codified as Sections 10910 to 10915 of the California Public Resources Code, requires local water providers to conduct a water supply assessment for

[41] Langan Treadwell Rollo, 2016. Site Utility Plan for 2100 Telegraph Final Development Plan. Prepared for W/L Telegraph Holdings JV, L.L.C. and Gensler, December 9.

projects proposing over 500 housing units, 250,000 square feet of commercial office space (or more than 1,000 employees), a shopping center or business establishment with over 500,000 square feet (or more than 1,000 employees), or equivalent usage. Local water suppliers must also prepare (or have already prepared) an urban water management plan to guide planning and development in the water supplier's service area, and specifically to pursue efficient use of water resources. Issuance of a water supply assessment determination by the local water supplier for a proposed project verifies that the supplier has previously considered a project in its plan, and has adequate capacity to serve a project in addition to its existing service commitments (or, alternatively, measures that would be required to adequately serve the proposed project).

California Integrated Waste Management Act (AB 939)

In 1989, the California Legislature enacted the California Integrated Waste Management Act (AB 939), which requires the diversion of waste materials from landfills in order to preserve landfill capacity and natural resources. Cities and counties in California were required to divert 25 percent of solid waste by 1995 and 50 percent of solid waste by 2000. The City of Oakland met this requirement by diverting 52 percent of its waste in 2000.[42] AB 939 further requires every city and county to prepare two documents demonstrating how the mandated rates of diversion will be achieved. The Source Reduction and Recycling Element must describe the chief source of the jurisdiction's waste, the existing diversion programs, and current rates of waste diversion and new or expanded diversion programs. The Household Hazardous Waste Element must describe each jurisdiction's responsibility in ensuring that household hazardous wastes are not mixed with nonhazardous solid wastes and subsequently deposited at a landfill. Oakland's Source Reduction and Recycling Element and Household Hazardous Waste Element were approved in 1995 by CalRecycle.

California Solid Waste Reuse and Recycling Access Act of 1991

Public Resources Code Sections 42900–42901, also known as the California Solid Waste Reuse and Recycling Access Act, are part of the California Integrated Waste Management Act. In addition to the solid waste diversion requirements of AB 939, this legislation required the California Integrated Waste Management Board, on or before March 1, 1993, to adopt a model ordinance for adoption by a local agency relating to adequate areas for collecting and loading recyclable materials in development projects. A local agency is required to adopt and enforce that model ordinance if it did not adopt an ordinance

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[42] California Department of Resources Recycling and Recovery (CalRecycle), 2016a. Jurisdiction Diversion/Disposal Rate Summary (1995 - 2006). Available at: www.calrecycle.ca.gov/LGCentral/reports/diversionprogram/JurisdictionDiversion.aspx, accessed October 12, 2016.

providing for collection and loading by September 1, 1994. In 2010, the California Integrated Waste Management Board was replaced by CalRecycle.

Title 24 (California Building Standards) of the California Code of Regulations 2010 (CALGreen)

CALGreen is a Statewide regulatory code for all residential, commercial, hospital, and school buildings. The regulations are intended to encourage more sustainable and environmentally friendly building practices, require low-pollution-emitting substances that cause less harm to the environment, conserve natural resources, and promote the use of energy-efficient materials and equipment. Title 24 standards require all new residential and nonresidential development to comply with several energy conservation standards through the implementation of various energy conservation measures—including ceiling, wall, and concrete slab insulation; vapor barriers; weather stripping on doors and windows; closeable doors on fireplaces; insulated heating and cooling ducts; water heater insulation blankets; and certified energy-efficient appliances. CALGreen became mandatory on January 1, 2011, for new residential and commercial construction. Please refer to the regulatory framework subsection of Section *V.E, Greenhouse Gas Emissions*, for a detailed discussion of AB 32, and other energy-related State regulations.

Quimby Act

California Government Code Section 66477, Subdivision Map Act, referred to as the Quimby Act, permits local jurisdictions to require the dedication of land and/or the payment of in-lieu fees solely for park and recreation purposes. The dedication of land or in-lieu fees may be required for land or condominium subdivisions. The dedication of land or in-lieu fees is not to exceed the proportionate amount necessary to provide 3 acers of neighborhood and community parkland per 1,000 persons. Dedication requirements may be increased if the existing ratio of parkland per 1,000 persons at the time of adoption of a City's local park and land dedication and fees collected pursuant to the Quimby Act may only be used for developing new, or rehabilitating existing park or recreational facilities. The City of Oakland does not have a park land dedication requirement pursuant to the Quimby Act, although it is an action to adopt the Quimby Act as part of the OSCAR.

b. City of Oakland

The City of Oakland regulations related to public services, utilities and service systems, and recreation that are applicable to the project are discussed below.

(1) General Plan

The Oakland General Plan Land Use and Transportation (LUTE) contain the following policies that are relevant to the project:

Policy N.2.2: Provision of government and institutional services should be distributed and coordinated to meet the needs of City residents.

Policy N.12.1: The development of public facilities and staffing of safety-related services, such as fire stations, should be sequenced and timed to provide a balance between land use and population growth, and public services at all times.

Policy N.12.2: Adequate public school capacity should be available to meet the needs of Oakland's growing community. The City and the Oakland Unified School District (OUSD) should work together to establish a continuing procedure for coordinating residential and commercial development and exploring the imposition of mutually agreed upon reasonable and feasible strategies to provide adequate school capacity. The City and OUSD should jointly consider where feasible and appropriate, funding mechanisms such as assessment districts, redevelopment agency funding (AB 1290), use of surplus, City-owned land, bond issues, and adjacent or shared use of land or school facilities with recreation, libraries, child care and other public uses.

Policy N.12.4: Electrical, telephone, and related distribution lines should be underground in commercial and residential areas, except where special local conditions such as limited visibility of the poles and wires make this unneeded. They should also be underground in appropriate institutional, industrial, and other areas, and generally along freeways, scenic routes, and heavily traveled streets. Programs should lead systematically toward the eventual undergrounding of all existing lines in such places. Where significant utility extensions are taking place in these areas, such as in new subdivisions, utilities should be installed underground at the start.

Policy N.12.5: In its capital improvement and public service programs, the City should give priority to reducing deficiencies in, and disparities between, existing residential areas. The Oakland General Plan Safety Element contains the following policy that is relevant to the project:

Policy FI-1: Maintain and enhance the City's capacity for emergency response, fire prevention and fire fighting.

<u>Action FI-1.2</u>: Strive to meet a goal of responding to fires and other emergencies within seven minutes of notification 90 percent of the time.

Relevant OSCAR Element Planning Strategies for the Central Planning Area are as follows:

Policy CO-4.1: Emphasize water conservation and recycling strategies in efforts to meet future demand.

Policy CO-4.2: Require use of drought-tolerant plants to the greatest extent possible and encourage the use of irrigation systems which minimize water consumption.

Policy CO-4.3: Promote the use of reclaimed wastewater for irrigating landscape medians, cemeteries, parks, golf courses, and other areas requiring large volumes of non-potable water.

Policy CO-13.1: Promote a reliable local energy network which meets future needs and long-term economic development objectives at the lowest practical cost.

Policy CO-13.3: Encourage the use of energy-efficient construction and building materials. Encourage site plans for new development which maximize energy efficiency.

Policy CO-13.4: Accommodate the development and use of alternative energy resources, including solar energy and technologies which convert waste or industrial byproducts to energy, provided that such activities are compatible with surrounding land uses and regional air and water quality requirements.

Policy REC-3.1: Use level of service standards of 10 acres of total parkland and 4 acres of local-serving parkland as a means of determining where unmet needs exist and prioritizing future capital investment

Policy REC-10.2: To the extent permitted by law, require recreational needs created by future growth to be offset by resources contributed by that growth. In other words, require mandatory land dedication for large-scale residential development and establish a park impact fee for smaller-scale residential development projects, including individual new dwelling units. Calculate the dedication of fee requirement based on standard of 4 acres of local-serving parkland per 1,000 residents.

<u>Action REC-10.2.1</u>**:** Adopt an ordinance authorizing a Quimby Act parkland dedication and in-lieu/impact fee requirement. Prior to adoption, perform the necessary fiscal studies to determine the dollar amount of park impact fees to be charged for single family and multi-family dwellings. Following adoption, prioritize the expenditure of in-lieu fees collected from new development to ensure that the fees are spent in the appropriate areas.

In addition, the park and recreation portion of the OSCAR Element contains the following principles applicable to the implementation of the proposed project.

- Make provisions for sunlit plazas, pedestrian spaces, and "pocket" parks as Downtown redevelopment occurs.
- Recreation needs created by new development should be offset by resources contributed by that growth. In other words, new development should pay its fair share to meet the increased demand for parks resulting from that development.

(2) Oakland Planning Code

The City's Planning Code includes standards for open space for construction of new residential units. The Central Business District (CBD) Zone standards for open space (Code Section 17.58.070) require that 75 square feet of useable open space be provided per dwelling unit.

(3) Oakland Zero Waste Strategic Plan

In March 2006, the City of Oakland adopted a zero waste goal by 2020, and passed a resolution adopting the Zero Waste Strategic Plan in December 2006. The main strategies outlined in the plan include (1) expand and improve local and regional recycling and composting; (2) develop and adopt new rules and incentives to reduce waste disposal; (3) preserve land for sustainable development and green industry infrastructure; (4) advocate for manufacturer responsibility for produce waste, ban problem materials; and (5) educate, promote, and advocate a zero waste sustainability agenda.[43]

(4) Oakland Construction and Demolition Debris Waste Reduction and Recycling Requirements

The City of Oakland's construction and demolition debris waste reduction and recycling requirements (Municipal Code Chapter 15.34) are intended to further the goals of AB 939. They require a project applicant to prepare and submit a Construction and Demolition Debris Waste Reduction and Recycling Plan to divert at least 50 percent of all construction and demolition debris generated by project construction from landfill disposal. The Construction and Demolition Debris Waste Reduction and Recycling Plan is required to document the ways in which the applicant will reduce the quantity of construction and demolition debris disposed of at landfills by 50 percent or more. The City will not approve a building permit for a project until the plan is approved.

(5) Standard Conditions of Approval

The City's Standard Conditions of Approval (SCAs) relevant to utilities and infrastructure are listed below. The SCAs will be adopted as requirements of the project if the project is approved by the City. SCA-HYD-1: Erosion and Sedimentation Control Plan for Construction (#45), SCA-HYD-3: NPDES C.3 Stormwater Requirements for Regulated Projects (#50), and SCA-GHG-1: Greenhouse Gas Reduction Plan (#38), also address storm drainage and sewer, and energy impacts, and are listed in *Section V.H, Hydrology and Water Quality* and *Section V.E, Greenhouse Gas Emissions*.

SCA-UTL-1: Compliance with Other Requirements (#3)
The project applicant shall comply with all other applicable federal, state, regional, and local laws/codes, requirements, regulations, and guidelines, including but not limited to those imposed by the City's Bureau of Building, Fire Marshal, and Public Works Department. Compliance with other applicable requirements may require changes to the approved use and/or plans. These changes shall be processed in accordance with the procedures contained in Condition #4.

SCA-UTL-2: Construction Management Plan (#13)
Prior to the issuance of the first construction-related permit, the project applicant and his/her general contractor shall submit a Construction Management Plan (CMP) for

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[43] City of Oakland, 2017. Zero Waste. Available at: http://www2.oaklandnet.com/Government/o/PWA/o/FE/s/IDR/o/ZW/index.htm, accessed January 9.

review and approval by the Bureau of Planning, Bureau of Building, and other relevant City departments such as the Fire Department and the Public Works Department as directed. The CMP shall contain measures to minimize potential construction impacts including measures to comply with all construction-related Conditions of Approval (and mitigation measures if applicable) such as dust control, construction emissions, hazardous materials, construction days/hours, construction traffic control, waste reduction and recycling, stormwater pollution prevention, noise control, complaint management, and cultural resource management (see applicable Conditions below). The CMP shall provide project-specific information including descriptive procedures, approval documentation, and drawings (such as a site logistics plan, fire safety plan, construction phasing plan, proposed truck routes, traffic control plan, complaint management plan, construction worker parking plan, and litter/debris clean-up plan) that specify how potential construction impacts will be minimized and how each construction-related requirement will be satisfied throughout construction of the project.

SCA-UTL-3: Construction and Demolition Waste Reduction and Recycling (#74)
<u>Requirement</u>: The project applicant shall comply with the City of Oakland Construction and Demolition Waste Reduction and Recycling Ordinance (chapter 15.34 of the Oakland Municipal Code) by submitting a Construction and Demolition Waste Reduction and Recycling Plan (WRRP) for City review and approval, and shall implement the approved WRRP. Projects subject to these requirements include all new construction, renovations/alterations/modifications with construction values of $50,000 or more (except R-3 type construction), and all demolition (including soft demolition) except demolition of type R-3 construction. The WRRP must specify the methods by which the project will divert construction and demolition debris waste from landfill disposal in accordance with current City requirements. The WRRP may be submitted electronically at www.greenhalosystems.com or manually at the City's Green Building Resource Center. Current standards, FAQs, and forms are available on the City's website and in the Green Building Resource Center.
<u>When Required</u>: Prior to approval of construction-related permit
<u>Initial Approval</u>: Public Works Department, Environmental Services Division
<u>Monitoring/Inspection</u>: Public Works Department, Environmental Services Division

SCA-UTL-4: Underground Utilities (#75)
<u>Requirement</u>: The project applicant shall place underground all new utilities serving the project and under the control of the project applicant and the City, including all new gas, electric, cable, and telephone facilities, fire alarm conduits, street light wiring, and other wiring, conduits, and similar facilities. The new facilities shall be placed underground along the project's street frontage and from the project structures to the point of service. Utilities under the control of other agencies, such as PG&E, shall be placed underground if feasible. All utilities shall be installed in accordance with standard specifications of the serving utilities.
<u>When Required</u>: During construction

Initial Approval: N/A
Monitoring/Inspection: Bureau of Building

SCA-UTL-5: Recycling Collection and Storage Space (#76)
Requirement: The project applicant shall comply with the City of Oakland Recycling Space Allocation Ordinance (chapter 17.118 of the Oakland Planning Code). The project drawings submitted for construction-related permits shall contain recycling collection and storage areas in compliance with the Ordinance. For residential projects, at least two cubic feet of storage and collection space per residential unit is required, with a minimum of ten cubic feet. For nonresidential projects, at least two cubic feet of storage and collection space per 1,000 square feet of building floor area is required, with a minimum of ten cubic feet.
When Required: Prior to approval of construction-related permit
Initial Approval: Bureau of Planning
Monitoring/Inspection: Bureau of Building

SCA-UTL-6: Green Building Requirements (#77)

a. Compliance with Green Building Requirements During Plan-Check
Requirement: The project applicant shall comply with the requirements of the California Green Building Standards (CALGreen) mandatory measures and the applicable requirements of the City of Oakland Green Building Ordinance (chapter 18.02 of the Oakland Municipal Code).

i. The following information shall be submitted to the City for review and approval with the application for a building permit:
   - Documentation showing compliance with Title 24 of the current version of the California Building Energy Efficiency Standards.
   - Completed copy of the final green building checklist approved during the review of the Planning and Zoning permit.
   - Copy of the Unreasonable Hardship Exemption, if granted, during the review of the Planning and Zoning permit.
   - Permit plans that show, in general notes, detailed design drawings, and specifications as necessary, compliance with the items listed in subsection (ii) below.
   - Copy of the signed statement by the Green Building Certifier approved during the review of the Planning and Zoning permit that the project complied with the requirements of the Green Building Ordinance.
   - Signed statement by the Green Building Certifier that the project still complies with the requirements of the Green Building Ordinance, unless an Unreasonable Hardship Exemption was granted during the review of the Planning and Zoning permit.
   - Other documentation as deemed necessary by the City to demonstrate compliance with the Green Building Ordinance.

ii. The set of plans in subsection (i) shall demonstrate compliance with the following:

- CALGreen mandatory measures.
- All pre-requisites per the green building checklist approved during the review of the Planning and Zoning permit, or, if applicable, all the green building measures approved as part of the Unreasonable Hardship Exemption granted during the review of the Planning and Zoning permit.
- The point level certification requirement is 53 points for residential and LEED Gold (mid-60 points minus cool roof requirements) for non-residential per the appropriate checklist approved during the Planning entitlement process.
- All green building points identified on the checklist approved during review of the Planning and Zoning permit, unless a Request for Revision Plan-check application is submitted and approved by the Bureau of Planning that shows the previously approved points that will be eliminated or substituted.
- The required green building point minimums in the appropriate credit categories.

When Required: Prior to approval of construction-related permit
Initial Approval: Bureau of Building
Monitoring/Inspection: N/A

b. Compliance with Green Building Requirements During Construction

Requirement: The project applicant shall comply with the applicable requirements of CALGreen and the Oakland Green Building Ordinance during construction of the project.

The following information shall be submitted to the City for review and approval:

i. Completed copies of the green building checklists approved during the review of the Planning and Zoning permit and during the review of the building permit.
Ii. Signed statement(s) by the Green Building Certifier during all relevant phases of construction that the project complies with the requirements of the Green Building Ordinance.
iii. Other documentation as deemed necessary by the City to demonstrate compliance with the Green Building Ordinance.

When Required: During construction
Initial Approval: N/A
Monitoring/Inspection: Bureau of Building

c. Compliance with Green Building Requirements After Construction

Requirement: Within sixty (60) days of the final inspection of the building permit for the project, the Green Building Certifier shall submit the appropriate documentation to Build It Green (Res) / Green Building Certification Institute (Commercial) and attain the minimum required certification/point level. Within one year of the final inspection of the building permit for the project, the applicant shall submit to the Bureau of Planning the Certificate from the organization listed above demonstrating certification and compliance with the minimum point/certification level noted above.

When Required: After project completion as specified
Initial Approval: Bureau of Planning
Monitoring/Inspection: Bureau of Building

SCA-UTL-7: Sanitary Sewer System (#79)
Requirement: The project applicant shall prepare and submit a Sanitary Sewer Impact Analysis to the City for review and approval in accordance with the City of Oakland Sanitary Sewer Design Guidelines. The Impact Analysis shall include an estimate of pre-project and post-project wastewater flow from the project site. In the event that the Impact Analysis indicates that the net increase in project wastewater flow exceeds City-projected increases in wastewater flow in the sanitary sewer system, the project applicant shall pay the Sanitary Sewer Impact Fee in accordance with the City's Master Fee Schedule for funding improvements to the sanitary sewer system.
When Required: Prior to approval of construction-related permit
Initial Approval: Public Works Department, Department of Engineering and Construction
Monitoring/Inspection: N/A

SCA-UTL-8: Storm Drain System (#80)
Requirement: The project storm drainage system shall be designed in accordance with the City of Oakland's Storm Drainage Design Guidelines. To the maximum extent practicable, peak stormwater runoff from the project site shall be reduced by at least 25 percent compared to the pre-project condition.
When Required: Prior to approval of construction-related permit
Initial Approval: Bureau of Building
Monitoring/Inspection: Bureau of Building

3. Impacts, Standard Conditions of Approval, and Mitigation Measures

This section analyzes impacts related to public services, utilities, and recreation that could result from implementation of the Eastline project. The section begins with the criteria of significance, which establish the thresholds for determining whether an impact is significant. The latter part of this section presents the impacts associated with the project and identifies SCAs and/or mitigation measures to address these impacts as needed.

a. Significance Criteria

Implementation of the Eastline project would result in a significant impact on the City's public service, utility systems, and recreation if it would:

1. Result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios,

response times, or other performance objectives for any of the following public services: **fire protection**, **police protection**, **schools**, **parks**, other **public facilities.**

2. Increase the use of existing neighborhood or regional **parks** or other **recreational facilities** such that substantial physical deterioration of the facility would occur or be accelerated; or
3. Include **recreational facilities** or require the construction or expansion of recreational facilities which might have a substantial adverse physical effect on the environment.
4. Exceed **wastewater treatment** requirements of the San Francisco Bay Regional Water Quality Control Board;
5. Require or result in construction of new **storm water drainage** facilities or expansion of existing facilities, construction of which could cause significant environmental effects;
6. Exceed **water supplies** available to serve the project from existing entitlements and resources, and require or result in construction of water facilities or expansion of existing facilities, construction of which could cause significant environmental effects;
7. Result in a determination by the **wastewater treatment** provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the providers' existing commitments and require or result in construction of new wastewater treatment facilities or expansion of existing facilities, construction of which could cause significant environmental effects;
8. Be served by a landfill with insufficient permitted capacity to accommodate the project’s **solid waste disposal** needs and require or result in construction of landfill facilities or expansion of existing facilities, construction of which could cause significant environmental effects;
9. Violate applicable federal, state, and local statutes and regulations related to **solid waste**;
10. Violate applicable federal, state and local statutes and regulations relating to **energy standards**; or
11. Result in a determination by the **energy** provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the providers' existing commitments and require or result in construction of new energy facilities or expansion of existing facilities, construction of which could cause significant environmental effects.

By way of background, Appendix F of the State CEQA Guidelines and Public Resources Code Section 21100(b)(3) provide that a project would be considered to have a significant effect if it would result in wasteful, inefficient, or unnecessary energy use. Neither of those provisions offers a precise threshold of significance for determining whether a project would result in “wasteful, inefficient, or unnecessary energy use.” This lack of a threshold of significance has made it difficult for lead agencies to conduct the analysis contemplated in Appendix F and Section 21100(b)(3). A recent court decision, CCEC v. City of Woodland (2014), 225 Cal. App. 4th 173, held that an EIR had not discussed energy use in sufficient detail. However, that case also did not establish a threshold for determining what constitutes "a wasteful, inefficient or unnecessary energy." Considering the implications of the City of Woodland decision, this EIR applies a "common sense" threshold, whereby a project's energy usage would be considered "wasteful, inefficient, and unnecessary" if the project were to violate Title 24 of the California Code of Regulations,[44] would be inconsistent with the energy-related measures in the City of Oakland's Energy and Climate Action Plan (ECAP), or would otherwise consume a substantially greater amount of energy, in either the construction or operational phase, than similar projects of a similar size that did not incorporate the project's design features and mitigation. This analysis will employ such metrics to judge significance.

b. Less-Than-Significant Public Services, Utilities, and Recreation Impacts

Less-than-significant impacts of the Eastline project related to public services, utilities, and recreation are discussed below. Primary elements of the project that would adversely impact public services, utilities, and recreation are increases in both residential and employment uses. The increases that could result from the Eastline project are summarized in Table V.K-2.

TABLE V.K-2 PROJECTED RESIDENT AND EMPLOYEE GROWTH

Development Scenario	Residents	Employees
Residential/Office Mix Scenario	610	4,540
All Office Scenario	0	6,960
Maximum Residential	2,390	370
Maximum Office	0	12,100

Source: Linda Hausrath, Hausrath Economics Group, 2017. Personal communication with Urban Planning Partners, October 9.

(1) Fire Protection

The Eastline project would create an increase in demand for fire services within the City. Implementation of the Residential/Office Mix Scenario with up to 395 residential units would add approximately 610 persons to the city's population. In addition, this scenario could also lead to indirect population growth for the approximately 4,500 jobs created as

[44] No other federal or state regulatory energy efficiency standards apply to the project.

part of the proposed retail and office space. Implementation of the All Office Scenario could lead to indirect population growth for the approximate 7,000 jobs created. Implementation of the Maximum Residential Scenario would result in up to 1,556 residential units would add an estimated 2,390 persons and could also lead to indirect population growth for the approximate 370 jobs created. The Maximum Office Scenario has no residential units but could lead to indirect population growth for the approximately 12,100 jobs that could be created.[45] The addition of between 610 and 2,390 persons to the city's population would represent approximately 5 percent of its existing and projected population (estimated at 551,100 by 2040[46]). The addition of between 370 and 12,100 new employees could also lead to indirect population growth.

The Oakland Fire Department would be the main service provider for fire response, with Fire Stations 1 and 15 within ½-mile of the project site, which the Oakland Fire Department considers an acceptable distance to maintain the standard response time. While the increased population may slightly increase response times within the area due to additional calls for service, the increase is not anticipated to cause the Oakland Fire Department to exceed the response time goal of 7½ minutes for 90 percent of the time. Residential projects constructed in the vicinity of the project site in recent years have not impacted the Oakland Fire Department's ability to maintain these response times; the only anticipated additional calls would be industrial accidents that could potentially occur during the construction period of the project.[47]

The project would be required to meet all City of Oakland and California State Fire Code requirements for sprinkled systems, alarms, fire flow, access, and fire hydrant spacing, in accordance with SCA-UTL-1: Compliance with Other Requirements (#3). Therefore, the project would have less-than-significant impacts on the need for additional fire protection facilities and require no mitigation measures.

(2) Police Protection

The project would result in an increased demand for the Oakland Police Department. As discussed above, the addition of 610 to 2,390 persons to the city's population would represent less than 5 percent of its existing and projected population; however, this increase would represent a larger percentage of the total increase in the overall citizen population within Beat 4X. The increased population would increase the number of calls for service within Beat 4X.

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[45] Hausrath, Linda, Hausrath Economics Group, 2017. Personal communication with Urban Planning Partners. October 9.

[46] City of Oakland, 2014. Housing Element 2015-2023. December 9.

[47] Hoffman, Deputy Chief Mark, Oakland Fire Department, 2017. Personal communication with Urban Planning Partners, January 16.

In late 2015, the Oakland Police Department had 737 sworn officers, averaging 1 officer per 573 residents.[48] While the increase in demand would potentially trigger the need to staff additional police to achieve officer-to-resident ratios and maintain acceptable response times, it would not trigger the need for additional police facilities.[49] Thus, the project would have less-than-significant impacts on the need for additional police protection facilities and require no mitigation measures.

(3) Schools

According to the OUSD, the number of students per new residential housing unit is 0.274. Under the Residential/Office Mix Scenario with up to 395 new residential units, an estimated 108 new students would be placed into the OUSD. Under the Maximum Residential Scenario with up to 1,556 residential units, an estimated 426 new students would be placed into the OUSD.

As described within this section, Oakland Technical High School and Lincoln Elementary are both operating at or above maximum capacity. However, Lafayette Elementary, Westlake Middle, and West Oakland Middle schools within the project area are currently operating below capacity. Both Westlake Middle and West Oakland Middle schools are anticipated to have available capacity to future students. In 2017-2018, Lafayette Elementary grades TK-3 program will be merging with the Martin Luther King Jr. Elementary at the Martin Luther King Jr. Elementary campus. In addition, the Martin Luther King Jr. Elementary grades 4-5 program will merge with the Lafayette grades 4-5 program to be located on the Lowell campus.[50] Therefore, Lafayette Elementary will not experience any capacity issues for future students in the 2017-2018 school year.

To address the increased demand placed on the OUSD by the project, the project applicant would pay the required development fee to the OUSD. Pursuant to California Education Code Section 17620(a)(1), developers pay fees to address additional demand placed on the school district by the project. The current impact/mitigation fee is $3.48 per square foot of residential development and $0.56 per square foot of

[48] City of Oakland, 2016. Oakland Police Department Strategic Plan 2016. Available at: http://www2.oaklandnet.com/oakca1/groups/police/documents/webcontent/oak056503.pdf, accessed January 16, 2017.

[49] Stoffman, Bruce, Oakland Police Department, 2017. Personal communication with Urban Planning Partners, September 4.

[50] Oakland Unified School District Board of Education, 2017. Resolution No. 1617-0144, March 8.

TABLE V.K-3 SCHOOL IMPACT FEES

Development Scenario	Residential Development	Commercial Development	Total
Residential/Office Mix Scenario	$1,270,200[a]	$540,708[b]	$1,810,908
All Office Scenario	--	$856,800[c]	$856,800[d]
Maximum Residential	$5,748,960[e]	$55,563[f]	$5,804,523
Maximum Office	--	$1,554,560[g]	$1,554,560

[a] (Residential Building Area)x ($3.48)= (365,000)x($3.48) =$1,270,200
[b] (Office Building Area + Retail Building Area)x ($0.56)= (880,550+85,000)x($0.56) =$540,708
[c] (Office Building Area + Retail Building Area)x ($0.56)= (1,450,000+80,000)x($0.56) =$856,800
[d] (Office Building Area + Retail Building Area)x ($0.56)= (1,450,000+80,000)x($0.56) =$856,800
[e] (Residential Building Area)x ($3.48)= (1,652,000)x($3.48) =$5,748,960
[f] (Retail Building Area)x ($0.56)= (99,220)x($0.56) =$55,563
[g] (Office Building Area + Retail Building Area)x ($0.56)= (2,689,000+87,000)x($0.56) =$1,554,560
Source: Oakland Unified School District, 2016b. School Facility Few Justification Report for Residential, Commercial & Industrial Development Projects. June.

commercial/industrial.[51] The impact fees for each development scenario is shown in Table V.K-3.

For the Residential/Office Mix Scenario, this would result in a total of approximately $1,810,908 in fees paid by the developer to the OUSD. For the All Office Scenario, the fee would be approximately $856,800. For the Maximum Office and Residential Scenarios, the fee would be approximately $1,554,560 and $5,804,523, respectively. With the payment of these fees, the impact of the project on school facilities would be less than significant.

(4) Libraries

It is anticipated that proposed project residents would primarily patronize the Asian, Lakeview, and West Oakland branch libraries due to the proximity of these facilities to the project site. The project would cause an increase in the demand for library services due to the addition of between 610 to 2,390 residents generated by the project. LUTE Policy N2.2 states that provisions of services by civic and institutional uses should be distributed and coordinated to meet the needs of city residents. Adherence to this policy would reduce the potential impact on libraries to less than significant. In addition, the Facilities Plan calls for expansions of the three closest branches to the proposed project. Thus, the Oakland library system has adequate capacity to serve the incremental increase

[51] Oakland Unified School District, 2016b. School Facility Few Justification Report for Residential, Commercial & Industrial Development Projects, June.

in library use that would result from the implementation of the proposed project and would not require the unanticipated construction of new or remodeled library facilities.

(5) Parks and Recreation

The project would introduce approximately 610 to 2,390 new residents that would use both neighborhood and community parks in the area. As stated above, the Central/Chinatown area has a higher than average existing local-serving park acreage of 1.65 acres per 1,000 residents.[52] Using the City ratio of 4 acres of local-serving parkland per 1,000 residents' ratio, the additional 610 to 2,390 project residents would yield an increased demand of between 2.44 and 9.56 acres of parkland in the Central/Chinatown area. Although the Residential/Office Mix Scenario and Maximum Residential Scenario would increase the resident population, substantial or accelerated physical deterioration of existing parks and open space is not expected. The Residential/Office Mix Scenario complies with the OSCAR Element recommendations by incorporating a 8,800-square-foot ground-level lobby as a community gathering area as well as a 5,400-square-foot pocket park on the corner of Telegraph Avenue and 21st Street. Additionally, both the Residential/Office Mix Scenario and Maximum Residential Scenario comply with Oakland's Planning Code of providing a minimum of 75 square feet of useable open space per dwelling unit.

While the project would increase demand on parks in the area, a number of parks already exist near the project site. These include Madison Park and Harrison (Chinese Garden) Park, each 1.38 acres and located ¼ mile to the north; Henry J. Kaiser Memorial Park, a 0.5-acre park, located less than ¼ mile from the project site; Lake Merritt, along with Children's Fairyland and Lakeside Park, approximately ¼-mile east of the site; and Snow Park, 4.2 acres, ½-mile to the east. Jefferson Square Park and Lafayette Square are both approximately 1½ acres and located approximately 1½ miles to the southwest; Matson Campbell Park, at 3.1 acres, is less than 1 mile to west of the project site on the western side of Interstate 980. Therefore, the project would have less-than-significant impacts on existing park and recreational facilities and require no mitigation measures.

(6) Water Supply

EBMUD would be the main water supplier for the project. In fiscal year 2015, EBMUD's system demand averaged 190 mgd. Estimates of annual water use for each development scenario were prepared by EBMUD. The estimates show that the project could potentially use between 162,000 and 273,000 gpd,[53] depending on the development scenario. The

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[52] City of Oakland, 1996. City of Oakland General Plan, Open Space, Conservation, and Recreation Element, June.

[53] East Bay Municipal Utility District (EBMUD), 2017c. Water Supply Assessment for Eastline Project – 2100 Telegraph.

anticipated daily demand for water that would result from implementation of the project represents approximately 0.09 and 0.14 percent of average daily water demand from EBMUD. EBMUD's water demand projections take into consideration densification and land use changes within commercial and residential areas; therefore these increases are not expected to cause any impacts on water supply to the project site.

The project is not currently a candidate for recycled water. The project has minimal irrigation demand, and providing recycled water for toilet flushing in the structures would be prohibitively expensive. The project area is not located within the vicinity of an existing future planned EBMUD recycled water supply pipeline. However, the project would include a number of water conservation measures, including low-flow fixtures.

Thus, the project would have less-than-significant impacts on available water supplies and not trigger the construction of additional water facilities.

(7) Wastewater Treatment

Based on wastewater generation numbers provided in the City of Oakland Sanitary Sewer Design Standards, implementation of the proposed project would be expected to generate an additional 265,460 gpd to 546,500 gpd (assuming 200 gpd per two-bedroom unit, 200 gpd per 1,000 square feet of office use, and 100 gpd per 1,000 square feet of retail use or community space).[54] This wastewater would be sent to the MWWTP in West Oakland. As described above, the MWWTP's average flow into the plant is 54 mgd, and its maximum secondary treatment capacity is 168 mgd.[55] Wastewater generated by the project would represent less than 0.15 to 0.33 percent of the MWWTP's secondary treatment capacity. Because the project would be served by the MWWTP for its wastewater treatment, it would not violate the wastewater treatment requirements of the San Francisco Bay RWQCB.

In addition, the project would be required to adhere to SCA-UTL-7: Sanitary Sewer System (#79). Under these standards, the project would require an impact analysis to ensure that the existing system has enough hydraulic capacity to accommodate the development.

Therefore, the project would have less-than-significant impacts on wastewater capacity, would not trigger the need for additional wastewater treatment facilities, and would not violate any wastewater treatment requirements set by the San Francisco Bay RWQCB.

[54] City of Oakland, 2008. Sanitary Sewer Design Standards, August.

[55] City of Oakland, 1996. City of Oakland General Plan, Open Space, Conservation, and Recreation Element, June.

(8) Stormwater

As explained in *Section V.H, Hydrology and Water Quality*, the applicant would be required to prepare an Erosion and Sedimentation Control Plan (SCA-HYD-1) that would prevent excessive erosion and stormwater runoff of solid materials as a result of construction activities and a Post-Construction Stormwater Management Plan (SCA-HYD-3), which would ensure that stormwater management systems are appropriately designed and maintained to prevent flooding on site. In addition, the project would be subject to SCA-UTL-2: Construction Management Plan (#13), which requires compliance with stormwater pollution prevention during construction and SCA-UTL-8: Storm Drain System (#80), which requires the project storm drainage system be designed in accordance with the City of Oakland's Storm Drainage Design Guidelines.

Under these requirements, drainage from the proposed improvements would not exceed the capacity of the downstream drainage system. Grading and stormwater pollution management plans must be reviewed for compliance with these requirements by the City's Bureau of Planning and Building. Any improvements to the storm drainage system deemed necessary by the City, including construction of or improvements to stormwater conveyances, must be part of the conditions of approval for development. These measures would require participation in the necessary stormwater and sanitary sewer infrastructure improvements to accommodate the project. Therefore, the project is not anticipated to require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects, and this impact would be less than significant.

(9) Solid Waste

The project would be served by landfills with the capacity to handle solid waste generated by both the demolition and operational phases of the project. As required by ABA 393, the California Integrated Waste Management Act, a minimum of 50 percent of the city's waste must be recycled.

The average resident of Oakland disposes of 3.4 pounds of waste per day and the average employee disposes of 7.4 pounds per day. The estimated 610 residents and 4,500 employees that would result from implementation of the Residential/Office Mix Scenario would generate an estimated 35,374 pounds per day (approximately 17.7 tons per day) of solid waste. This represents less than 0.2 percent of the total daily permitted throughput for both the Davis Street facility and the Altamont Landfill. The estimated 7,000 employees that would result from implementation of the All Office Scenario would generate an estimated 51,800 pounds per day (approximately 25.9 tons per day) of solid waste. This represents less than 0.2 percent of the total daily permitted throughput for both the Davis Street facility and the Altamont Landfill.

The estimated 2,390 residents and 370 employees that would result from implementation of the Maximum Residential Scenario would generate an estimated 8,126 pounds per day (approximately 5.4 tons per day) of solid waste. This represents less than 0.1 percent of the total daily permitted throughput for both facilities. The estimated 12,100 employees that would result from implementation of the Maximum Office Scenario would generate an estimated 89,540 pounds per day (approximately 44.8 tons per day) of solid waste. This represents less than 0.8 percent of the total daily permitted throughput for both facilities.

Demolition activities associated with the removal of existing structures, paved asphalt areas, and utilities would be subject the City's Construction and Demolition Debris Waste Reduction and Recycling Requirements, which require that a project applicant submit an WRRP to divert 50 percent of all construction and demolition debris. In addition, the project must be in compliance with the SCA-UTL-2: Construction Management Plan (#13), which requires compliance with waste reduction and recycling during construction, SCA-UTL-3: Construction and Demolition Waste Reduction and Recycling (#74), and Oakland Municipal Code Chapter 15.34, which requires implementation of a Construction and Demolition Waste Reduction and Recycling Plan for construction phases. Thus, the project would not substantially affect the remaining capacity of local landfills and would not violate any applicable solid waste regulations.

(10) Electricity and Gas

The project would cause an increased demand for electrical and gas services, but would be developed in a location where such services are already being provided. Connecting new buildings to existing lines would involve relatively minor improvements to the existing energy infrastructure.

During operations, the project's energy demand is estimated as follows.[56]

- Electricity: With LEED Silver certification, under the Residential/Office Mix Scenario, the project would consume approximately 22.2 million kilowatt-hours (kWh) of electricity per year, under the Maximum Office Scenario, the project would consume approximately 49.2 million kWh of electricity per year, and under the All Office Scenario, the project would consume approximately 27.5 million kWh of electricity per year. With LEED Platinum certification, under the Residential/Office Mix Scenario, the project would consume approximately 13.7 million kilowatt-hours (kWh) of electricity per year, under the Maximum Office Scenario, the project would consume approximately 27.8 million kWh of electricity per year, and under the All Office

[56] Note: Arup based energy demand figures on a series of fairly generic assumptions. A 10 percent margin of error should be assumed.

Scenario, the project would consume approximately 15.75 million KWh of electricity per year.

- Natural Gas: With LEED Silver certification, under the Residential/Office Mix Scenario, the project would consume approximately 236,000 therms of natural gas per year, under the Maximum Office Scenario, the project would consume approximately 358,000 therms of natural gas per year, and under the All Office Scenario, the project would consume approximately 196,000 therms of natural gas per year. With LEED Platinum certification, under the Residential/Office Mix Scenario, the project would consume approximately 152,000 therms of natural gas per year, under the Maximum Office Scenario, the project would consume approximately 201,000 therms of natural gas per year, and under the All Office Scenario, the project would consume approximately 111,00 therms of natural gas per year.

Energy Use Efficiencies

As described herein, the project would include a range of energy-use efficiencies.

- The applicant will pursue a minimum of LEED Silver certification but aims for LEED Gold or Platinum rating. This LEED program includes strategies that optimize the energy performance and environmental and health benefits for the buildings and their inhabitants. Energy reduction strategies that would be implemented include energy efficiency measures for the building facade, HVAC, and lighting.

Based on the above analysis, the project would be a consumer of energy for ongoing operations. However, with mitigation identified in this EIR for other environmental topics, energy consumption would be reduced even further, as follows.

- The project would implement SCA-UTIL-3: Construction and Demolition Waste Reduction and Recycling (#74), which would require the project to divert construction and demolition debris waste from landfill disposal in accordance with current City requirements. In addition, SCA-GHG-1: Greenhouse Gas Reduction Plan (#38) would require a series of measures during and after construction that would increase energy efficiency and reduce GHG emissions. Lastly, SCA-UTL-6: Green Building Requirements (#77) would require the project to comply with the requirements of the California Green Building Standards (CALGreen) mandatory measures and the applicable requirements of the City of Oakland Green Building Ordinance.

With the SCAs described above, the project would include a number of improvements that would result in greater energy efficiency than required in statutes (e.g. Title 24) than similarly sized developments. Therefore, the project would not result in the wasteful, inefficient, or unnecessary use of energy. The project components would not require or result in construction of new energy facilities or expansion of existing facilities, construction of which could cause significant environmental effects. As such, the project would have a less-than-significant impact on electricity and gas.

c. Significant Public Services, Utilities, and Recreation Impacts and Mitigation Measures

Implementation of the project would not result in any public services, utilities, or recreation impacts; all impacts would be less than significant with implementation of the City's SCAs, as discussed above.

d. Cumulative Public Services, Utilities, and Recreation Impacts

The project and cumulative projects would incrementally increase the demand for fire, police, school, and recreation services. These services are subject to an annual budgeting process during which service priorities are established and service levels are monitored, allowing for adjustments where needed. Changes in demand for these services are expected to be incremental, allowing for carefully planned expansions of existing facilities. Any expansions would be likely to occur on sites already occupied by existing service providers. Therefore, no cumulative impacts to these services are anticipated that would result in adverse physical impacts associated with the maintenance of service standards.

(1) Police and Fire Protection

The anticipated growth associated with the project, in combination with past, present, and reasonably foreseeable future projects, could increase the need for additional City fire protection and City police services and could affect response times, service levels, and the need for additional facilities. Cumulative demand for police, fire, and emergency services would be mitigated to less-than-significant levels through individual project planning, design, and approvals. Similar measures could also be incorporated into other planned projects of a similar size, which would reduce the impact of cumulative development on emergency response times (and avoid the need for new capital facilities to retain existing response times). Additionally, the project would incorporate design measures aimed to heighten safety (through lighting, access, and visibility) to public spaces and would develop emergency response and security plans in coordination with the relevant City departments. In addition, throughout the course of the development review process, the police and fire departments will review plans and other physical features which will provide enhanced life safety standards, such as exterior lighting levels, fire hydrants locations, and other facilities. Thus, no cumulative impacts to police, fire, and emergency services are anticipated that would result in adverse physical impacts associated with the maintenance of service standards.

(2) Schools

School-aged children generated by the project, in conjunction with those generated by other foreseeable development in the City, would result in a cumulative increased demand and could result in a potentially significant impact on schools. However, since the schools are projected to be at or below capacity in the 2017-2018 school year (with the exception of Oakland Technical High School which is currently operating above capacity) such an increase would not result in the need for new or physically-altered school facilities in order to maintain acceptable service ratios or other performance objectives at local public schools. Additionally, pursuant to SB 50, the project applicants of all future projects would be required to pay school impact fees established to offset potential impacts on school facilities. Therefore, cumulative impacts of development on school district facilities would be less than significant.

(3) Libraries

Development in Uptown, including the project, would result in an increased population, which could result in the need for new or expanded library facilities. The Oakland Public Library has prepared a Facilities Plan that includes a needs assessment and long-range strategy to address the community's growing needs for library services, which takes into account the long-term population growth anticipated for the City. The plan is funded in part by Measure Q in March 2004 to facilitate library improvements and expansion. As part of this effort, the library is evaluating ways the existing libraries could improve the delivery of programs, services, and materials. Thus, library system improvements are underway to address cumulative demand. The project would increase the population served by the Asian, Lakeview, and West Oakland Branches (which are all just over 1 mile from the project site), and thus there would be a greater cumulative demand for books, library programs, and resources. The increased population from the project would result in a greater utilization of library facilities but would not result in the expansion of the facility beyond what is already being proposed as part of the Facilities Plan. Consequently, the project would not be expected to have a considerable contribution to a cumulative impact that would require a new or expanded branch library.

(4) Parks and Recreation

As stated in the OSCAR Element and noted above, the City is falling short of meeting its goal of providing 10 acres per 1,000 residents. The project, in conjunction with other past, present, planned and foreseeable development under the cumulative scenario, would contribute to the need for new or expanded park and recreational facilities citywide necessary to achieve the goals set forth in the OSCAR Element. However, the fact that this goal is not met would not necessarily result in physical environmental impacts. It is not expected that there will be a substantial or accelerated physical deterioration of existing park and open space facilities. Continued implementation of Policy Rec-10.2, the Parkland Dedication and Impact Fee, would ensure that parks or public facilities are well-maintained and improved as needed, avoiding substantial physical deterioration of recreational facilities. Therefore, no significant cumulative impacts are expected.

(5) Water and Wastewater

The project and cumulative development projects would incrementally increase demand for wastewater and water services and other utilities in Oakland. While development of the project would place additional demands on City services and utility projects, buildout of the project and other planned development would not result in any significant impacts to services and utility projects, as discussed above. EBMUD accounted for water demands associated with the project within the 2015 Urban Water Management Plan (UWMP). The UWMP acknowledges that Oakland is projected to continue to have over 25 percent of the county's residents, adding over 135,000 residents and 63,000 new jobs by 2040. In addition, EBMUD has stated that it can meet customer demands for treated water through 2040 during normal years and single dry years.[57] Assuming adherence to the City's SCAs, it is not expected that the project in combination with other cumulative development would result in a significant impact on these utilities.

(6) Solid Waste

As stated previously, the Residential/Office Mix Scenario would generate an estimated 35,374 pounds (approximately 17.7 tons) per day of solid waste. This represents less than 0.2 percent of the total daily permitted throughput for the Davis Street facility and county landfills. The All Office Scenario would generate an estimated 51,800 pounds (approximately 25.9 tons) per day of solid waste, which represents less than 0.2 percent of the total daily permitted throughput for the Davis Street facility and county landfills. Similarly, the Maximum Residential Scenario would generate an estimated 8,126 pounds per day (approximately 5.4 tons per day) of solid waste. This represents less than 0.1 percent of the total daily permitted throughput for both facilities. And the Maximum Office Scenario would generate an estimated 89,540 pounds (approximately 44.8 tons) per day of solid waste. This represents less than 0.8 percent of the total daily permitted throughput for both facilities.

It is not projected that the amount of waste generated from the project in conjunction with other cumulative development would exceed the capacity of these solid waste facilities. In addition, all cumulatively considerable projects would be required to be within compliance of the City's waste reduction and recycling requirements. Thus, the cumulative impact of the project would be less than significant.

(7) Electricity and Gas

The project would increase demand on electrical and gas services, but would be developed in an area where these services already exist, along with other foreseeable

[57] East Bay Municipal Utility District (EBMUD), 2016a. 2015 Urban Water Management Plan, page 57. Adopted June.

cumulative development projects. Further, the extent to which demand would grow is not expected to have a significant adverse cumulative impact. All applicable cumulatively considerable developments, including the project, would be subject to California Title 24 energy conservation standards for new construction which require specific energy-conserving design features, the use of non-depletable energy resources, or a demonstration that buildings would comply with a designated energy budget. Therefore, the project would not violate applicable statues and regulation related to energy standards. No significant adverse cumulative energy impacts are expected.

The City of Oakland's ECAP requires new development to include electricity and natural gas efficiency improvements and incorporate TDM efforts to reduce the number of vehicle miles traveled, which will further the efficient use of energy. Consequently, the project, in combination with other development in the project area, would not be expected to use natural gas or electricity in a wasteful manner. Cumulative impacts related to the wasteful or inefficient use of energy would be less than significant.

VI. EFFECTS FOUND NOT TO BE SIGNIFICANT OR LESS THAN SIGNIFICANT WITH STANDARD CONDITIONS OF APPROVAL

This chapter contains a brief analysis of the environmental topics determined to be less than significant relevant to the proposed Eastline Project – 2100 Telegraph (Eastline project or project). The following topics were excluded from extensive discussion in this EIR: Agriculture and Forest Resources; Biological Resources; Mineral Resources; and Population and Housing. During the scoping phase for the EIR, it was determined that the project would have no impact or a less-than-significant impact related to these topics as a result of the project's characteristics and, if applicable, the implementation of the City of Oakland's (City) Standard Conditions of Approval (SCAs).

A. AGRICULTURE AND FOREST RESOURCES

The project would be located in a built-out urban area that contains a variety of industrial, warehouse, commercial, residential, and joint living and working uses. Neither the project site nor any adjacent land has been identified as an agricultural resource or forest land, and there are no agricultural uses in the vicinity.[1, 2] The project therefore would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use, and would not result in the loss of forest land or conversion of forest land to non-forest use. Thus, the project would not have any impact on agriculture or forest resources.

B. BIOLOGICAL RESOURCES

The project site is in a built-out urban area that contains a variety of industrial, warehouse, commercial, residential, and mixed living/working uses. The project would replace a fast food restaurant, existing office buildings, and a two-level public parking structure. The project site contains 29 trees along its perimeter, which would be replaced, but no other plants. The site does not provide habitat for any plant or animal species and it is not located within a designated habitat area, including Resource Conservation Areas designated by the City.[3] Given the area's long-standing (80-year), existing urban setting,

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[1] City of Oakland, 1996. General Plan, Open Space, Conservation, & Recreation Element, June.

[2] California Department of Conservation, 2015. Farmland Mapping and Monitoring Program, California Important Farmland Finder.

[3] City of Oakland, 2016. General Plan Designations Map, December 14.

and because the site has been disturbed by development, it is unlikely to be a part of an established native resident or migratory wildlife corridor. The project would not conflict with any local policies or ordinances protecting biological resources, including the City's Tree Protection Ordinance and Creek Protection Ordinance.[4]

In addition, the SCAs listed below would be adopted as requirements of the project to further ensure no significant impacts to biological resources occur.

SCA-BIO-1: Tree Removal During Bird Breeding Season (#26)
Requirement: To the extent feasible, removal of any tree and/or other vegetation suitable for nesting of birds shall not occur during the bird breeding season of February 1 to August 15 (or during December 15 to August 15 for trees located in or near marsh, wetland, or aquatic habitats). If tree removal must occur during the bird breeding season, all trees to be removed shall be surveyed by a qualified biologist to verify the presence or absence of nesting raptors or other birds. Pre-removal surveys shall be conducted within 15 days prior to the start of work and shall be submitted to the City for review and approval. If the survey indicates the potential presence of nesting raptors or other birds, the biologist shall determine an appropriately sized buffer around the nest in which no work will be allowed until the young have successfully fledged. The size of the nest buffer will be determined by the biologist in consultation with the California Department of Fish and Wildlife, and will be based to a large extent on the nesting species and its sensitivity to disturbance. In general, buffer sizes of 200 feet for raptors and 50 feet for other birds should suffice to prevent disturbance to birds nesting in the urban environment, but these buffers may be increased or decreased, as appropriate, depending on the bird species and the level of disturbance anticipated near the nest.
When Required: Prior to removal of trees
Initial Approval: Bureau of Building
Monitoring/Inspection: Bureau of Building

SCA-BIO-2: Tree Permit (#27)
a. Tree Permit Required
Requirement: Pursuant to the City's Tree Protection Ordinance (OMC chapter 12.36), the project applicant shall obtain a tree permit and abide by the conditions of that permit.
When Required: Prior to approval of construction-related permit
Initial Approval: Permit approval by Public Works Department, Tree Division; evidence of approval submitted to Bureau of Building
Monitoring/Inspection: Bureau of Building

[4] City of Oakland, 1996. General Plan. Open Space, Conservation, & Recreation Element. June.

b. Tree Protection During Construction

Requirement: Adequate protection shall be provided during the construction period for any trees which are to remain standing, including the following, plus any recommendations of an arborist:

i. Before the start of any clearing, excavation, construction, or other work on the site, every protected tree deemed to be potentially endangered by said site work shall be securely fenced off at a distance from the base of the tree to be determined by the project's consulting arborist. Such fences shall remain in place for duration of all such work. All trees to be removed shall be clearly marked. A scheme shall be established for the removal and disposal of logs, brush, earth and other debris which will avoid injury to any protected tree.

ii. Where proposed development or other site work is to encroach upon the protected perimeter of any protected tree, special measures shall be incorporated to allow the roots to breathe and obtain water and nutrients. Any excavation, cutting, filing, or compaction of the existing ground surface within the protected perimeter shall be minimized. No change in existing ground level shall occur within a distance to be determined by the project's consulting arborist from the base of any protected tree at any time. No burning or use of equipment with an open flame shall occur near or within the protected perimeter of any protected tree.

iii. No storage or dumping of oil, gas, chemicals, or other substances that may be harmful to trees shall occur within the distance to be determined by the project's consulting arborist from the base of any protected trees, or any other location on the site from which such substances might enter the protected perimeter. No heavy construction equipment or construction materials shall be operated or stored within a distance from the base of any protected trees to be determined by the project's consulting arborist. Wires, ropes, or other devices shall not be attached to any protected tree, except as needed for support of the tree. No sign, other than a tag showing the botanical classification, shall be attached to any protected tree.

iv. Periodically during construction, the leaves of protected trees shall be thoroughly sprayed with water to prevent buildup of dust and other pollution that would inhibit leaf transpiration.

v. If any damage to a protected tree should occur during or as a result of work on the site, the project applicant shall immediately notify the Public Works Department and the project's consulting arborist shall make a recommendation to the City Tree Reviewer as to whether the damaged tree can be preserved. If, in the professional opinion of the Tree Reviewer, such tree cannot be preserved in a healthy state, the Tree Reviewer shall require replacement of any tree removed with another tree or trees on the same site deemed adequate by the Tree Reviewer to compensate for the loss of the tree that is removed.

vi. All debris created as a result of any tree removal work shall be removed by the project applicant from the property within two weeks of debris creation, and such debris shall be properly disposed of by the project applicant in accordance with all applicable laws, ordinances, and regulations.

When Required: During construction
Initial Approval: Public Works Department, Tree Division
Monitoring/Inspection: Bureau of Building

c. Tree Replacement Plantings

Requirement: Replacement plantings shall be required for tree removals for the purposes of erosion control, groundwater replenishment, visual screening, wildlife habitat, and preventing excessive loss of shade, in accordance with the following criteria:

i. No tree replacement shall be required for the removal of nonnative species, for the removal of trees which is required for the benefit of remaining trees, or where insufficient planting area exists for a mature tree of the species being considered.

ii. Replacement tree species shall consist of Sequoia sempervirens (Coast Redwood), Quercus agrifolia (Coast Live Oak), Arbutus menziesii (Madrone), Aesculus californica (California Buckeye), Umbellularia californica (California Bay Laurel), or other tree species acceptable to the Tree Division.

iii. Replacement trees shall be at least twenty-four (24) inch box size, unless a smaller size is recommended by the arborist, except that three fifteen (15) gallon size trees may be substituted for each twenty-four (24) inch box size tree where appropriate.

iv. Minimum planting areas must be available on site as follows:

- For Sequoia sempervirens, three hundred fifteen (315) square feet per tree;
- For other species listed, seven hundred (700) square feet per tree.

v. In the event that replacement trees are required but cannot be planted due to site constraints, an in lieu fee in accordance with the City's Master Fee Schedule may be substituted for required replacement plantings, with all such revenues applied toward tree planting in city parks, streets and medians.

vi. The project applicant shall install the plantings and maintain the plantings until established. The Tree Reviewer of the Tree Division of the Public Works Department may require a landscape plan showing the replacement plantings and the method of irrigation. Any replacement plantings which fail to become established within one year of planting shall be replanted at the project applicant's expense.

When Required: Prior to building permit final
Initial Approval: Public Works Department, Tree Division
Monitoring/Inspection: Bureau of Building

C. MINERAL RESOURCES

The project would be located in an urban area and would replace existing office buildings and a two-level public parking structure. The project site has no known existing mineral resource. The project would not require quarrying, mining, dredging, or extraction of locally important mineral resources on site, nor would it deplete any known mineral resource that would be of value to the region and the residents of the state. As a result, the project would have no significant impacts related to mineral resources.

D. POPULATION AND HOUSING

The proposed project may include a mix of retail and residential or office development, or a combination of all three land uses. Under the Maximum Residential Scenario, up to 1,556 new residential units could be developed with no office space, and under the Maximum Office Scenario up to 2,689,000 square feet of office space could be developed and residential would not be included. The proposed Residential/Office Mix and All Office Scenarios are between these two maximum scenarios. Each of the four scenarios is considered to provide an evaluation of the range of population impacts that could occur depending on what is ultimately developed under the proposed PUD/PDP.

Development under the proposed project would not displace existing housing units or residents on the project site as there is no existing residential development there.

Under the Maximum Office Scenario, or some reduced version of it, the project would not include any residential development, and therefore would not directly accommodate population growth. As outlined in Table V.K-2 of *Chapter V.K, Public Services, Utilities, and Recreation,* the proposed project would accommodate up to approximately 12,100 jobs on the project site under the Maximum Office Scenario. Under the scenarios expected to be developed, the All Office Scenario would accommodate up to 7,000 jobs in the project and the Residential/Office Mix Scenario would accommodate up to 4,500 jobs in the project. The Maximum Residential Scenario would accommodate up to 400 jobs in the project. According to the Association of Bay Area Governments (ABAG), the number of jobs in the city of Oakland is expected to increase by approximately 65,000 (approximately 31 percent) between 2015 and 2040.[5] Job growth in the project would fall well within the range of projected and planned growth for Oakland.

Many of those employed in the project would include people who already live in Oakland and surrounding East Bay cities and who would change their workplace or become

[5] Association of Bay Area Governments (ABAG), 2013. Projections 2013.

employed as a result of the project.[6] Employment in the project would provide job opportunities for Oakland and East Bay residents to work closer to home and avoid/reduce commutes, opportunities for new jobs nearby to advance skills and experience, and opportunities to become employed and gain experience for residents not now employed or seeking a new career. The project also would employ people who would seek housing in Oakland and the surrounding East Bay to be closer to their new place of work, thereby increasing housing demand and, eventually, population growth in the East Bay.

As an employment center city, Oakland is both a place of employment and a place of work. The total number of jobs is similar to the number of employed residents of the city. A large share of jobs in Oakland is held by Oakland residents, about 40 percent currently, according to recent data from the U. S. Census.[7] Another large share of jobs is held by residents of nearby cities and other parts of the East Bay. That pattern is anticipated to apply to future job growth in the project.

If the project includes residential development, the project would result in the construction of a mixed-use development with between approximately 395 and 1,556 units. According to the Association of Bay Area Governments (ABAG), the number of housing units within the city of Oakland is expected to increase by approximately 49,070 (approximately 30 percent) between 2015 and 2040.[8] If residential is developed under the PUD/PDP, the project could account for up to 3 percent of the increase in households, which is within the anticipated household growth for the city of Oakland and not considered substantial.

Oakland has impact fees to address the affordable housing impacts of development. Funds from these fees would be used to increase the supply of affordable housing in Oakland and would also accommodate additional households and population in the city. Office development on the site would pay the Jobs-Housing Impact Fee (generating approximately $4.7 million under the proposed Residential/Office Mix Scenario, $7.8 million under the proposed All Office Scenario, and $14.5 million under the Maximum Office Scenario).[9] Residential development on the site would pay the Affordable Housing Impact Fee or include affordable housing on-site (generating up to $8.7 million for the proposed Residential/Office Mix Scenario and up to $34.2 million for the Maximum

[6] Major tenants for the project are those that value the project's access to the workforce in Oakland and surrounding East Bay cities.

[7] 2011-2015 American Community Survey 5-Year Estimates.

[8] Association of Bay Area Governments (ABAG), 2013. Projections 2013.

[9] Based on fee of $5.44 per sf office space over 25,000 sf. Actual amount paid would be higher as fee increases over time by a cost index.

Residential Scenario, if all residential development paid the fee).[10] The number of additional units supported by these fees depends on the degree of affordability served and the extent that City funds can be leveraged to attract additional funding for affordable housing. Potentially, the maximum number of additional affordable units that could be funded would range from 70 units for the All Office Scenario, to 120-130 units for both the Maximum Office and Residential/Office Mix Scenario scenarios to 300 units for the Maximum Residential Scenario.[11] The additional affordable units would accommodate additional households and population in Oakland.

The U.S. Census population for the city of Oakland in 2010 was 390,724. According to ABAG's 2013 Projections, Oakland is expected to reach a population of 551,100 by 2040. For Oakland, ABAG projected a 12.5 percent population growth rate between 2010 and 2020, or an increase by 48,876 persons.[12] Assuming an average of 1.6 persons per residential unit, based on research from Hausrath Economics Group of U. S. Census data for Census tracts in Downtown Oakland, data/information for new housing developments in Downtown, and unit mix and sizes anticipated for the development, the project could result in up to 2,390 additional residents (with 1,556 new units under the Maximum Residential Scenario). If the lower end of residential units (395) is developed as proposed under the Residential/Office Mix Scenario, the project would result in approximately 610 new residents. Residents that may be added by the project (between 610 and 2,390 persons) would represent a small share of projected and planned population growth for the city. Thus, the project would not induce substantial population growth in a manner not contemplated in the General Plan, including the 2015–2023 Housing Element, and would not displace substantial numbers of existing housing or people.

The project could help the city further achieve the goals of the Housing Element. Under the Residential/Office Mix Scenario and Maximum Residential Scenario, more housing would be developed. Under all development scenarios, the project would accommodate job growth furthering the General Plan's vision for downtown as a dynamic economic center of office activity and enhancing the city's jobs-housing balance by providing opportunities to both live and work in downtown and in the city of Oakland.

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[10] Estimated based on fee of $22,000 per unit for building permits as of June 30, 2018.

[11] Hausrath Economics Group (HEG), consistent with similar estimates in Economic Feasibility Study for Oakland Impact Fee Program, HEG Report to City of Oakland, April 2016 (see *Chapter V*).

[12] City of Oakland, 2014. 2015–2023 Housing Element, pages 210-211, December 9.

VII. ALTERNATIVES

The CEQA Guidelines require the analysis of a range of reasonable alternatives to the proposed Eastline Project – 2100 Telegraph ("project"), or to the location of the project, which would feasibly attain most of the project's basic objectives and avoid or substantially lessen any of the significant effects of the project. The range of alternatives required in an EIR is governed by a "rule of reason" that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice.[1] An EIR need not consider every conceivable alternative to a project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation.

The primary purpose of this chapter is to ascertain whether there are alternatives of design, scale, land use, or location that would substantially lessen the project's significant impacts, even if those alternatives "impede to some degree the attainment of the project objectives, or would be more costly."[2]

The three project alternatives considered include:

- The **No Project/No Build Alternative** assumes the project site would remain in its current condition and no new development would be constructed on the project site.
- **Reduced Office Alternative** assumes a less dense office project than the Maximum Office Scenario. This alternative would include 1,579,000 square feet of office space and 80,000 square feet of retail space and all air quality impacts would be reduced to a less-than-significant level.
- **Reduced Building/Preservation Alternative**, which assumes development would occur on all parcels with the exception of 2150 Telegraph Avenue/495 22nd Street. The alternative would preserve the former Kwik Way at this location which is an historic resource under CEQA. Development would include a 38-level, 250,000 square-foot residential tower with 360 units and an 18-level 450,000 square-foot office tower with 75,000 of retail space.

Comparisons of these alternatives with the project are provided in Table VII-1.

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[1] CEQA Guidelines, Section 15126.6.

[2] CEQA Guidelines, Section 15126.6(b).

TABLE VII-1 SUMMARY OF PUD/PDP AND ILLUSTRATIVE DEVELOPMENT SCENARIOS

	Residential		Commercial			
PROJECT						
PUD/PDP		395–1,556 units	1,475,050–2,800,000 sf			
Development Scenarios	**Residential Building Area (sf)**	**Dwelling (units)**	**Office Building Area (sf)**	**Retail Building Area (sf)**	**Community Space (sf)**	**Parking Levels**
Maximum Residential	1,652,000	1,556	–	99,220	37,150	3
Residential/Office Mix	**365,000**	395	**880,550**	**85,000**	**18,500**	**6**
All Office	**0**	0	**1,450,000**	**80,000**	**22,790**	**6**
Maximum Office	0	0	2,689,000	87,000	0	3
Total Development Range	up to 1,652,000	up to 1,556	up to 2,689,000	80,000–99,220	0–37,150	3–6
PROJECT ALTERNATIVES						
No Project/No Build	--	--	53,314	2,115	--	2
Reduced Office	--	--	1,579,000	80,000	0	3–6
Reduced Building/ Preservation	250,000	360	450,000	75,000	0	2

Notes: sf = square feet
The development scenarios aligned with the FDPs are presented in **bold**.

The remainder of this chapter is organized as follows: overview of project objectives and impacts; description of alternatives considered and rejected; description and analysis of CEQA project alternatives; and discussion of environmentally superior alternatives.

A. PROJECT OBJECTIVES AND IMPACTS

To determine what range of alternatives should be considered, the impacts identified for the project were considered along with the project objectives. The project is described in detail in *Chapter III, Project Description,* and the potential environmental effects of the project are analyzed in *Chapter V, Setting, Impacts, Standard Conditions of Approval and Mitigation Measures*. The project objectives and impacts are summarized below.

1. Project Objectives

The project objectives, which are first presented in *Chapter III, Project Description*, include:

- Redevelop a block composed of underutilized downtown properties into an iconic mixed-use development that maximizes the site's development potential based on the site's General Plan and zoning designations and market demand.
- Develop a project that strengthens and revitalizes the urban fabric of Downtown and the Uptown District, improves public safety, and activates the connection between Broadway and Telegraph Avenue.
- Establish a development program and project of a scale that is feasible given the unique development and engineering constraints associated with the BART tunnels and zone of influence that traverse the site and that provides flexibility to be responsive to market demand.
- Establish a development program and project that will successfully integrate the significant historic resources near the project site.
- Include a vibrant mix of uses including office, retail, community and/or residential uses at densities to help address an existing deficit and anticipated future need for these types of spaces in downtown Oakland.
- Potentially provide an increased opportunity for office tenants desiring a significant amount of large floor-plate space to locate in Oakland.
- Enhance and create employment opportunities and provide a robust economic impact on the City.
- Collaborate with Oakland's vibrant arts community to integrate local art and community elements into the project.
- Increase transit ridership and enhance quality of life at and around the 19th Street BART station and Downtown transit corridor by encouraging and supporting high quality transit-oriented development within walking distance of the BART station.
- Utilize advanced sustainable building design to be environmentally responsible and resource efficient throughout the life cycle of the development.
- Utilize progressive parking management strategies and ensure areas utilized for parking are designed to support conversion to alternative uses.
- Replace existing parking.
- Provide connectivity between the Broadway and Telegraph corridors and between Uptown and Downtown uses.

- Support the City's General Plan goals by creating a high density, vibrant infill development project that helps revitalize the City's Downtown Corridor and embodies principles of sustainable planning and construction.
- Generate significant new revenue streams for the City through increased property tax bases, retail revenue, jobs creation, gross receipts taxes, impact fees and new office worker population that support Broadway and Telegraph Avenue businesses.

2. Project Impacts

As detailed in *Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures* and *Chapter VI, Effects Found not to be Significant*, the project's impacts, with the exception of four significant and unavoidable impacts, would be less than significant with implementation of the City's Standard Conditions of Approval (SCAs) and/or mitigation measures. To help define project alternatives that could further reduce or eliminate significant impacts, the impacts of the project are summarized below.

Potentially significant and unavoidable impacts are identified for the following resource topics:

- Cultural and Historic Resources — Construction of the project would require the demolition of all buildings on site, one of which could be eligible for the California Register of Historic Resources (CRHR): 2150 Telegraph Avenue/495 22nd Street.
- Air Quality — Operation of the project under the project's Maximum Office Scenario would generate air pollutants that could violate an air quality standard or contribute substantially to an existing or projected air quality violation.
- Aesthetics, Shade and Shadow, and Wind — Under the All Office Scenario and Maximum Office Scenario, wind levels could exceed the City's wind hazard criterion of winds above 36 mph for more than 1 hour per year during daylight hours during the year.
- Aesthetics, Shade and Shadow, and Wind — Under the Maximum Residential Scenario, All Office Scenario, and Maximum Office Scenario, cumulative wind levels could exceed the City's wind hazard criterion of winds above 36 mph for more than 1 hour per year during daylight hours during the year.

Potentially significant impacts that could be mitigated to a less-than-significant level with implementation of recommended mitigation measures or SCA implementation measures (as described in Table II-3 Summary of Impacts and Standard Conditions of Approval and Mitigation Measures in *Chapter II, Summary*) include:

- Soils, Geology, and Seismicity — (Impact GEO-1: Damage to structures could result from unstable soil conditions during the operation period of the project.)

- Hazards and Hazardous Materials – (Impact HAZ-1: Contaminated soil, groundwater, and potential USTs in the subsurface of the project site could pose a risk of exposure to hazardous materials.)

Project impacts are anticipated to be less than significant for all other environmental topics.

B. ALTERNATIVES CONSIDERED AND REJECTED

In considering the range of alternatives to be analyzed in an EIR, alternatives were identified during design development that were not selected to be further analyzed in this document, given that they would not feasibly attain most of the project's basic objectives and avoid or substantially lessen a significant effect of the project. Given that the most severe impacts that would result from the project are related to air quality and historic resources, the alternatives chosen to be further analyzed in this chapter were those that best addressed and mitigated the project's air quality and cultural and historic impacts identified.

C. CEQA ALTERNATIVES CONSIDERED

The principal characteristics of each and associated effects relative to the proposed project are described below for each alternative. The alternatives included are intended to meet the CEQA requirement to consider a range of reasonable alternatives to the project that would feasibly attain most of the basic objectives of the project while avoiding or substantially lessening significant impacts.

1. No Project/No Build Alternative

a. Principal Characteristics

The No Project/No Build Alternative assumes that the project site would remain in its current condition and would not be subject to new development. The five existing buildings would remain, including the two-level parking structure. The No Project/No Build Alternative is considered to compare the impacts of approving the project to not approving the project. No physical alterations to the existing city block would occur and the structures would continue to be utilized for parking and commercial uses. Some of the building areas that are currently vacant may be leased with uses that are allowed by the site's current zoning such as retail, office and restaurants, which are by right uses. If the vacant space is leased it would reestablish pedestrian, bike and pedestrian activity to what it was when the buildings were previously occupied.

b. Relationship to Project Objectives

The No Project/No Build Alternative would not achieve any of the key project objectives, including those related to:

- Redeveloping a block composed of underutilized downtown properties into an iconic mixed-use development that maximizes the site's development potential based on the site's General Plan and zoning designations and market demand.
- Developing a project that strengthens and revitalizes the urban fabric of Downtown and the Uptown District, improving public safety, and activating the connection between Broadway and Telegraph Avenue.
- Potentially providing an increased opportunity for office tenants desiring a significant amount of large floor-plate space to locate in Oakland.
- Enhancing and creating employment opportunities and provide a robust economic impact on the City.

c. Analysis of the No Project/No Build Alternative

(1) Land Use

Implementation of the No Project/No Build Alternative would result in the continuation of existing land uses on the project site, which is currently developed with five partially vacant structures, including a two-level parking structure. No new land uses would be introduced beyond the uses that are permitted by zoning including uses such as restaurants, retail and office. If the buildings are released over time, this alternative would not result in any significant land use impacts, similar to the proposed project.

(2) Cultural and Historic Resources

The No Project/No Build Alternative would not cause a substantial adverse change in the significance of historical or archaeological resources. Under this alternative, the project site would remain as it currently exists. As described in *Section V.B, Cultural and Historic Resources*, of this EIR, the project would result in the demolition of one building that could be eligible for the CRHR: 2150 Telegraph Avenue/495 22nd Street.

Because this alternative would not result in demolition nor the construction of a new building on the site, it would avoid the significant impacts identified for the project (see Impact HIST-1). As such, the No Project/No Build Alternative would result in less severe cultural impacts compared to the project.

(3) Traffic and Transportaion

The No Project/No Build Alternative would not significantly alter traffic and transportation conditions at or around the project site. As described in *Section V.C, Traffic and Transportation* of this EIR, the project would result in no significant traffic-related impacts, including to traffic load and capacity, traffic safety, transit travel time, transportation hazards, pedestrian and transit rider safety, parking, and policy consistency, and this alternative would also result in no significant impacts. Additionally, any less-than-significant impacts would be further reduced given the development intensity of the existing structures in substantially less than the project.

(4) Air Quality

The No Project/No Build Alternative would not substantially change existing air quality. As described in *Section V.D, Air Quality*, of this EIR, neither project operation or construction would result in any significant impacts with one exception, in that operation of the project under the Maximum Office Scenario would generate criteria air pollutants that may violate an air quality standard or contribute substantially to an existing or projected air quality violation. Under this alternative, there would be no significant construction activity or increases in vehicle trips associated with new development of the project. Unlike the project, the No Project/No Build Alternative would not trigger potentially significant impacts related to increased emissions. This alternative would eliminate the significant and unavoidable impact identified for the project's Maximum Office Scenario (see Impact AIR-1). As such, the No Project/No Build Alternative would result in less severe air quality impacts compared to the project.

(5) Greenhouse Gas Emissions

The No Project/No Build Alternative would result in no operational or construction activity at the project site. As a result, it would not significantly increase greenhouse gas (GHG) emissions. As described in *Section V.E, Greenhouse Gas Emissions*, of this EIR, the project would not result in potentially significant impacts related to GHG emissions. This alternative would not conflict with any plans or policies related to the reduction of GHGs. As such, the No Project/No Build Alternative would result in less severe greenhouse gas emissions impacts compared to the project.

(6) Soils, Geology, and Seismicity

The No Project/No Build Alternative would not result in the exposure of new people or new structures to major seismic hazards. As described in *Section V.F, Soils, Geology, and Seismicity*, of this EIR, the project site is susceptible to seismic ground shaking, ground failure (including liquefaction, lateral spreading, and collapse) and aseismic settlement, differential settlement, cyclic densification, and expansive soils. Given no new development would occur on the site, this alternative would avoid the need for mitigation measures to address potentially significant impacts associated with new buildings on a site with potentially unstable soil conditions. However, the project site, and its existing structures, would still be susceptible to seismic ground shaking and unstable soils, as identified in the analysis of the Eastline project, but this would not be a significant change over existing conditions (see Impact GEO-1). As such, the No Project/No Build Alternative would result in less severe soils, geology, and seismicity impacts compared to the project and any impacts would not be considered significant.

(7) Hazards and Hazardous Materials

Implementation of the No Project/No Build Alternative would keep the site in its existing condition. As such, this alternative would not cause significant hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials, or create a significant hazard to the public or the environment through reasonable foreseeable upset or accident conditions involving the release of hazardous materials into the environment. As described in *Section V.G, Hazards and Hazardous Materials*, of this EIR, contaminated soil, groundwater, and potential underground storage tanks (USTs) in the subsurface of the project site could pose a risk of exposure to hazardous materials. Unlike the project, this alternative would not expose construction workers or the public to hazardous materials from contaminants in the soil during and following construction activities, or expose workers or the public to airborne toxics, (e.g., lead-based paint, Polychlorinated biphenyls, and asbestos) during demolition (see Impact HAZ-1). As such, the No Project/No Build Alternative would result in less severe hazards and hazardous materials impacts compared to the project.

(8) Hydrology and Water Quality

The No Project/No Build Alternative would not result in the construction of any new structures, and the project site would remain in its current state. As described in *Section V.H, Hydrology and Water Quality*, of this EIR, the project would not result in potentially significant impacts related to hydrology and water quality. This alternative would produce no new significant impacts related to water quality standards, water quality degradation, runoff, flooding, water-oriented natural hazards, groundwater or drainage. As such, the No Project/No Build Alternative would not result in any significant hydrology and water quality impacts.

(9) Noise and Vibration

No construction activity would occur under the No Project/No Build Alternative. As described in *Section V.I, Noise and Vibration* of this EIR, the project would not result in potentially significant impacts related to noise and vibration. This alternative would not result in increased traffic and would not expose new residences or offices to increased noise levels; therefore, the No Project/No Build Alternative would result in no significant impacts related to noise exposure, increased noise levels and construction-related noise.

(10) Aesthetics, Shade and Shadow, and Wind

Under the No Project/No Build Alternative, the project site would remain under existing conditions, and its visual quality and impact on scenic resources unchanged. As described in *Section V.J, Aesthetics, Shade and Shadow, and Wind*, of this EIR, the project would not result in potentially significant impacts to visual character or scenic vistas. However, the All Office Scenario and Maximum Office Scenario could result in wind levels that exceed the City's wind hazard criterion of winds above 36 mph for more than 1 hour per year during daylight hours during the year. In addition, under the Maximum Residential Scenario, All Office Scenario, and Maximum Office Scenario, cumulative wind levels could exceed the City's wind hazard criterion (see Impacts AES-1 and 2). As no new development would result under the No Project/No Build Alternative, there would be no impacts related to light, glare, and wind, unlike the Eastline project. Therefore, the No Project/No Build Alternative would result in a less severe aesthetic impact compared to the project.

(11) Public Services, Utilities, and Recreation

The No Project/No Build Alternative would result in no new improvements or population or employment increase at the project site. As described in *Section V.K, Public Services, Utilities, and Recreation* of this EIR, the project would not result in potentially significant impacts related to public services, utility systems, or recreation. As a result, it would place no significant new demands on any City services, utilities, infrastructure or parks. This alternative would not result in any significant impacts related to public services, utilities and recreation.

2. Reduced Office Alternative

a. Principal Characteristics

The Reduced Office Alternative assumes a reduction in overall building square footage from the Maximum Office Scenario but more than the All Office Scenario to avoid significant and unavoidable air quality impacts. The Reduced Office Alternative assumes development of up to 1,579,000 square feet of office space, 80,000 square feet of retail space, and 1,750 parking spaces, compared to the project's Maximum Office Scenario that includes 2,689,000 square feet of office, 87,000 square feet of retail and 1,750 parking spaces.

b. Relationship to Project Objectives

The Reduced Office Alternative would achieve many of the key objectives of the project, including those related to:

- Redevelop a block composed of underutilized downtown properties into an iconic mixed-use development that maximizes the site's development potential based on the site's General Plan and zoning designations and market demand.
- Develop a project that strengthens and revitalizes the urban fabric of Downtown and the Uptown District, improves public safety, and activates the connection between Broadway and Telegraph Avenue.
- Establish a development program and project of a scale that is feasible given the unique development and engineering constraints associated with the BART tunnels and zone of influence that traverse the site and that provides flexibility to be responsive to market demand.
- Potentially provide an increased opportunity for office tenants desiring a significant amount of large floor-plate space to locate in Oakland.
- Enhance and create employment opportunities and provide a robust economic impact on the City.

c. Analysis of the Reduced Office Alternative

(1) Land Use

Implementation of the Reduced Office Alternative includes similar land uses as those proposed under the project. The project PUD/PDP allows for a mix of residential, office, and commercial retail uses. As described in *Section V.A, Land Use*, of this EIR, the project would not result in potentially significant impacts related to land use. Similarly, this Reduced Office Alternative would not physically divide the existing community, nor conflict with habitat conservation plans. This alternative would not result in any additional significant land use impacts.

(2) Cultural and Historic Resources

The Reduced Office Alternative, similar to the project, would cause a substantial adverse change in the significance of an historical resource. As described in *Section V.B, Cultural and Historic Resources*, of this EIR, the project would result in the demolition of a building that could be eligible for the CRHR: 2150 Telegraph Avenue/495 22nd Street (as described in Impact HIST-1). The Reduced Office Alternative also includes demolition of 2150 Telegraph Avenue/495 22nd Street, the former Kwik Way restaurant. As a result, the impact of this alternative would be significant and unavoidable and considered equal to the project.

(3) Traffic and Transportation

Like the project, the Reduced Office Alternative would not result in any significant traffic and transportation impacts. *Chapter V.C, Transportation,* studies the maximum development envelope that could occur under the project's PUD/PDP. While this alternative includes less development than the project, the similarity of this alternative to the project in terms of land uses, and parking spaces means that impacts to the surrounding transportation and traffic environment would be similar as well. The City's traffic and transportation thresholds for traffic and transportation are based on Vehicle Miles Traveled (VMT). A project would cause substantial additional VMT if it exceeds the existing regional VMT per employee minus 15 percent, and such project's impact would be significant. Given the project's site location on top of the 19^{th} BART Station, this alternative similar to the project, would not cause substantial additional VMT.

(4) Air Quality

The Reduced Office Alternative would contribute to an increase in emissions affecting air quality due to construction activities; however, to a lesser extent than the project. As described in *Section V.D, Air Quality*, of this EIR, potential construction impacts of the project related to fugitive dust and exhaust emissions would be significant due to project construction activities including the use of off-road construction equipment and on-road vehicles. In addition, operation of the project under the Maximum Office Scenario would generate criteria air pollutants that could violate an air quality standard or contribute substantially to an existing or projected air quality violation. Under the Reduced Office Alternative, there would be construction activities and an increase in vehicle trips as compared with existing conditions. The smaller development assumed under this alternative would decrease the emissions effecting air quality. Under the project's Residential/Office Mix Scenario, Maximum Residential Scenario, and All Office Scenario, the estimated emissions of ROG, $NO_{x,}$ and exhaust PM_{10} and $PM_{2.5}$ were below the applicable thresholds of significance (after applying City Standard Conditions of Approval (SCAs)); therefore, operation of the Residential/Office Mix Scenario, the Maximum Residential Scenario, and the All Office Scenario would result in a less-than-significant impact on regional air quality standards. Under the Maximum Office Scenario, the estimated emissions of ROG and NO_x exceeded the applicable thresholds (see Impact AIR1). Like the project, the Reduced Office Alternative would not result in significant impacts related to criteria air pollutants, toxic air contaminants, emissions standards, and odors. The Reduced Office Alternative is smaller in size and scale to the Maximum Office Scenario, and did not exceed applicable thresholds; therefore, the significant and unavoidable impact related to criteria air pollutant (ROG and NO_x) would be reduced to a less-than-significant level.

(5) Greenhouse Gas Emissions

The Reduced Office Alternative would result in similar operational and construction activity at the project site. As described in *Section V.E, Greenhouse Gas Emissions*, of this EIR, the project would not result in potentially significant impacts related to greenhouse gas emissions. As a result, development under this alternative would produce new GHG emissions, though incrementally less than the project. As would be the case under the project, this alternative would not conflict with any plans or policies related to the reduction of GHGs. Similar to the project, construction and operation of the alternative project would result in numerous activities that contribute to GHG emissions; however, these emissions would not exceed BAAQMD thresholds. The emissions generated would be incrementally less than the project if future development under the PUD/PDP (e.g., Maximum Office Scenario) is more intense than this Reduced Office Alternative.

(6) Soils, Geology, and Seismicity

Under the Reduced Office Alternative, the project site would still be susceptible to seismic ground shaking, ground failure (including liquefaction, lateral spreading, and collapse) and seismic settlement, differential settlement, cyclic densification, and expansive soils as are identified under the project (see Impact GEO-1). However, because of the reduced square footage under this alternative, fewer employees and visitors would be exposed to the hazards expressed above, as compared to development that could occur under the PUD/PDP which is more intense than this alternative. As with the project, the potential significant impact related to unstable soil would be reduced to a less-than-significant level with implementation of Mitigation Measure GEO-1 identified in *Chapter V.F, Soils, Geology, and Seismicity.*

(7) Hazards and Hazardous Materials

As described in *Section V.G, Hazards and Hazardous Materials*, of this EIR, construction of the project would expose construction workers or the public to hazardous materials from contaminants in the soil during and following construction activities, or expose workers or the public to airborne toxics, (e.g., lead-based paint, Polychlorinated biphenyls, and asbestos) during demolition (see Impact HAZ-1). The impacts of the Reduced Office Alternative would be essentially the same as the project as the same level of soil disturbance and subsurface work would occur. Implementation of SCA Implementation Measure HAZ-1 recommended for the project would also reduce this potential impact to a less-than-significant level.

(8) Hydrology and Water Quality

The Reduced Office Alternative would result in the construction of new structures and landscaping, on the project site. Under this alternative, the same amount of existing impervious surface area would be replaced as the project (over 10,000 square feet). Given that the site under former conditions has the same impervious area that it would under the project, this alternative would have similar impacts as the project related to hydrology and water quality. With implementation of the SCAs described in *Chapter V.H, Hydrology and Water Quality,* potential impacts related to hydrology and water quality would be reduced to a less-than-significant level in the Reduced Office Alternative.

(9) Noise and Vibration

The Reduced Office Alternative would result in noise impacts associated with the construction of the project, similar to the impacts that would be the result of the project as described in *Section V.J, Noise and Vibration* of this EIR. The smaller development size may result in a slight decrease in construction activity; however, it is likely that use of similar construction equipment over a similar timeframe would be needed under this alternative. Construction activities would generate minimal, temporary increases in noise levels and new traffic resulting from operation of the project would generate negligible increases in noise levels in the area. Similar to the project, implementation of the City's SCAs would lessen the impacts of noise generated by construction to receptors in the vicinity of the project site for the Reduced Office Alternative to less than significant.

(10) Aesthetics, Shade and Shadow, and Wind

The Reduced Office Alternative would result in a less intense development on the site, as the amount of square footage would be less then studied under the maximum development envelope of the project. Like the project, this alternative would be visually compatible with surrounding development, cast shadows on adjacent properties, and introduce new sources of light and glare; however, like the project, development under this alternative would be subject to design review. Under CEQA Section 21099(d), "Aesthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site located within a transit priority area shall not be considered significant impacts on the environment." This section is provided solely for informational purposes and is not used to determine the significance of environmental impacts pursuant to CEQA. However, with implementation of the SCA recommended in *Section V.J, Aesthetics, Shade and Shadow, and Wind,* this alternative would not result in any significant impacts related to aesthetic shade and shadow. As with the project, this alternative may result in a wind impact depending on the final design, and even with the implementation of AES-1, this impact would remain significant and unavoidable.

(11) Public Services, Utilities, and Recreation

The Reduced Office Alternative would have fewer employees then the maximum development envelope for the project. As a result, it's impacts on public services, utilities and recreation could incrementally reduce demand as compared with the project if future development under the PUD/PDP (e.g., Maximum Office Scenario) is more intense than this alternative.

Adherence to the City's SCAs, as described for the project in *Chapter V.K, Public Services, Utilities, and Recreation,* would further ensure that the project's impact on public services, utilities, and recreational facilities are less than significant. The same would be true of the Reduced Office Alternative.

3. Reduced Building/Preservation Alternative

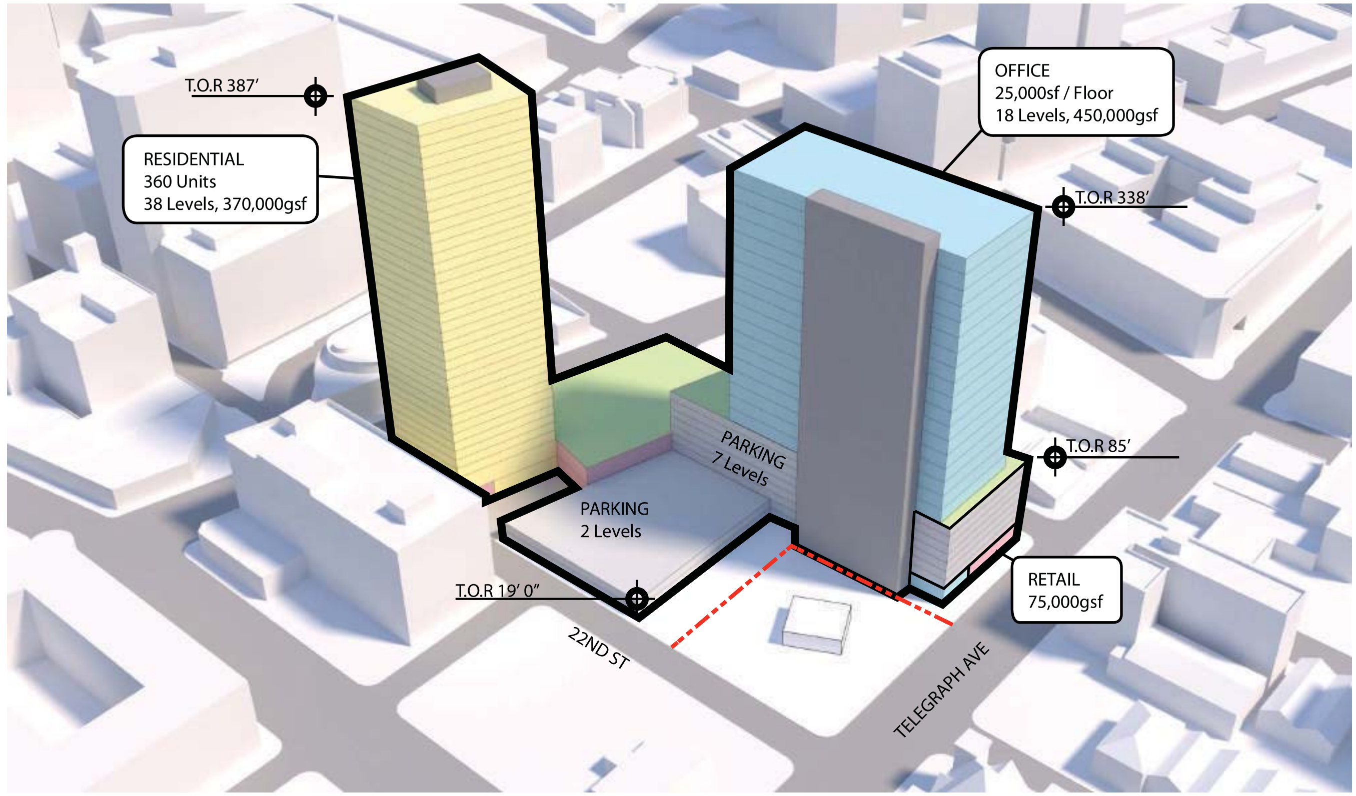
a. Principal Characteristics

The Reduced Building/Preservation Alternative assumes development would occur on the entire site except for the former Kwik Way at 2150 Telegraph/495 22nd Street, which is considered to be a historic resource, which would be preserved under this alternative. Development would include a total of 723,000 square feet housed in two towers: one 38-level tower on Broadway and 21st Street with 250,000 square feet of residential (360 units) and one 18-level tower at Telegraph and 22nd Street with 450,000 square feet of office, seven levels of parking, and 75,000 square feet of ground-floor retail. A two-level parking structure would be in the middle of the site, and a two-story retail building with rooftop open space would be located on the corner of Broadway and 21st Street. A total of 810 parking stalls would be provided. See Figure VII-1, for Conceptual Massing, and Figure VII-2 for a Site Plan.

b. Relationship to Project Objectives

The Reduced Building/Preservation Alternative would achieve many of the key objectives of the project, including those related to:

- Redeveloping a block composed of underutilized downtown properties into an iconic mixed-use development that maximizes the site's development potential based on the site's General Plan and zoning designations and market demand.
- Developing a project that strengthens and revitalizes the urban fabric of Downtown and the Uptown District, improving public safety, and activating the connection between Broadway and Telegraph Avenue.
- Establishing a development program and project of a scale that is feasible given the unique development and engineering constraints associated with the BART tunnels and zone of influence that traverse the site and that provides flexibility to be responsive to market demand.
- Potentially providing an increased opportunity for office tenants desiring a significant amount of large floor-plate space to locate in Oakland.

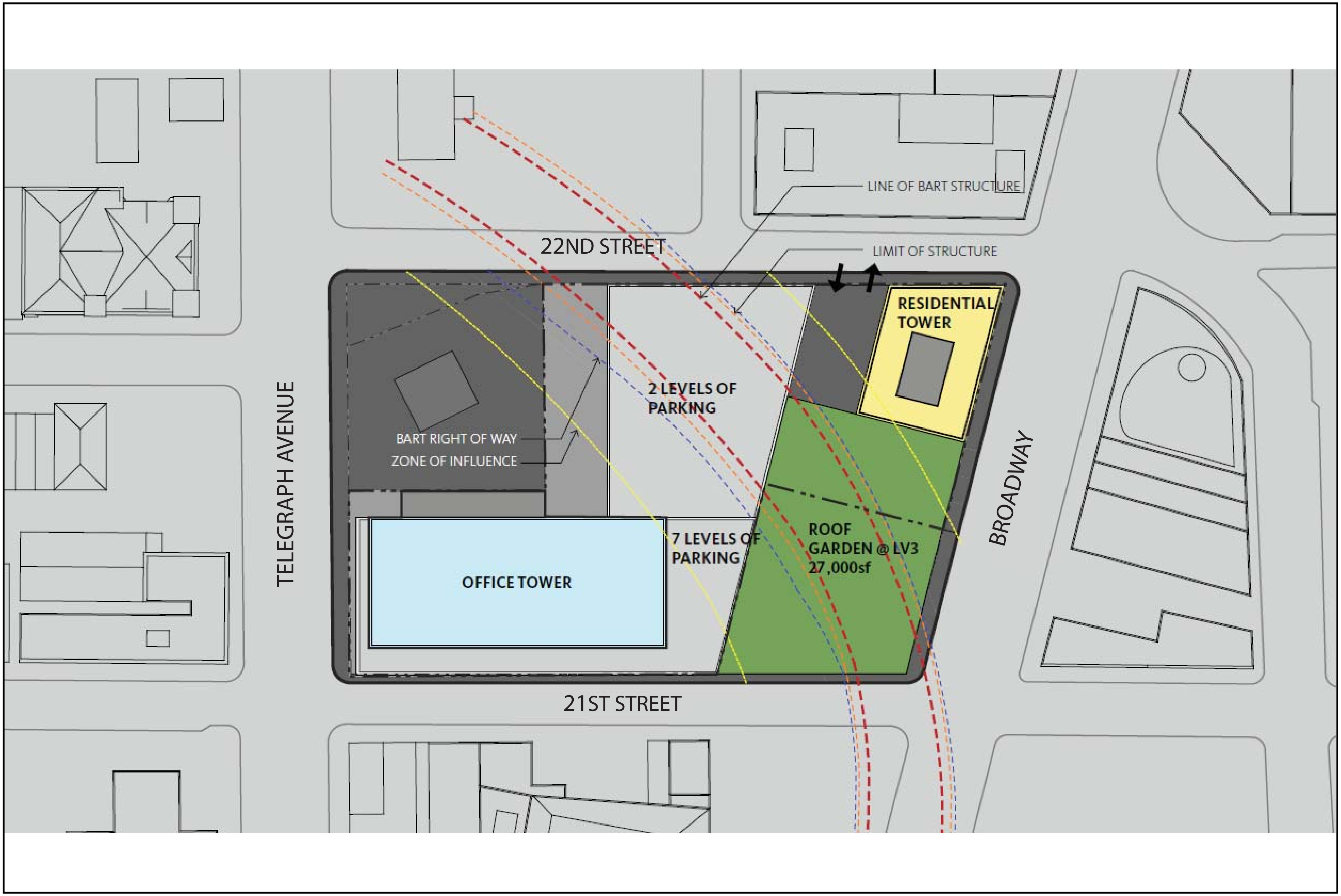


Total GFA	895,000 sf
Office	450,000 sf (25,000sf/Floor)
Retail	75,000 sf
Residential	370,000 sf (360 units)
Parking	Residential 1 per unit = 360stalls Office 1 per 1,000gsf =450 stalls Provided total 810 stalls

Source: Gensler, 2017

Figure VII-1

Conceptual Building Massing - Reduced Building/Preservation Alternative



Source: Gensler, 2017

Figure VII-2
Site Plan - Reduced Building/Preservation Alternative

(1)

- Enhancing and creating employment opportunities and provide a robust economic impact on the City.

c. Analysis of the Reduced Building/Preservation Alternative

(1) Land Use

Implementation of the Reduced Building/Preservation Alternative would result in similar land uses developed on the project site as those proposed under the project including a potential mix of residential, office, and commercial retail uses depending on the development scenario. As described in *Section V.A, Land Use*, of this EIR, the project would not result in potentially significant impacts related to land use. Similarly, this Reduced Building/Preservation Alternative would not physically divide the existing community, nor conflict with habitat conservation plans. This alternative would not result in any significant land use impacts.

(2) Cultural and Historic Resources

As described in *Section V.B, Cultural and Historic Resources*, of this EIR, the project would result in the demolition of a building that could be eligible for the CRHR: 2150 Telegraph Avenue/495 22nd Street, the Kwik Way. Unlike the project, the Reduced Building/Preservation Alternative preserves this potential resource. As a result, the Reduced Building/Preservation Alternative would not cause a significant impact due to the demolition of 2150 Telegraph/495 22nd Street (as described in HIST-1). Under this alternative, this historic resource would remain. Impact HIST-1 would not occur.

(3) Traffic and Transportation

Like the project, the Reduced Building/Preservation Alternative would not result in any significant traffic and transportation impacts. *Chapter V.C, Traffic and Transportation,* studies the maximum development envelope that could occur under the project. While this alternative includes less development than the project, the similarity of this alternative to the project in terms of land uses, and parking spaces means that impacts to the surrounding transportation and traffic environment would be similar as well. The City's traffic and transportation thresholds for traffic and transportation are based on VMT. When, a project would cause substantial additional VMT if it exceeds the existing regional VMT per employee minus 15 percent, a project's impact would be significant. Given the project's site location on top of the 19th BART Station, this alternative similar to the project, would not cause substantial additional VMT.

(4) Air Quality

The Reduced Building/Preservation Alternative would contribute to an increase in emissions affecting air quality due to construction activities; however, to a lesser extent than the project. As described in *Section V.D, Air Quality*, of this EIR, potential construction impacts of the project related to fugitive dust and exhaust emissions would be significant due to project construction activities including the use of off-road construction equipment and on-road vehicles. In addition, operation of the project under the Maximum Office Scenario would generate criteria air pollutants that could violate an air quality standard or contribute substantially to an existing or projected air quality violation. Under the Reduced Building/Preservation Alternative, there would be construction activities and an increase in vehicle trips as compared with existing conditions. The smaller development assumed under this alternative would decrease the emissions effecting air quality. Under the project's Residential/Office Mix Scenario, the Maximum Residential Scenario and the All Office Scenario, the estimated emissions of ROG, $NO_{x,}$ and exhaust PM_{10} and $PM_{2.5}$ were below the applicable thresholds of significance (after applying City SCAs); therefore, operation of the Residential/Office Mix Scenario, the Maximum Residential Scenario, and the All Office Scenario would result in a less-than-significant impact on regional air quality standards. Under the Maximum Office Scenario, the estimated emissions of ROG and NO_x exceeded the applicable thresholds (see Impact AIR-1). Like the project, the Reduced Building/Preservation Alternative would not result in significant impacts related to criteria air pollutants, toxic air contaminants, emissions standards, and odors. The Reduced Building/Preservation Alternative is smaller in size and scale to the Maximum Office Scenario, and did not exceed applicable thresholds; therefore, the significant and unavoidable impact related to criteria air pollutant (ROG and NO_x) would be reduced to a less-than-significant level.

(5) Greenhouse Gas Emissions

The Reduced Building/Preservation Alternative would result in similar operational and construction activity at the project site. As described in *Section V.E, Greenhouse Gas Emissions*, of this EIR, the project would not result in potentially significant impacts related to greenhouse gas emissions. As a result, development under this alternative would produce new GHG emissions, though incrementally less than the project. As would be the case under the project, this alternative would not conflict with any plans or policies related to the reduction of GHGs. Similar to the project, construction and operation of the alternative project would result in numerous activities that contribute to GHG emissions; however, these emissions would not exceed BAAQMD thresholds. The emissions generated would be incrementally less than the project if future development under the PUD/PDP (e.g., Maximum Office Scenario) is more intense than the Reduced Building/Preservation Alternative.

(6) Soils, Geology, and Seismicity

Under the Reduced Building/Preservation Alternative the project site would still be susceptible to seismic ground shaking, ground failure (including liquefaction, lateral spreading, and collapse) and seismic settlement, differential settlement, cyclic densification, and expansive soils as are identified under the project (see Impact GEO-1). However, because of the reduced square footage under this alternative, fewer employees and visitors would be exposed to the hazards expressed above, as compared to development that could occur under the PUD/PDP which is more intense than this alternative. As with the project, the potential significant impact related to unstable soil would be reduced to a less-than-significant level with implementation of Mitigation Measure GEO-1 identified in *Chapter V.F, Soils, Geology, and Seismicity.*

(7) Hazards and Hazardous Materials

As described in *Section V.G, Hazards and Hazardous Materials*, of this EIR, construction of the project would expose construction workers or the public to hazardous materials from contaminants in the soil during and following construction activities, or expose workers or the public to airborne toxics, (e.g., lead-based paint, Polychlorinated biphenyls, and asbestos) during demolition (see Impact HAZ-1). The impacts of the Reduced Building/Preservation Alternative would be essentially the same as the project, as the same level of soil disturbance and subsurface work would occur. Implementation of SCA Implementation Measure HAZ-1 recommended for the project would also reduce this potential impact to a less-than-significant level.

(8) Hydrology and Water Quality

The Reduced Building/Preservation Alternative would result in the construction of new structures and landscaping, on the project site. Under this alternative, the same amount of existing impervious surface area would be replaced as the project (over 10,000 square feet). Given that the site under former conditions has the same impervious area that it would under the project, this alternative would have similar impacts as the project related to hydrology and water quality. With implementation of the SCAs described in *Chapter V.H, Hydrology and Water Quality,* potential impacts related to hydrology and water quality would be reduced to a less-than-significant level in the Reduced Building/Preservation Alternative.

(9) Noise and Vibration

The Reduced Building/Preservation Alternative would result in noise impacts associated with the construction of the project, similar to the impacts that would be the result of the project as described in *Section V.J, Noise and Vibration* of this EIR. The smaller development size may result in a slight decrease in construction activity; however, it is likely that use of similar construction equipment over a similar timeframe would be needed under this alternative. Construction activities would generate minimal, temporary increases in noise levels and new traffic resulting from operation of the project would generate negligible increases in noise levels in the area. Similar to the project, implementation of the City's SCAs would lessen the impacts of noise generated by construction to receptors in the vicinity of the project site for the Reduced Building/Preservation Alternative to less than significant.

(10) Aesthetics, Shade and Shadow, and Wind

The Reduced Building/Preservation Alternative would result in a less intense development on the site, as the amount of square footage would be less then studied under the maximum development envelope of the project. Like the project, this alternative would be visually compatible with surrounding development, cast shadows on adjacent properties, and introduce new sources of light and glare; however, like the project, development under this alternative would be subject to design review. Under CEQA Section 21099(d), "Aesthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site located within a transit priority area shall not be considered significant impacts on the environment." This section is provided solely for informational purposes and is not used to determine the significance of environmental impacts pursuant to CEQA. However, with implementation of the SCA recommended in *Section V.J, Aesthetics, Shade and Shadow, and Wind,* this alternative would not result in any significant impacts related to aesthetic shade and shadow. As with the project, this alternative may result in a wind impact depending on the final design, and even with implementation of Mitigation Measure AES-1, this impact would remain significant and unavoidable.

(11) Public Services, Utilities, and Recreation

The Reduced Building/Preservation Alternative would have fewer employees then the maximum development envelope for the project. As a result, it's impacts on public services, utilities and recreation could incrementally reduce demand as compared with the project if future development under the PUD/PDP (e.g., Maximum Office Scenario) is more intense than this alternative. Adherence to the City's SCAs, as described for the project in *Chapter V.K, Public Services, Utilities, and Recreation,* would further ensure that project's impact on public services, utilities, and recreational facilities are less than significant. The same would be true of the Reduced Building/Preservation Alternative.

D. ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires the identification of the environmentally superior alternative in an EIR. The No Project/No Build Alternative is considered the environmentally superior alternative in the strict sense that environmental impacts associated with its implementation would be the least of all the alternatives examined (including the project). To maintain the project site at its current conditions would avoid each of the impacts that would result from the project. In cases like this where the No Project Alternative is the environmentally superior alternative, CEQA requires that the second most environmentally superior alternative be identified. Comparison of the environmental impacts associated with each alternative as described above, indicates that the Reduced Building/Preservation Alternative would represent the next-best alternative in terms of the fewest significant environmental impacts. Implementation of the Reduced Building/Preservation Alternative would result in slightly reduced environmental impacts and would avoid the significant unavoidable impacts related to Cultural and Historic Resources and Air Quality produced by the project.

VIII. CEQA REQUIRED ASSESSMENT CONCLUSIONS

As required by the California Environmental Quality Act (CEQA), this chapter discusses the following types of impacts that could result from implementation of the Eastline Project – 2100 Telegraph (the project): growth-inducing impacts, significant unavoidable environmental impacts, significant irreversible changes, and cumulative impacts. Effects found not to be significant are discussed in *Chapter VI, Effects Found Not to be Significant or Less Than Significant with Standard Conditions of Approval.*

A. GROWTH-INDUCING IMPACTS

A project is considered growth-inducing if it would directly or indirectly foster economic or population growth or the construction of additional housing. Examples of projects likely to have significant growth-inducing impacts include extensions or expansions of infrastructure systems beyond those needed to serve project-specific demand, and development of new residential subdivisions or industrial parks in areas that are currently only sparsely developed or are undeveloped. Typically, redevelopment projects on infill sites that are surrounded by existing urban uses are not considered growth-inducing because redevelopment by itself usually does not facilitate development intensification on adjacent sites.

The project would not have any growth-inducing effects. The project site is in a developed area that is fully served by public utilities. There are no significant undeveloped areas adjacent to the project site. Additionally, the project would not remove any obstacles that would facilitate growth that could significantly affect the physical environment.

The project would result in the development of 370 to 12,100 permanent jobs, depending on the development scenario. Indirect residential population growth associated with the project could also occur. The economic stimulus generated by the project could result in the creation of new construction-related jobs. However, the jobs created during the construction phase of the project would not be substantial in the context of job growth in Oakland and the region. Although some of the people working on construction of the project could decide to live in Oakland, the migration of these employees into Oakland would not result in a substantial population increase.

Implementation of the project would result in a residential population increase of 610 to 2,390.[1] According to ABAG's 2013 Projections, the City of Oakland is expected to reach a population of more than 551,100 by 2040. For Oakland, ABAG projected a 12.5-percent population growth rate between 2010 and 2020, or an increase of 48,876 persons.[2] Residents added by the project would represent a marginal fraction of this projected and planned growth. The project's associated increase in population would account for approximately 1.2 to 4.9 percent of this increase, which is well within the anticipated population growth for Oakland and not considered substantial.

In addition, the project would be developed on an infill site in an existing urbanized neighborhood in Oakland. It would not result in the extension of utilities or roads into urban areas, and would not directly or indirectly lead to the development of greenfield sites in the East Bay. Because the project site is located within an existing urbanized area, and is immediately adjacent to a major transit station, anticipated growth would benefit the existing transit system and could reduce adverse impacts associated with automobile use, such as air pollution and noise. In addition, the provision of additional housing in Oakland would allow more people to live in an existing urbanized area, which could reduce development pressures on farmland and open space in the greater San Francisco Bay Area. Therefore, the population growth that would occur as a result of project implementation would be largely beneficial and not considered substantial and adverse.

B. SIGNIFICANT IRREVERSIBLE CHANGES

CEQA requires that Environmental Impact Reports (EIRs) assess whether a project could result in significant irreversible changes to the physical environment. These changes may include current or future uses of nonrenewable resources, and secondary or growth-inducing impacts that commit future generations to similar uses. The CEQA Guidelines discuss three categories of significant irreversible changes that should be considered, as discussed below.

1. Changes in Land Use That Commit Future Generations

The project would allow for the redevelopment of one square block, an approximately 3.21-acre site located in the Uptown District of Oakland. The project site currently contains a fast food restaurant, a parking structure, office space, and commercial/retail land uses. It is surrounded by urban development on all sides, and is designated for a mix

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[1] Hausrath, Linda Hausrath Economics Group, 2016. Personal communication with Urban Planning Partners, December 29.

[2] City of Oakland, 2014. 2015-2023 Housing Element, pages 210–211, December 9.

of large-scale offices, commercial, urban (high-rise) residential, institutional, open space, cultural, educational, arts, entertainment, service, community facilities, and visitor uses in the plans and policies of the City of Oakland (City), including the General Plan. Because the project would occur on an infill site on land designated for a mix of land uses, it would not commit future generations to a significant change in land use.

2. Irreversible Damage from Environmental Accidents

No significant irreversible environmental damage, such as what could occur as a result of an accidental spill or explosion of hazardous materials, is anticipated due to implementation of the project. Furthermore, compliance with federal, State of California, and local regulations, and the implementation of the City's Standard Conditions of Approval (SCAs) identified in *Section V.G, Hazards and Hazardous Materials*, would reduce to a less-than-significant level the possibility that hazardous substances within the project site could cause significant environmental damage.

3. Consumption of Nonrenewable Resources

Consumption of nonrenewable resources includes the use of nonrenewable energy sources, conversion of agricultural lands, and loss of access to mining reserves. Because the site has not been used for mineral extraction, loss of access to any minerals that historically occurred on site would not be considered significant. Implementation of the project would require electricity, natural gas, and possibly other forms of energy. However, the scale of such consumption for the proposed uses would be typical for a residential and commercial infill development of this size. The project would incorporate energy-conserving features, as required by the Uniform Building Code and the California Energy Code (Title 24, Part 6) and as stipulated by SCA 77: Green Building Requirements (OMC Chapter 18.02). Additionally, the placement of the project on a site within an urban area near City services and easily accessible transit and regional roadways would facilitate the increased use of public transit, further reducing nonrenewable energy consumption associated with single-occupancy vehicles and reducing total vehicle miles traveled. The project would not convert land used for prime agriculture to residential and public uses, as no agricultural uses or farmland are present within or adjacent to the project site.

C. SIGNIFICANT UNAVOIDABLE ENVIRONMENTAL IMPACTS

As discussed at the end of each topical section in *Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures*, the project would not significantly contribute to any significant and unavoidable impacts, with the exception of impacts related to Cultural and Historical Resources, Air Quality, and Aesthetics, Shade and Shadow, and Wind. Implementation of the project would result in four significant unavoidable impacts that could not be avoided by implementation of mitigation measures, or reduced to a less-than-significant level:

Impact HIST-1: The project proposes demolition of all buildings in the project site, including one building that could be eligible for the California Register of Historical Resources: 2150 Telegraph Avenue/495 22nd Street.

Impact AIR-1: Operation of the project, under the Maximum Office Scenario, would generate criteria air pollutants that could violate an air quality standard or contribute substantially to an existing or projected air quality violation.

Impact AES-1: Under the All Office Scenario and Maximum Office Scenario, wind levels could exceed the City's wind hazard criterion of winds above 36 mph for more than 1 hour per year during daylight hours during the year.

Impact AES-2: Under the Maximum Residential Scenario, All Office Scenario, and Maximum Office Scenario, cumulative wind levels could exceed the City's wind hazard criterion of winds above 36 mph for more than 1 hour per year during daylight hours during the year.

D. CUMULATIVE IMPACTS

CEQA defines cumulative impacts as "two or more individual effects which, when considered together, are considerable, or which can compound or increase other environmental impacts."[3] Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential environmental impacts that are individually limited, but cumulatively considerable. Per Section 15065(a)(3) of the CEQA Guidelines, "cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probably future projects. Cumulative effects of the project are discussed under the respective topic sections in *Chapter V, Settings, Impacts, Standard Conditions of Approval, and Mitigation Measures*.

E. EFFECTS FOUND NOT TO BE SIGNIFICANT

Meetings among representatives of the City departments involved in project planning and review and consultants for the City were held to preliminarily determine the scope of the EIR. In addition to these meetings, a Notice of Preparation (NOP) was circulated on

[3] CEQA Guidelines, Section 15355.

December 2, 2016, and public scoping sessions were held before the Landmarks Advisory Preservation Board on December 12, 2016 and before the Planning Commission on December 21, 2016. Written comments received on the NOP and public comments received during the scoping meetings were considered in the preparation of the final scope for this document and in the evaluation of the project.

The environmental topics analyzed in *Chapter V, Setting, Impacts, Standard Conditions of Approval, and Mitigation Measures* represent the topics that generated the greatest potential controversy and expectation of adverse impacts among City staff and members of the public. The following topics were excluded from discussion in the EIR because it was determined during the scoping phase of the project that impacts would be less than significant: Agriculture and Forest Resources; Biological Resources; Population and Housing; and Mineral Resources. The project's impacts related to each of these topics are described in *Chapter VI, Effects Found Not to be Significant or Less Than Significant with Standard Conditions of Approval.*

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B. REFERENCES

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C. PERSONAL COMMUNICATIONS

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URBAN
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EASTLINE PROJECT - 2100 TELEGRAPH

Appendices

State Clearinghouse No. 2016122009

Prepared for:

City of Oakland

December 2017

URBAN PLANNING PARTNERS INC.

EASTLINE PROJECT - 2100 TELEGRAPH

Appendices

State Clearinghouse No. 2016122009

Prepared for the City of Oakland

By:

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PreVision Design
Rowan Williams Davies & Irwin Inc.

December 2017

URBAN PLANNING PARTNERS INC.

APPENDICES

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APPENDICES

APPENDIX A: Notice of Preparation and Written Comments Received

CITY OF OAKLAND

DALZIEL BUILDING • 250 FRANK H. OGAWA PLAZA • SUITE 3315 • OAKLAND, CALIFORNIA 94612

Planning and Building Department (510) 238-3941
Bureau of Planning FAX (510) 238-6538
TDD (510) 238-3254

NOTICE OF PREPARATION (NOP) OF A
DRAFT ENVIRONMENTAL IMPACT REPORT (EIR)
EASTLINE PROJECT – 2100 TELEGRAPH

The City of Oakland's Department of Planning and Building is preparing a Draft Environmental Impact Report (EIR) for the proposed Eastline Project – 2100 Telegraph (the project) as identified below, and is requesting comments on the scope and content of the Draft EIR. The Draft EIR will address the potential physical, environmental effects that the project may have on each of the environmental topics outlined in the California Environmental Quality Act (CEQA). The City has **not** prepared an Initial Study.

The City of Oakland is the Lead Agency for the project and is the public agency with the greatest responsibility for approving the project or carrying it out. This notice is being sent to Responsible Agencies and other interested parties. Responsible Agencies are those public agencies, besides the City of Oakland, that also have a role in approving or carrying out the project. When the Draft EIR is published, it will be sent to all Responsible Agencies and to others who respond to this NOP or who otherwise indicate that they would like to receive a copy. Responses to this NOP and any questions or comments should be directed in writing to or via email to: Peterson Z. Vollmann, City of Oakland, Bureau of Planning, 250 Frank H. Ogawa, Suite 2114 Oakland, CA 94612; (510) 238-6167(phone); (510) 238-4730(fax) or by e-mail at pvollmann@oaklandnet.com. Comments on the NOP must be received at the above mailing or e-mail address **by 4:00 p.m. on January 3, 2017.** Please reference case number **ER16-011** in all correspondence. In addition, comments may be provided at the EIR Scoping Meetings to be held before the City Planning Commission and Landmarks Preservation Advisory Board:

PUBLIC HEARINGS: The City Planning Commission will conduct a public scoping hearing on the Draft EIR for the project on December 21, 2016 at 6:00 p.m. in Sgt. Mark Dunakin Hearing Room 1, City Hall, 1 Frank H. Ogawa Plaza, Oakland, CA 94612.

The Landmarks Preservation Advisory Board will conduct a public scoping hearing on the Draft EIR for the project on Monday, December 12, 2016, at 6:00 p.m. in Sgt. Mark Dunakin Hearing Room 1, City Hall, 1 Frank H. Ogawa Plaza, Oakland, CA 94612.

PROJECT TITLE: Eastline Project – 2100 Telegraph

PROJECT LOCATION: The development site (also referred to as project site) encompasses one full city block within the Uptown District of greater downtown Oakland. It is bounded by Telegraph Avenue to the west, 22nd Street to the north, Broadway to the east, and 21st Street to the south. The project site is within one block of the Uptown 19th Street Bay Area Rapid Transit District (BART) station, and is located approximately 0.5 mile east of Interstate 980 (I-980). The project site consists of five Alameda County Assessor's Parcels (APN 008-0648-001-00, APN

Attachment A

008-0648-011-03, APN 008-0648-016-03, APN 008-0648-018-00, and APN 008-0648-017-00), as well as a small portion of the 22nd Street right of way at the corner of Telegraph and 22nd.

PROJECT SPONSOR: W/L Telegraph Owner, LLC

EXISTING CONDITIONS: The approximately 140,041 square-foot (3.21-acre) project site consists of a 1.65-acre parcel (APN 008-0648-016-03), a 0.49-acre parcel (APN 008-0648-011-03), a 0.43-acre parcel (APN 008-0648-018-00), a 0.29-acre parcel (APN 008-0648-017-00), a 0.28-acre parcel (APN 008-0648-001-00), and a 0.07-acre portion of the 22nd street right of way. The two parcels fronting Telegraph Avenue include a two-level city-owned public parking facility (Telegraph Plaza Parking Garage), a fast food restaurant (Space Burger), and a portion of the 22nd Street right of way. The remaining three parcels, fronting Broadway, contain three 2-story buildings, including 2101 Broadway (currently vacant, originally constructed as a bank), 2127 Broadway (Bank of the West), and 2131-2147 Broadway (Sherman Clay building currently occupied by a mix of tenants). Parcels that comprise the project site are not included on any hazardous waste and substances sites list compiled pursuant to Government Code Section 65962.5.

PROJECT DESCRIPTION: The preferred development option is a residential and office mix with up to: 880,550 square feet of large-floor-plate office, 365,000 square-foot residential tower (up to 395 units), 85,000 square feet of ground floor retail, and 18,500 square feet of community space. This option is currently considered to be the best fit for the site and current market. However, to allow the flexibility for the development to be responsive to market demands and opportunities, a planned unit development/preliminary development plan is proposed to provide a development framework that allows a range of development. Two primary project approvals will be considered in the EIR, as follows:

- **Planned Unit Development/Preliminary Development Plan (PUD/PDP).** A development framework to redevelop the site with an urban mixed-use project including a maximum residential scenario with 1,556 dwelling units and a maximum office scenario allowing a maximum development of up to 2.8 million square feet consistent with the site's maximum floor area ratio (FAR) of 20 and associated on-site public and private parking.
- **Final Development Plan (FDP).** A project-specific approval for the currently preferred mixed-use development option that includes up to: 880,550 square-feet of large floor-plate office, 365,000 square-foot residential tower (up to 395 units), 85,000 square feet of ground floor retail, 18,500 square-feet of community space, and four levels of public as well as private parking.

The project sponsor anticipates that full buildout of the project will be less intense and fall within the "book-ends" of the two maximum development scenarios as represented by the proposed FDP. In most cases, the maximum office scenario would be the most impactful. As such, the analysis in the EIR will focus on that scenario but supplemental analysis will be provided when warranted when impacts unique to a specific scenario or the FDP are anticipated to provide a comprehensive/worst-case assessment. As an example a shade and shadow analysis will be provided for both maximum development scenarios and the proposed FDP to ensure the range of potential impacts is fully understood and disclosed.

PROBABLE ENVIRONMENTAL EFFECTS:

It is anticipated that the project may have significant environmental impacts related to the following environmental topic areas, which will be evaluated in the Draft EIR: **Land Use & Planning, Cultural Resources, Traffic and Transportation, Air Quality, Greenhouse Gas**

Emissions, Hazards and Hazardous Materials, Hydrology and Water Quality, Geology and Soils, Noise and Vibration, Aesthetics (Wind, Shade and Shadow), and Public Services and Utilities. The project is not anticipated to have significant environmental impacts related to **Agriculture and Forest Resources, Biological Resources, Mineral Resources, Population and Housing, and Recreation.** A brief discussion of each of these topics and documentation as to why impacts related to these topics will not be significant will be provided in the Draft EIR. The level of analysis and discussion for these topics is anticipated to be similar to what would typically be included in an Initial Study. The City's Standard Conditions of Approval will be referenced where applicable.

The Draft EIR will also examine a reasonable range of alternatives to the project, including the CEQA-mandated No Project Alternative and other potential alternatives that may be capable of reducing or avoiding potential environmental effects.

December 2, 2016
File Number ER16-011

for
Darin Ranelletti
City of Oakland
Environmental Review Officer

Attachments
Figure 1: Project Location and Regional Vicinity Map

Source: Google Earth, 2016

Figure 1
Project Location and Vicinity Map

STATE OF CALIFORNIA
GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH
STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

Notice of Preparation

December 5, 2016

To: Reviewing Agencies

Re: Eastline Project - 2100 Telegraph
SCH# 2016122009

Attached for your review and comment is the Notice of Preparation (NOP) for the Eastline Project - 2100 Telegraph draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Peterson Z. Vollman
City of Oakland
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, CA 94612

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

Document Details Report
State Clearinghouse Data Base

SCH# 2016122009
Project Title Eastline Project - 2100 Telegraph
Lead Agency Oakland, City of

Type NOP Notice of Preparation

Description The preferred development option is a residential and office mix with up to: 880,550 sf of large-floor-plate office, 365,000 sf residential tower (up to 395 units), 85,000 sf of ground floor retail, and 18,500 sf of community space. This option is currently considered to be the best fit for the site and current market. However, to allow the flexibility for the development to be responsive to market demands and opportunities, a planned unit development/preliminary development plan is proposed to provide a development framework that allows a range of development. Two primary project approvals will be considered in the EIR, as follows: planned unit development/preliminary development plan and final development plan.

Lead Agency Contact

Name Peterson Z. Vollman
Agency City of Oakland
Phone (510) 238-6167 ***Fax***
email pvollmann@oaklandnet.com
Address 250 Frank H. Ogawa Plaza, Suite 3315
City Oakland ***State*** CA ***Zip*** 94612

Project Location

County Alameda
City Oakland
Region
Cross Streets
Lat / Long
Parcel No. 008-0648-001-00, -011-03, -016-03, -018-00, -017-00
Township ***Range*** ***Section*** ***Base***

Proximity to:

Highways
Airports
Railways BART
Waterways
Schools
Land Use

Project Issues Landuse; Traffic/Circulation; Air Quality; Other Issues; Housing; Water Quality; Soil Erosion/Compaction/Grading; Noise; Aesthetic/Visual; Public Services

Reviewing Agencies Resources Agency; Department of Parks and Recreation; San Francisco Bay Conservation and Development Commission; Department of Water Resources; Department of Fish and Wildlife, Region 3; Office of Emergency Services, California; Native American Heritage Commission; Department of Housing and Community Development; Public Utilities Commission; State Lands Commission; Caltrans, District 4; California Highway Patrol; Regional Water Quality Control Board, Region 2

Date Received 12/05/2016 ***Start of Review*** 12/05/2016 ***End of Review*** 01/03/2017

Note: Blanks in data fields result from insufficient information provided by lead agency.

NOP Distribution List

County: Alameda

OR

SCH# 2016122009

Resources Agency

- **Resources Agency**
  Nadell Gayou
- **Dept. of Boating & Waterways**
  Denise Peterson
- **California Coastal Commission**
  Elizabeth A. Fuchs
- **Colorado River Board**
  Lisa Johansen
- **Dept. of Conservation**
  Elizabeth Carpenter
- **California Energy Commission**
  Eric Knight
- **Cal Fire**
  Dan Foster
- **Central Valley Flood Protection Board**
  James Herota
- **Office of Historic Preservation**
  Ron Parsons
- **Dept of Parks & Recreation**
  Environmental Stewardship Section
- **California Department of Resources, Recycling & Recovery**
  Sue O'Leary
- **S.F. Bay Conservation & Dev't. Comm.**
  Steve Goldbeck
- **Dept. of Water Resources**
  Resources Agency
  Nadell Gayou

Fish and Game

- **Depart. of Fish & Wildlife**
  Scott Flint
  Environmental Services Division
- **Fish & Wildlife Region 1**
  Curt Babcock
- **Fish & Wildlife Region 1E**
  Laurie Harnsberger
- **Fish & Wildlife Region 2**
  Jeff Drongesen
- **Fish & Wildlife Region 3**
  Craig Weightman
- **Fish & Wildlife Region 4**
  Julie Vance
- **Fish & Wildlife Region 5**
  Leslie Newton-Reed
  Habitat Conservation Program
- **Fish & Wildlife Region 6**
  Tiffany Ellis
  Habitat Conservation Program
- **Fish & Wildlife Region 6 I/M**
  Heidi Calvert
  Inyo/Mono, Habitat Conservation Program
- **Dept. of Fish & Wildlife M**
  William Paznokas
  Marine Region

Other Departments

- **Food & Agriculture**
  Sandra Schubert
  Dept. of Food and Agriculture
- **Depart. of General Services**
  Public School Construction
- **Dept. of General Services**
  Cathy Buck/George Carollo
  Environmental Services Section
- **Delta Stewardship Council**
  Kevan Samsam
- **Housing & Comm. Dev.**
  CEQA Coordinator
  Housing Policy Division

Independent Commissions,Boards

- **Delta Protection Commission**
  Erik Vink
- **OES (Office of Emergency Services)**
  Monique Wilber
- **Native American Heritage Comm.**
  Debbie Treadway
- **Public Utilities Commission**
  Supervisor
- **Santa Monica Bay Restoration**
  Guangyu Wang
- **State Lands Commission**
  Jennifer Deleong
- **Tahoe Regional Planning Agency (TRPA)**
  Cherry Jacques

Cal State Transportation Agency CalSTA

- **Caltrans - Division of Aeronautics**
  Philip Crimmins
- **Caltrans – Planning HQ LD-IGR**
  Terri Pencovic
- **California Highway Patrol**
  Suzann Ikeuchi
  Office of Special Projects

Dept. of Transportation

- **Caltrans, District 1**
  Rex Jackman
- **Caltrans, District 2**
  Marcelino Gonzalez
- **Caltrans, District 3**
  Eric Federicks – South
  Susan Zanchi - North
- **Caltrans, District 4**
  Patricia Maurice
- **Caltrans, District 5**
  Larry Newland
- **Caltrans, District 6**
  Michael Navarro
- **Caltrans, District 7**
  Dianna Watson
- **Caltrans, District 8**
  Mark Roberts
- **Caltrans, District 9**
  Gayle Rosander
- **Caltrans, District 10**
  Tom Dumas
- **Caltrans, District 11**
  Jacob Armstrong
- **Caltrans, District 12**
  Maureen El Harake

Cal EPA

Air Resources Board

- Airport & Freight
  Cathi Slaminski
  - Transportation Projects
    Nesamani Kalandiyur
  - Industrial/Energy Projects
    Mike Tollstrup
- **State Water Resources Control Board**
  Regional Programs Unit
  Division of Financial Assistance
- **State Water Resources Control Board**
  Cindy Forbes – Asst Deputy
  Division of Drinking Water
- **State Water Resources Control Board**
  Div. Drinking Water #________
- **State Water Resources Control Board**
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- **State Water Resouces Control Board**
  Phil Crader
  Division of Water Rights
- **Dept. of Toxic Substances Control**
  CEQA Tracking Center
- **Department of Pesticide Regulation**
  CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

- **RWQCB 1**
  Cathleen Hudson
  North Coast Region (1)
- **RWQCB 2**
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- **RWQCB 3**
  Central Coast Region (3)
- **RWQCB 4**
  Teresa Rodgers
  Los Angeles Region (4)
- **RWQCB 5S**
  Central Valley Region (5)
  - **RWQCB 5F**
    Central Valley Region (5)
    Fresno Branch Office
  - **RWQCB 5R**
    Central Valley Region (5)
    Redding Branch Office
- **RWQCB 6**
  Lahontan Region (6)
  - **RWQCB 6V**
    Lahontan Region (6)
    Victorville Branch Office
- **RWQCB 7**
  Colorado River Basin Region (7)
- **RWQCB 8**
  Santa Ana Region (8)
- **RWQCB 9**
  San Diego Region (9)
- **Other** ________________
- ________________
  Conservancy

Last Updated 7/19/2016

DEPARTMENT OF TRANSPORTATION
DISTRICT 4
OFFICE OF TRANSIT AND COMMUNITY PLANNING
P.O. BOX 23660, MS-10D
OAKLAND, CA 94623-0660
PHONE (510) 286-5528
FAX (510) 286-5559
TTY 711
www.dot.ca.gov

Serious Drought.
Help save water!

December 9, 2016

SCH # 2016122009
GTS # 04-ALA-2016-00080
ALA-980-PM 0.53/1.59

Mr. Peterson Z. Vollmann
Bureau of Planning
City of Oakland
250 Frank H. Ogawa Plaza, Suite 2114
Oakland, CA 94612

Eastline Project - 2100 Telegraph (ER16-011) – Notice of Preparation

Dear Mr. Vollmann:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the Eastline project. In tandem with the Metropolitan Transportation Commission's (MTC) Sustainable Communities Strategy (SCS), the Caltrans Strategic Management Plan includes targets to reduce Vehicle Miles Travelled (VMT), in part, by tripling bicycle and doubling both pedestrian and transit travel by 2020. Our comments are based on the Notice of Preparation.

Project Understanding
The preferred proposed project would construct a mixed used residential and office development with up to: 880,550 square feet of office space, 365,000 square feet of residential space (up to 395 units), 85,000 square feet of ground floor retail, and 18,500 square feet of community space. This option is currently considered to be the best fit for the site and current market; however two primary project approvals will be considered in the forthcoming Draft Environmental Impact Report (EIR), to allow the development the flexibility to be responsive to market demands and opportunities: a planned unit development/preliminary development plan and a final development plan.

Planned Unit Development/Preliminary Development Plan (PUD/PDP). A maximum urban mixed used development scenario with 1,556 residential dwelling units and 2.8 million square feet, consistent with the site's maximum floor area ratio of 20 and associated on-site public and private parking.

Final Development Plan (FDP). A project-specific approval for the currently preferred proposed project, as described above, and four-level of public and private parking.

The 3.21-acre project site located in the Uptown neighborhood of the proposed Downtown Specific Plan, on the block bound by Telegraph Avenue, 22nd Street, Broadway, and 21st Street. The nearest access from the State Transportation Network (STN) is from Interstate 980, less than a mile via West Grand Avenue. The project site is one block from the 19th Street Oakland BART Station and the AC Transit Uptown Transit Center. The project site is adjacent to the protected bike lanes associated with the Telegraph Avenue Complete Streets project.

Characterized by a full range of horizontally- and vertically-mixed land uses and is well-served by high-capacity transit, the project area can be described as Urban Core, according the Caltrans *Smart Mobility Framework*. The project is considered an infill project.

Lead Agency
As the Lead Agency, Oakland (the City) is responsible for all project mitigation, including any needed improvements to State highways, if necessary. The project's fair share contribution, financing, scheduling, implementation responsibilities, and Lead Agency monitoring should be fully discussed for all proposed mitigation measures.

This information should also be presented in the Mitigation Monitoring and Reporting Plan, a draft of which should be included in the Draft EIR for our review. Required roadway improvements, if necessary, should be in place prior to completion of the project.

According to CEQA Guidelines Section 15206(b)(2)(B), the proposed project is of statewide, regional, or areawide significance. In addition to sending the Draft EIR to the State Clearinghouse, the Lead Agency is required also to submit to the appropriate metropolitan area council of governments for review and comment.

Transportation Impact Fees
Please identify project-generated travel demand as the basis for estimating the costs of public transportation improvements necessitated by the proposed project; viable funding sources such as development and/or transportation impact fees should also be identified. We encourage a sufficient allocation of fair share contributions toward multi-modal and regional transit improvements to fully mitigate cumulative impacts to regional transportation. We also strongly support measures to increase sustainable mode shares, thereby reducing VMT.

Travel Demand Analysis
Please submit a travel demand analysis that provides VMT analysis resulting from the proposed project scenarios for both the PUD/PDP and FDP. In accordance with Senate Bill (SB) 743, Caltrans is focusing CEQA review on transportation infrastructure that supports smart growth and efficient development to ensure alignment with State policies through the use of innovative travel demand reduction strategies, multimodal improvements, and VMT as the primary transportation impact metric. Please ensure that the travel demand analysis includes:

- A vicinity map, regional location map, and site plan clearly showing project access in relation to the STN. Ingress and egress for all project components should be clearly identified. Clearly identify the State right-of-way (ROW). Project driveways, local roads and intersections, car/bike parking, and transit facilities should be mapped.

- A VMT analysis pursuant to the City's guidelines or, if the City has no guidelines, the Office of Planning and Research's Draft Guidelines. Projects that result in automobile VMT per capita greater than 15% below existing (i.e. baseline) city-wide or regional values for similar land use types may indicate a significant impact. If necessary, mitigation for increasing VMT should be identified. Mitigation should support the use of transit and active transportation modes. Potential mitigation measures that include the requirements of other agencies—such as Caltrans—are fully enforceable through permit conditions, agreements, or other legally-binding instruments under the control of the City.
- A schematic illustration of walking, biking, and auto conditions at the project site and study area roadways. Potential safety issues for all road users should be identified and fully mitigated.
- The project's primary and secondary effects on pedestrians, bicycles, travelers with disabilities, and transit performance should be evaluated, including countermeasures and trade-offs resulting from mitigating VMT increases. Access to pedestrians, bicycle, and transit facilities must be maintained.

Vehicle Trip Reduction
Given the size of the project and its potential to generate trips to and from the project area, the project should include a robust Transportation Demand Management (TDM) Program to reduce VMT and greenhouse gas emissions. A TDM Program can be implemented through formation of or participation in a Transportation Management Association (TMA) in partnership with other developments in the area. Such measures will be critical in order to: facilitate efficient transportation access to and from the site; reduce transportation impacts associated with the project; and achieve, monitor, and enforce aggressive trip reduction targets. Please consider the following TDM strategies:

- Project design to encourage walking, bicycling, and convenient transit access;
- Facilities to promote bicycling such as secured parking, repair stations, and showers;
- Parking cash out/parking pricing for office uses;
- Unbundled parking for residential uses;
- Transit fare incentives such as such as free or discounted transit passes on a continuing basis; and
- Inclusion of an on-site telecommute or telework center to give residents the option of working remotely.

Implementing these TDM measures will help the project become more consistent with MTC's and Caltrans Strategic Management Plan goals. Please refer to Chapter 8 of FHWA's *Integrating Demand Management into the Transportation Planning Process: A Desk Reference*, regarding TDM at the local planning level. The reference is available online at:
http://www.ops.fhwa.dot.gov/publications/fhwahop12035/fhwahop12035.pdf

Please also refer to *Reforming Parking Policies to Support Smart Growth*—a Caltrans-funded MTC study—for sample parking ratios and strategies that support compact growth. Reducing parking supply can encourage alternate forms of transportation, reduce regional vehicle miles traveled, and lessen future impacts. This handbook is available online at: http://mtc.ca.gov/sites/default/files/Toolbox-Handbook.pdf

Transportation Management Plan

A Transportation Management Plan (TMP) or construction TIS may be required of the developer for approval by Caltrans prior to construction where traffic restrictions and detours affect State highways. TMPs must be prepared in accordance with California *Manual on Uniform Traffic Control Devices.* For further TMP assistance, please contact the Office of Traffic Management Plans/Operations Strategies at 510-286-4579 and see the following website: http://www.dot.ca.gov/trafficops/camutcd/camutcd2014rev1.html

Transportation Permit

Project work that requires movement of oversized or excessive load vehicles on State roadways requires a Transportation Permit that is issued by Caltrans. To apply, a completed Transportation Permit application with the determined specific route(s) for the shipper to follow from origin to destination must be submitted to:

Caltrans Transportation Permits Office
1823 14th Street
Sacramento, CA 95811-7119

See the following website for more information about Transportation Permits: http://www.dot.ca.gov/trafficops/permits/index.html

Thank you again for including Caltrans in the environmental review process. Should you have any questions regarding this letter, please contact Jesse Schofield at 510-286-5562 or jesse.schofield@dot.ca.gov.

Sincerely,

PATRICIA MAURICE
District Branch Chief
Local Development - Intergovernmental Review

c: State Clearinghouse

Mr. Peterson Z. Vollmann
Bureau of Planning
City of Oakland
250 Frank H. Ogawa Plaza, Suite 2114
Oakland, CA 94612

EAST BAY
MUNICIPAL UTILITY DISTRICT

December 21, 2016

Peterson Z. Vollman
City of Oakland Planning
Bureau of Planning
250 Frank H. Ogawa Plaza, Suite 2114
Oakland, CA 94612

Re: Notice of Preparation of a Draft Environmental Impact Report – Eastline Project – 2100 Telegraph Avenue, Oakland

Dear Mr. Vollman:

East Bay Municipal Utility District (EBMUD) appreciates the opportunity to comment on the Notice of Preparation of a Draft Environmental Impact Report for the Eastline Project located at 2100 Telegraph Avenue in the City of Oakland (City). EBMUD has the following comments.

WATER SERVICE

Pursuant to Section 15155 of the California Environmental Quality Act Guidelines and Sections 10910-10915 of the California Water Code, the proposed project meets the threshold requirement for a Water Supply Assessment (WSA), because it is a mixed-use project that exceeds 250,000 square feet of commercial office space, which is one of the criteria that triggers a WSA. Please submit a written request to EBMUD to prepare a WSA. EBMUD requires the project sponsor to provide future water demand data and estimates for the project site for the analysis of the WSA. Please be aware that the WSA can take up to 90 days to complete from the day on which the request is received.

EBMUD's Central Pressure Zone, with a service elevation range between 0 and 100 feet, will serve the proposed development. A water main extension, at the project sponsor's expense, may be required to serve the proposed development depending on EBMUD's metering requirements and fire flow requirements set by the local fire department. When the development plans are finalized, the project sponsor should contact EBMUD's New Business Office and request a water service estimate to determine costs and conditions of providing water service to the proposed development. Engineering and installation of water mains and services require substantial lead time, which should be provided for in the project sponsor's development schedule.

EBMUD's Standard Site Assessment Report indicates the potential for contaminated soils or groundwater to be present within the project site boundaries. The project sponsor should be aware that EBMUD will not install piping or services in contaminated soil or groundwater (if groundwater is present at any time during the year at the depth piping is to be installed) that must be handled as a hazardous waste or that may be hazardous to the health and safety of construction and maintenance personnel wearing Level D personal protective equipment. Nor will EBMUD install piping or services in areas where groundwater contaminant concentrations exceed specified limits for discharge to the sanitary sewer system and sewage treatment plants. The project sponsor must submit copies to EBMUD of all known information regarding soil and groundwater quality within or adjacent to the project boundary and a legally sufficient, complete and specific written remediation plan establishing the methodology, planning and design of all necessary systems for the removal, treatment, and disposal of contaminated soil and groundwater.

EBMUD will not design piping or services until soil and groundwater quality data and remediation plans have been received and reviewed and will not start underground work until remediation has been carried out and documentation of the effectiveness of the remediation has been received and reviewed. If no soil or groundwater quality data exists, or the information supplied by the project sponsor is insufficient, EBMUD may require the project sponsor to perform sampling and analysis to characterize the soil and groundwater that may be encountered during excavation, or EBMUD may perform such sampling and analysis at the project sponsor's expense. If evidence of contamination is discovered during EBMUD work on the project site, work may be suspended until such contamination is adequately characterized and remediated to EBMUD standards.

WASTEWATER SERVICE

EBMUD's Main Wastewater Treatment Plant (MWWTP) and interceptor system are anticipated to have adequate dry weather capacity to accommodate the proposed wastewater flows from this project and to treat such flows provided that the wastewater generated by the project meets the requirements of the EBMUD Wastewater Control Ordinance. However, wet weather flows are a concern. The East Bay regional wastewater collection system experiences exceptionally high peak flows during storms due to excessive infiltration and inflow (I/I) that enters the system through cracks and misconnections in both public and private sewer lines. EBMUD has historically operated three Wet Weather Facilities (WWFs) to provide primary treatment and disinfection for peak wet weather flows that exceed the treatment capacity of the MWWTP. Due to reinterpretation of applicable law, EBMUD's National Pollutant Discharge Elimination System (NPDES) permit now prohibits discharges from EBMUD's WWFs. Additionally, the seven wastewater collection system agencies that discharge to the EBMUD wastewater interceptor system ("Satellite Agencies") hold NPDES permits that prohibit them from causing or contributing to WWF discharges. These NPDES permits have removed the regulatory coverage the East Bay wastewater agencies once relied upon to manage peak wet weather flows.

A federal consent decree, negotiated among EBMUD, the Satellite Agencies, the Environmental Protection Agency, the State Water Resources Control Board, and the Regional Water Quality Control Board, requires EBMUD and the Satellite Agencies to eliminate WWF discharges by 2036. To meet this requirement, actions will need to be taken over time to reduce I/I in the system. The consent decree requires EBMUD to continue implementation of its Regional Private Sewer Lateral Ordinance (www.eastbaypsl.com), construct various improvements to its interceptor system, and identify key areas of inflow and rapid infiltration over a 22-year period. Over the same time period, the consent decree requires the Satellite Agencies to perform I/I reduction work including sewer main rehabilitation and elimination of inflow sources. EBMUD and the Satellite Agencies must jointly demonstrate at specified intervals that this work has resulted in a sufficient, pre-determined level of reduction in WWF discharges. If sufficient I/I reductions are not achieved, additional investment into the region's wastewater infrastructure would be required, which may result in significant financial implications for East Bay residents.

To ensure that the proposed project contributes to these legally required I/I reductions, the lead agency should require the project applicant to comply with EBMUD's Regional Private Sewer Lateral Ordinance. Additionally, it would be prudent for the lead agency to require the following mitigation measures for the proposed project: (1) replace or rehabilitate any existing sanitary sewer collection systems, including sewer lateral lines to ensure that such systems and lines are free from defects or, alternatively, disconnected from the sanitary sewer system, and (2) ensure any new wastewater collection systems, including sewer lateral lines, for the project are constructed to prevent I/I to the maximum extent feasible while meeting all requirements contained in the Regional Private Sewer Lateral Ordinance and applicable municipal codes or Satellite Agency ordinances.

WATER CONSERVATION

The proposed project presents an opportunity to incorporate water conservation measures. EBMUD requests that the City include in its conditions of approval a requirement that the project sponsor comply with Assembly Bill 325, "Model Water Efficient Landscape Ordinance," (Division 2, Title 23, California Code of Regulations, Chapter 2.7, Sections 490 through 495). The project sponsor should be aware that Section 31 of EBMUD's Water Service Regulations requires that water service shall not be furnished for new or expanded service unless all the applicable water-efficiency measures described in the regulation are installed at the project sponsor's expense.

If you have any questions concerning this response, please contact Timothy R. McGowan, Senior Civil Engineer, Major Facilities Planning Section at (510) 287-1981.

Sincerely,

David J. Rehnstrom
Manager of Water Distribution Planning

DJR:AMM:dks
sb16_244

cc: W/L Telegraph Owner, LLC
644 Menlo Avenue, Suite 205
Menlo Park, CA 94025

Vollmann, Peterson

From: Naomi Schiff <Naomi@17th.com>
Sent: Wednesday, December 21, 2016 5:35 PM
To: Merkamp, Robert; Miller, Scott; Adhi Nagraj; Cmanusopc@gmail.com; Pattillo, Chris; Emily Weinstein; Tlimon.opc@gmail.com; amandamonchamp@gmail.com; Jahmese Myres; Vollmann, Peterson
Subject: 2100 Telegraph: Scoping
Attachments: 2100 Telegraph prelimscope-OHA.pdf

We are unable to attend this evening, but have listed some of our concerns in the attached preliminary scoping letter, with text included in this email below.

Thank you so much!

Naomi Schiff and Daniel Levy
for Oakland Heritage Alliance

December 21, 2016
Subject: Project at 21st/22nd/Broadway/Telegraph: 2100 Telegraph Ave, ER16011
Dear Planning Commission, Pete Vollman, and Staff,

Thank you for the opportunity to comment on the scope of the DIER for the 2100 Telegraph project. Here are some preliminary thoughts. We will send a more complete letter. We are again recommending that due to the holidays, the deadline ought be extended an additional two weeks past January 3. We are unable to attend tonigh, and hope that the Commission will give the public a greater chance to weigh in on this large project.

We ask that the DEIR:
Studies all resources on site. These include: William Pereira Bank building, Weeks building at 22nd/Broadway, KwikWay / SpaceBurger googie building at 22nd/Telegraph. We would like to see appropriate mitigations proposed for removal of these historic resource buildings. SpaceBurger could fit in well on the BART lot next to the Paramount as it would provide open space while at the same time preserve a resource.

Studies impacts of buildings on shadows and wind on public use areas. Please especially look just east across Broadway, where Franklin runs into Broadway. This area contains a public plaza that could be impacted by large shadows.

Reviews Southern Pacific Electric Rail history for this site. The odd corner at 22nd and Telegraph is due to the Southern Pacific's tracks jogging to stay on 22nd street. This odd angle adds character and context that gives a nod to Oakland's rich rail history. You can see the line on a map here:
https://upload.wikimedia.org/wikipedia/commons/d/da/1927_East_Bay_Electric_Lines_map.jpg

Studies impacts of project on historic resources around the site. These include: Hamilton Apts. (former YMCA), First Baptist Church, Cathedral District, former Breuner's Building, Kapor building, and most importantly, Paramount Theater. We would like studies on visual impacts, shadows, functionimpairing traffic and parking issues, and views.

Discusses possibilities for unimpaired functioning of Paramount during period of construction as well as thereafter.

Also, though not directly a historic concern, but related, we ask that the existing street grid should be supported and strengthened. In particular, please study driveway impacts to 21st and 22nd streets and how to retain and enhance pedestrian connectivity rather than depressing foot traffic in favor of auto access. We should encourage street level activation wherever possible.
We would also like review of bicycle safety and bike/pedestrian interaction and would like review oneway blocks in the area. Should any be converted back to two-way?

Thank you and we look forward to submitting more complete comments soon.

Naomi Schiff
238 Oakland Avenue
Oakland, CA 94611

Telephone: 510-835-1819
Email naomi@17th.com

cell: 510-910-3764

OAKLAND HERITAGE ALLIANCE

December 21, 2016

Subject: Project at 21st/22nd/Broadway/Telegraph: 2100 Telegraph Ave. ER16011

Dear Planning Commission, Pete Vollman, and Staff,,

Thank you for the opportunity to comment on the scope of the DIER for the 2100 Telegraph project. Here are some preliminary thoughts. We will send a more complete letter. We are again recommending that due to the holidays, the deadline ought be extended an additional two weeks past January 3. We are unable to attend tonigh, and hope that the Commission will give the public a greater chance to weigh in on this large project.

We ask that the DEIR:

Studies all resources on site. These include: William Pereira Bank building, Weeks building at 22nd/Broadway, KwikWay / SpaceBurger googie building at 22nd/Telegraph. We would like to see appropriate mitigations proposed for removal of these historic resource buildings. SpaceBurger could fit in well on the BART lot next to the Paramount as it would provide open space while at the same time preserve a resource.

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We would also like review of bicycle safety and bike/pedestrian interaction and would like review one-way blocks in the area. Should any be converted back to two-way?

Thank you and we look forward to submitting more complete comments soon.

446 17th Street, Suite 301, Oakland, California 94612 • (510) 763-9218 • info@oaklandheritage.org
Web Site: www.oaklandheritage.org

OAKLAND HERITAGE ALLIANCE

December 15, 2016

Subject: ER16-011, Eastline Project, 2100 Telegraph

Dear planning staff and developer team,

Oakland Heritage Alliance requests an extension of the publicly-noticed time for EIR scoping comments on this project. We find the deadline of January 3, 2017 not only a bit tight for our own purposes, but fear that this extremely large project will not receive adequate scoping comments from other organizations and the public, due to the timing near the holidays.

There are not many functional work days between now and January 3, and many people will be leaving town at the end of this week, as schools are on recess.

We would appreciate a deadline no sooner than January 17, 2017, and some kind of additional public notice.

In addition, there are very few notices in the neighborhood, notably not even one seen to the east side of Broadway on a recent survey.

Thank you for considering our request.

Sincerely,

Alison Finlay

Alison Finlay
President

446 17th Street, Suite 301, Oakland, California 94612 • (510) 763-9218 • info@oaklandheritage.org
Web Site: www.oaklandheritage.org

APPENDIX B: Cultural and Historical Resource Analysis

APPENDIX B: HISTORIC RESOURCE ANALYSIS

Completed by: Bridget Maley, architecture + history, llc, with contributions from Shayne Watson, Watson Heritage Consulting, and Mark Hulbert, Preservation Architecture

I. INTRODUCTION

The following appendix was developed by architecture + history, llc in collaboration with Watson Heritage Consulting and Preservation Architecture. LSA is completing the archaeological analysis and the Historic and Cultural Resources chapter for the project DEIR. This appendix describes the conditions for above ground older and historic resources within or adjacent to the Eastline Project site at 2100 Telegraph in downtown Oakland, California. The purpose of this appendix is to: 1) develop current evaluations of historic resources on the project site; and 2) describe the baseline conditions for historic resources, including past survey evaluation information, within an approximate two block vicinity of the project site and its general surroundings which are urban in character. This effort only discusses above ground, built resources.

Historic architectural resources consist of existing buildings, structures, objects, sites and historic districts that are historically significant or previously designated at the local, State, or Federal level. These resources may display their significance for an association with an important person or notable events in American, California or local history; or, may be significant for their expression of a certain type or style of construction or architectural craftsmanship. Resources may be significant if, under the California Register criteria guidelines, sufficient time has passed to obtain a scholarly perspective on the events or individuals associated with the resource. Under the National Register criteria, properties less than 50 years in age must demonstrate "exceptional significance" at the local, state or federal level.

For the purposes of CEQA historic resources are generally defined as resources that are listed in, or determined to be eligible for listing in the California Register of Historical Resources previously or through a current evaluation; included in a local register of historical resources; or have been identified as significant in a historic resource survey, if that survey meets specified criteria. The following appendix to the Eastline Project - 2100 Telegraph EIR includes information on both previously identified historic resource and historic resources specifically evaluated for this project.

II. EVALUATION CRITERIA - CALIFORNIA REGISTER OF HISTORICAL RESOURCES

Under that California Environmental Quality Act (CEQA) resources that meet the criteria of the California Register of Historical Resources are considered historical resources for the purposes of CEQA. Determinations of historical significance require that several factors are considered including: the property's history (both construction and use); the history and context of the surrounding community; an association with important persons or uses; the number of resources associated with the property; the potential for the resources to be the work of a master architect, builder, craftsman, landscape gardener, or artist; the historical, architectural or landscape influences that have shaped the property's design and its pattern of use; and alterations that have taken place, and lastly how these changes may have affected the property's historical integrity.

These issues must be explored thoroughly before a final determination of significance can be established. To be eligible for the California Register historic resources must possess both historic significance and retain historic integrity. The following are the four significance criteria of the California Register. Upon review of the criteria, if historic significance is identified, then the level of historic integrity must be assessed. To be eligible for the California Register, an historical resource must be significant at the local, state, or national level under at least ONE of the following four criteria:

Criterion 1: Event or Patterns of Events
It is associated with events or patterns of events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.

Criterion 2: Important Person(s)
It is associated with the lives of persons important to local, California, or national history.

Criterion 3: Design/Construction/Architecture
It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values.

Criterion 4: Information Potential[1]
It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

Historic Integrity

[1] Note: Information potential is not discussed in this report.

For resources to be eligible for the California Register they must possess both historic significance and retain historic integrity. There are seven aspects of historic integrity location, design, setting, materials, workmanship, feeling and association.

Historic District
Resources can be eligible for the California Register individually as buildings, structures, objects or sites, or they can be eligible as a collection or cluster or historic resources within an historic district. Districts are defined as a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development.

Exceptional Significance
Generally, resources that are not yet 50 years in age must possess exceptional significance to be individually important. The California Register guidelines state that in order for a historic resource to achieve significance within the past 50-years, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource.

III. SUMMARY HISTORIC DOWNTOWN OAKLAND DEVELOPMENT

The project site is within lands that once were part of the Rancho San Antonio granted to Luis Maria Peralta for his service to the Spanish government.[2] The over 40,000-acre rancho included the present-day cities of Oakland, Berkeley, Alameda, and parts of San Leandro and Piedmont. Peralta's grant was confirmed after Mexico gained independence from Spain in 1822, and the United States honored the land title when California entered the Union in 1848. Soon after, squatters had begun to use portions of Peralta's undeveloped lands. The Gold Rush and subsequent statehood brought miners, businessmen, lumbermen and other speculators to Northern California. Early settlers to the area that became Oakland include Edson Adams, Andrew Moon, and Horace Carpentier, who set up camp on what had been Peralta lands. These trailblazers soon realized the area's potential and engaged Jules Kellsersberger, a Swiss immigrant and former military engineer, to lay out a city, which was officially incorporated as Oakland in 1852.

Originally, Oakland encompassed the area roughly bordered by the estuary, Market Street, 14th Street and the Lake Merritt Channel. Broadway served as the "Main Street," for the growing town. Early residents, numbering under one hundred, lived near the foot of Broadway close to the estuary. Development began moving toward the Oakland hills and ultimately eastward to what would become East Oakland.

Oakland's size and population began to expand in 1869, when the city became the terminus of the Central Pacific Railroad. With an accessible harbor, Oakland was strategically located and easily accessible to inland agricultural products. A period of rapid population expansion and physical growth followed, including the establishment of civic and commercial buildings and improved infrastructure. By the turn of the twentieth century, Oakland was beginning to attract businesses and residents away from the more populous San Francisco. Then, the 1906 earthquake and devastating San Francisco fire resulted in refugees from the burned out city across the bay pouring into East Bay towns. By 1910, Oakland had population of 150,000, more than double the 67,000 individuals counted in 1900.

[2] Summary of Downtown Oakland Development summarized from Beth Bagwell, *Oakland: The Story of a City*, 1982; David Weber, *Oakland Hub of the West*, 1981; Lois Rather, *Oakland's Image: A History of Oakland, California*, 1972. Marilynn S. Johnson, *The Second Gold Rush: Oakland and the East Bay in World War II*, 1993.

A detail from the 1888 Woodward & Gamble Map of Oakland showing the area of downtown Oakland. (Source: David Rumsey Maps).

Residential and commercial development in Oakland increased during the 1910s to further accommodate displaced San Francisco residents. A number of moderately priced hotels were constructed in downtown Oakland from 1910 and 1915 to house travelers coming to the Panama Pacific International Exposition (PPIE) hosted by San Francisco. This includes the Hotel Harrison, directly across the street from the project site, and a number of other hotels in the vicinity. Also during this period, older neighborhoods became more densely populated as new apartment buildings were constructed, shopping districts expanded, hotels for visitors to the increasingly popular city were developed, and new commercial centers began to take shape along busier thoroughfares. The post-earthquake development boom defined much of downtown Oakland, with a number of landmark skyscrapers and commercial buildings constructed during this era, including the Hotel Oakland, just across the street from the project site.

World War I also increased the number of industrial establishments in both downtown and along the waterfront, which in turn contributed to increased residential construction in areas made more easily accessible by the increased popularity and use of the automobile. Downtown Oakland saw a great number of buildings constructed during the 1920s including many structures in the blocks that surround the project site, such as the Advertiser and the Pelton-Faustina Buildings, both situated along 13th Street adjacent to the project site.

The Great Depression of the 1930s followed the post-World War I prosperity of the 1920s. Like most of the country, Oakland fell into a period of financial instability in the 1930s, with little to no building occurring, especially downtown. Then with the preparations for and outset of World War II, Oakland entered an era of intense industrial, commercial and economic development. From 1940 to 1945, Oakland's population increased by one third and by 1950, the population was nearly 385,000. The Port of Oakland became a major staging area for war operations in the Pacific and a center of wartime production of goods and materials. The economic impact of World War II on Oakland, and indeed the entire Bay Area, was significant, with effects felt in almost every sector and by the increasingly diverse communities represented in Oakland. Post War commercial building in downtown Oakland was fairly steady from the late 1940s into the early 1960s.

In the latter 1950s, a large number of the parcels along Oakland's 20th Street, from Broadway to Harrison Street, transitioned from earlier institutional, residential and automotive uses to commercial use. During the 1960s and 1970s, a relatively large number of the parcels surrounding the intersection of 20th and Franklin streets were bank owned and a cluster of branch bank buildings developed in the immediate vicinity.

In this same period, likely spurring the transition to these commercial uses, the Bay Area Rapid Transit (BART) system was being developed under and would soon open along Broadway, including a 19th Street station with portals at Broadway at 17th, 19th and 20th streets.

Between 1950 and 1980, Oakland's population steadily decreased, though it again rose in the 1980s. Shifts in the economy and changes in manufacturing methods left many empty warehouses and office buildings along Oakland's waterfront and in the downtown area. In the late 1980s and 1990s, many of these buildings were reclaimed for office and residential uses.

IV. DEVELOPMENTAL HISTORY OF PROJECT SITE

This overview history of the area immediately surrounding the subject building was developed using Oakland Sanborn Fire Insurance Company maps dating from 1889, 1902, 1912, 1935, 1950, and 1970. Historical background in this section focuses on the subject block. The history of this area of Telegraph Avenue was somewhat difficult to trace because of major street reconfigurations (e.g., the construction of West Grand Avenue sometime between 1912 and 1935) and multiple changes to street names, block numbers, and addresses. These changes are noted throughout the following paragraphs.

1. 1889 Sanborn Map[3]

Telegraph Avenue near downtown Oakland was a mix of residential, commercial, and industrial properties when the first Sanborn Fire Insurance Company map was produced for the area in 1889. The corner of Telegraph Avenue and 22nd Street (project site) contained four single-family residences, three outbuildings, and a large vacant lot to the south. The rest of the 2100 block contained mostly residences and a few commercial businesses facing Broadway.

The block to the south (2000 block today) housed single-family residences facing Telegraph, 21st Street, and Broadway. The southwest corner of the block was vacant. The block to the north of the project site (2200 block today) was comprised mostly of single-family residences. A wood and coal yard was located at the southwest corner, and a few commercial properties faced Telegraph Avenue.

Surrounding blocks were predominantly residential. Notable exceptions are the blocks near the south end of Telegraph Avenue (between 17th and 18th Streets), which featured a small commercial enclave comprised of two plumbers, a carpenter, two lumberyards, a Chinese laundry, and a milk and cream depot. The German M.E. (Methodist Episcopal) Church was located on 17th Street between San Pablo Avenue and Telegraph Avenue. The large Oakland Brewery complex was at Telegraph Avenue and 19th Street. Farther west, the Roman Catholic Cathedral of Saint Francis de Sales, completed in 1893, filled the corner of Grove and 21st Streets (Grove Street no longer exists).

2. 1902 Sanborn Map

Between 1889 and 1902, when Oakland's second Sanborn Fire Insurance Company map was drawn, some street names had changed: New Broadway had become Broadway and 21st Street was named Hobart Street. Growth in the area continued, as some of the vacant lots were developed with residences and commercial buildings.

The 2100 block (subject block) was almost fully developed. Single-family residences still existed at the corner of Telegraph Avenue and 22nd Street (project site). To the immediate south, a large, two-story building with commercial storefronts and lodging on the second

[3] Note: Sanborn maps showing the west side of Telegraph Avenue in 1889 are not available online.

floor had been constructed. On parcels facing 21st Street, single-family residences had been constructed. On the west side of the 2100 block, the buildings facing Telegraph Avenue were residential: a pair of two-story buildings at the corner of 22nd Street with two flats each and rounded bay windows; a single-family dwelling at the corner of 20th Street; and a mostly empty lot in between with a water tank and a windmill.

The west side of the 2200 block contained four single-family dwellings. The east side retained its 1889 configuration, but a large wood and coal yard with multiple buildings and structures had been constructed at the southwest corner.

The east side of the 2200 block remained mostly the same since 1889. The wood and coal yard at the southwest corner had been replaced by a two-flat residential building. At the west side of the block, the southern half of the parcels were vacant and the northern half contained a large, two-story building containing flats.

The composition of surrounding blocks continued to be a mix of predominantly residential with scattered commercial and industrial properties.

3. 1912 Sanborn Map

The period between 1902 and 1912 saw significant changes to this area of Telegraph Avenue. While many of the properties survived the 1906 earthquake, some were either destroyed or replaced with new buildings. The most significant changes were related to infrastructure. The Southern Pacific Railroad laid rail tracks for its new electrical passenger lines, introduced in 1911, on 20th Street and Jones Street (now 22nd Street). These electrical lines were operated by a unit of Southern Pacific Railroad called the East Bay Electric Lines, which operated throughout the East Bay. Formerly the Oakland Cable Railway, Southern Pacific acquired the company in 1887. The Southern Pacific Electric lines ran to the Oakland 16th Street Station, completed in 1912, and the main Oakland station for the Southern Pacific East Bay Electric Lines. For many years it served as the terminus of the Transcontinental Railroad.

In 1902, the Key System introduced a new system of electric passenger lines and ferries. Between 1902 and 1912, one of those lines was laid on 22nd Street across Telegraph Avenue (the route that became West Grand Avenue). Half a block of buildings on the east side of Telegraph was demolished to create the terminus for that line. The line ended at a train shed that stretched from Valley Street west to Broadway. The Broadway side of the train shed featured an enormous, Tudor Revival complex called the Key Route Inn, which opened in 1907 and featured a Key System station, hotel, dining room, and a park. The rail line, however, continued, becoming the "B" transbay line upon the opening of the San Francisco–Oakland Bay Bridge railway. The rail line was replaced by the "B" bus route in April 1958, and was subsequently incorporated into the publicly owned AC Transit system.

At the corner of Telegraph Avenue and 22nd Street (project site), the three single-family residences that had stood there since at least 1889 were either destroyed or had been demolished. The large, two-story building with commercial storefronts and lodging on the second floor, which faced Telegraph Avenue, was extant. Businesses located in the building included a cabinet factory and upholstering company, Japanese laundry, and a plumber. In the middle of the block, the following buildings had been constructed: a single-family dwelling, a storefront, and a garage (all two stories) and a three-story, six-flat building, all facing 21st Street. On the Broadway side of the block, four single-family residences had been replaced by a three-story apartment building and a single-story commercial building. Added to the north side of the block, facing 22nd Street, were a two-story, two-flat residence, a plumber's shop, and the Guernsey Farm Creamery.

At the west side of the 2100 block, single-family homes had been replaced by the four-story Young Men's Christian Association (1909) at the corner of Telegraph Avenue and 21st Street and two buildings with flats facing Jones Street (now 22nd Street).

The east side of the 2000 block of Telegraph Avenue changed significantly between 1902 and 1912. The wood and coal yard at the southwest corner had been replaced by the Hotel Avalon, a three-story building with commercial storefronts on the ground floor and lodging units above. Single-family homes at the southeast corner (20th Street and Broadway) had been replaced with large commercial buildings (automobile garages and show rooms) and a single-family dwelling facing 20th Street. At the west side of the block, single-family homes—either destroyed by the 1906 earthquake or demolished—had been replaced by commercial storefronts and a single-family residence facing 20th Street.

At the west side of the 2200 block of Telegraph, at the corner of 21st Street, the First Baptist Church, designed by Julia Morgan, was constructed in 1903. At the east side of the block, a single-family residence at the center of the block facing Telegraph Avenue was demolished during construction of the Southern Pacific Railroad electric railway tracks, which terminated at a train shed at the east side of Valley Street. A few commercial buildings had been constructed and housed an upholstering shop, truss factory, and a plumber (all two stories).

4. 1935 Sanborn Map

This area of Telegraph Avenue and Broadway experienced significant change between 1912 and 1935. The most substantive change was the extension of West Grand Avenue on the former Key System route on 22nd Street to Broadway, resulting in the demolition of a half block of buildings between Valley and Broadway. The 2000-2200 blocks on the east side of Telegraph Avenue, especially parcels facing Broadway, changed from a partially residential composition to a mix of commercial, industrial, and entertainment properties.

The east side of the 2100 block (subject block) contained most of the buildings extant in 1912. The corner of Telegraph Avenue and 22nd Street (subject property) was vacant. A gas station had been built at the corner of Telegraph Avenue and 21st Street. The Hobart

Garage, stretching across the center of the block from 21st Street to north to 22nd Street housed 200 cars. The parcels facing Broadway featured the Sherman & Clay store at the southeast corner and stores and restaurant buildings filling the rest of the lots.

The west side of the 2100 block of Telegraph remained unchanged since 1912.

At the east side of the 2000 block of Telegraph, the only building remaining from 1912 was the Hotel Avalon at the southeast corner. The Paramount Theatre, constructed in 1930, filled most of the east side of the block. Smaller commercial buildings had been constructed on parcels facing 20th Street and Broadway. At the west side of the block, the single-family residences that existed in 1912 had been demolished. In their stead were vacant parcels on the south side and small commercial buildings at the corner of Telegraph Avenue and 21st Street.

At the east side of the 2200 block, the residences and commercial buildings that filled the Telegraph Avenue-facing parcels had been demolished and replaced by a gas station at the corner of Telegraph Avenue and West Grand Avenue. The west side of the 2200 block of Telegraph was largely unchanged since 1912 with the exception of a new storefront building the northeast corner.

5. 1950 Sanborn Map

Very little change occurred on these three blocks of Telegraph between 1935 and 1950. The east and west sides of the 2100 block (subject block) remained the same. At the 2000 block, the only change was the addition of a bus depot at the west side of the block (corner of Telegraph Avenue and 20th Street). At the 2200 block, five residences at the east side had been demolished. That side of the block remained vacant.

6. 1970 Sanborn Map

The 2000-2200 blocks of Telegraph Avenue saw extensive change in the period between 1950 and 1970. On the 2100 block (subject block), the Kwik Way drive-in restaurant had been constructed at 2150 Telegraph Avenue. It was surrounded by parking areas and a commercial building at the northeast corner. Everything else on the block had been demolished. At the west side of the 2100 block, two residences at the northeast corner had been demolished and replaced with a used-car sales lot with a small office at the west side of parcel.

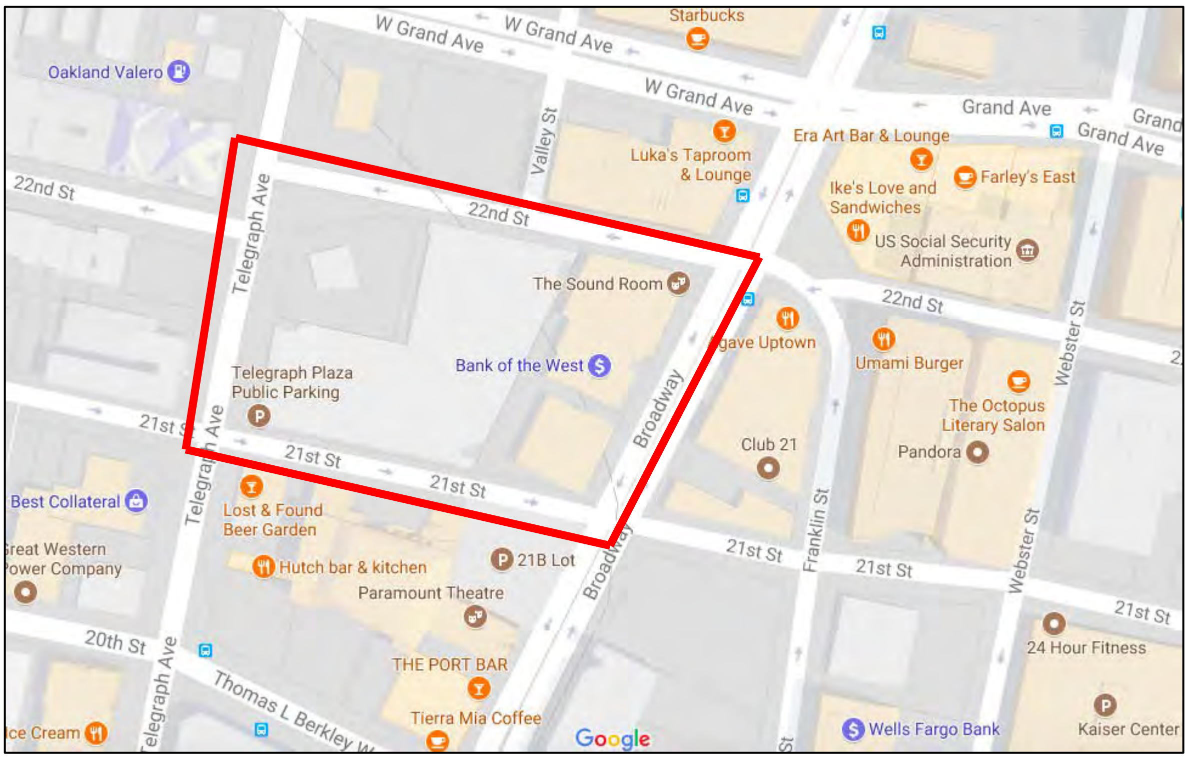
At the west side of the 2000 block, the commercial building at the northeast corner had been demolished and replaced with a larger commercial building (2025 Telegraph Avenue). At the east side, the building at the corner of Telegraph Avenue and 21st Street had been demolished and replaced by a bus station at 2040 Telegraph. Commercial buildings at the southwest and northeast corners (adjacent to the Paramount Theatre) had been demolished. The commercial building at 2022 Telegraph Avenue was extant. The vacant parcels were used for parking.

At the east side of the 2200 block, the gas station had been demolished and replaced with two single-story, corrugated-iron-sided structures. On the west side, the commercial buildings at the northeast corner had been demolished and replaced with a gas station at the corner of Telegraph Avenue and 22nd Street.

V. EXISTING BUILDINGS ON PROPOSED PROJECT SITE

This section includes discussion of the existing buildings on the proposed project site including:

- Space Burger (formerly Kwik Way); 2150 Telegraph Avenue/495 22nd Street
- Bank Building Vacant (formerly Security Pacific National Bank); 2101-15 Broadway
- Bank of the West (formerly Sanwa Bank); 2121-27 Broadway
- Sound Room (formerly Sherman Clay Building); 2135-47 Broadway
- Parking Garage; 2100 Telegraph



Map of project site (Source: Google Maps)

2150 Telegraph Avenue / 495 22nd St. (Kwik Way / Giant Burger)

Subject Parcel & Past Evaluation
2150 Telegraph Avenue (also known as 495 22nd Street) is a small, restaurant building situated between between 21st and 22nd Streets in Oakland's Uptown District, constructed in 1953. The Assessor's Parcel Number (APN) is 008064801103. The lot is 0.486 acres. The building is located within an CDB-P (Central Building District) zoning area.

The Oakland Cultural Heritage Survey (OCHS) has two different previous ratings on file for this property. First, on the Parcel Information Sheet on the City's website it is noted as a *3, which means less than 45 years old when surveyed and not in an historic district. In 2003, the building had just turned 50 years old. The earlier survey rating was assigned before the building reached 50 years in age.

The Public Review Draft *Uptown Mixed Use Project EIR*, completed by LSA Associates in September 2003 (14 years ago), State Clearinghouse No. 200052070 noted that the OCHS rating was *c3. However, even though the building had reached 50 years in age it was not re-evaulated during the Draft EIR process.

However, on November 17, 2003, Sara E. Palmer of LSA Associates completed a preliminary historic evaluation of the building at 2150 Telegraph Avenue. Palmer concluded:

> Based on my review of the Kwik Way 2 building and the historic context for Googie architecture, it appears likely that the Kwik Way 2 building is eligible for listing on the California Register. It could also be considered a cultural resource by the City of Oakland.
>
> The Kwik Way 2 features the angled front windows, sloped roof, and brightly colored decorative elements characteristic of Googie drive-ins. It retains good historical integrity and it appears that the building could be readily restored to its original condition.[4]

Today, the building is 64 years old which is considered sufficient time to have passed to obtain a scholarly perspective on the events or individuals associated with the resource for

[4] LSA Associates, Inc. / Sara E. Palmer, "Preliminary Evaluation of Kwik Way 2/Giant Burger Stand, 495 22nd Street, Oakland, Alameda County, California, Forest City Project, LSA Project FCR230," November 17, 2003.

the California Register of Historical Resources. As such, architecture + history, llc evaluated the building in 2017 with the following findings.

Current Architectural Description

The building at 2150 Telegraph Avenue is a 2,115 square-foot, one-story restaurant located on the southeastern corner of Telegraph Avenue and 22nd Street in Oakland. It is situated in the middle of an irregularly-shaped parcel and is surrounded by an asphalt-paved parking lot. The property is accessed via vehicular curb cuts off of both Telegraph Avenue and 22nd Street.

The building sits on a concrete, slab-on-grade foundation and has two sections: a public section at the north (front) where food is served; and the utility section at the south (rear), which contains a kitchen, storage, and bathroom.

The front section is dominated by a wall of angled windows—where customers order food—covered by a dramatic, cantilevered roof extending over the ordering area. The windows are set in aluminum frames, span the entire main façade, and wrap around the corners. Below the windows is a smooth, concrete base, angled away from the building and projecting slightly, creating a counter for the food-ordering area. The top of the counter is stainless steel. The interior of this section of the building is accessed by an aluminum and glass door at the west side.

The cantilevered roof is classic Googie style, with zig-zagging fascia and neon lights. Seven cubes set on poles rise from the roof (likely part of the original Kwik Way signage). The underside of the roof is lined with lights that illuminate the food-ordering area. The floor area underneath the roof canopy appears to be painted concrete or granite. The outdoor food-ordering area is delineated by bollards, which protect customers from the vehicular parking spaces encircling the building.

The rear section of the building is a high one-story, box-like in massing, and has a flat roof. The south wall is constructed of concrete masonry units. The east and west walls are faced with randomly laid fieldstone, which has been painted white. A boxy addition, shorter in height than the rest of the building, projects from the southeast corner of the south wall; its walls are concrete masonry units, and the roof is flat. This rear section of the building is accessed via doors at the south and east facades, as well as a door on the west wall of the addition. The interior was not accessed during the site visit.

North and east façades, 2150 Telegraph Avenue. Source: Architecture + History, LLC, 2016.

West façade, 2150 Telegraph Avenue. Source: Architecture + History, LLC, 2016.


West and south façades, 2150 Telegraph Avenue. Source: Architecture + History, LLC, 2016.


North façade detail, 2150 Telegraph Avenue. Source: Architecture + History, LLC, 2016.

Site History

In the late 1880s, the corner of Telegraph Avenue and 22nd Street (subject site) contained four single-family residences, three outbuildings, and a large vacant lot to the south.[5] Those buildings still existed on the site in 1902, as well as (to the immediate south) a large, two-story commercial building with lodging upstairs and a two-story residential apartment building (flats), which existed on the site through the mid-1930s. Businesses located in the commercial building over the years included a furniture factory; Japanese laundry; upholstering, plumbing, painting, and carpentry companies; an auctioneer; and a business providing car batteries. By 1912, the single-family residences at the corner of Telegraph and 22nd, had been either destroyed during the 1906 earthquake or demolished. The commercial building was demolished sometime between 1939 and 1946.[6] The residential apartment building was demolished in 1946.[7] The subject site was used for parking from 1946 until 1953.

In October 1953, Herman Lehman and Joseph Mahoney applied for a permit to build a restaurant on the corner of Telegraph Avenue and 22nd Street.[8] The builder was James A. Hutzler of Oakland (the architect is unknown). Restaurant fixtures and equipment were supplied by East Bay Restaurant Supply Co. of Oakland, Carbonic Machines of San Francisco, and Red Top Electric of Emeryville. The estimated cost was $20,000. The final permit was issued on November 23, 1953. Known as Kwik Way #2 (or Kwik Way Shops), the building was completed in December 1953.

Kwik Way #2 operated at 2150 Telegraph Avenue from 1953[9] through circa 1996.[10] Beginning circa 2000, the Giant Burgers chain took over the restaurant. Giant Burgers remained at 2150 Telegraph Avenue through December 2014.[11] Space Burgers took over the space in February 2015.

The building at 2150 Telegraph Avenue appears to have not been significantly altered since its construction in 1953. Permitted alterations include the following:

- In 1959, copy on the original signage was changed to read, "Chicken, [illegible], Malts."

[5] The site history was developed using Sanborn Fire Insurance Company maps from 1889, 1902, 1912, 1935, 1950, and 1970.

[6] Essel Environmental Consulting, *Phase I Environmental Site Assessment, 495 22nd Street, Oakland, CA*, June 30, 2015, page iv.

[7] Essel Environmental Consulting, *Phase I Environmental Site Assessment, 495 22nd Street, Oakland, CA*, June 30, 2015, page iv.

[8] Building permit #B49596, October 5, 1953, Oakland Cultural Heritage Survey files.

[9] Kwik Way advertisement, *Oakland Tribune*, December 15, 1953.

[10] Essel Environmental Consulting, *Phase I Environmental Site Assessment, 495 22nd Street, Oakland, CA*, June 30, 2015.

[11] Ethan Fletcher, "Space Burger Launches in Uptown Oakland," *San Francisco Chronicle*, February 24, 2015.

- In 1963, toilet and storage rooms were added (permit #C11665).
- In 1985, a drive-up window was proposed (permit #037676).
- In 1998, the restaurant was remodeled and the sign face was changed.[12]

Owner / Occupant History

Kwik Way

Kwik Way was a fast-food, drive-in restaurant chain introduced by Lehman and Mahoney in Oakland circa 1953. The first Kwik Way opened at 6215 E. 14th Street/International Boulevard (uknown condition) circa 1953.[13] The Kwik Way at 2150 Telegraph Avenue was followed by a third Kwik Way at 500 Lake Park Avenue in 1956 (extant but proposed for demolition).[14] The Kwik Way chain called itself the "first 19-cent self-service drive-in" in Northern California, proclaiming, "Copied by many—equaled by none." [15] It proudly advertised its use of locally sourced ingredients, including beef from Piedmont Market, chicken from Parenti Poultry Co., and "custom-made, oven-fresh buns" made by Athens Baking Co.[16] Standard Kwik Way menu items were burgers, various chicken dishes, BBQ sandwiches, fries made from "Idaho spuds," and "thick and creamy" malts.[17] In the late 1950s, the Kwik Way chain sponsored a boys' little league team in the Babe Ruth Winter League.[18]

Kwik Way #2 at 2150 Telegraph Avenue held its grand opening on December 16, 1953.[19] An advertisement in the *Oakland Tribune* announcing the opening reads:

> The welcome mat is out. Kwik Way, New Self-Service Drive-In, 2150 Telegraph – 1 block North of Capwell's. 5-second service! A quick, good lunch for 30 cents. Walk in, drive in, eat here, take 'em out. Open 10:00 A.M. to 2:00 A.M.[20]

The opening day specials were five hamburgers for 50 cents and two half chickens for $1.00.
Kwik Way celebrated its one-year anniversary on May 1, 1954, announcing the party in the *Oakland Tribune*:

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[12] Essel Environmental Consulting, *Phase I Environmental Site Assessment, 495 22nd Street, Oakland, CA*, June 30, 2015: 27.
[13] Need source. From Wikipedia.
[14] Building permit #55342, May 3, 1955, Oakland Cultural Heritage Survey files.
[15] Kwik Way advertisement, *Oakland Tribune,* December 15, 1953; Kwik Way advertisement, *Oakland Tribune*, May 1, 1954.
[16] Kwik Way advertisement, *Oakland Tribune*, December 15, 1953.
[17] Kwik Way advertisement, *Oakland Tribune*, December 15, 1953.
[18] "Kwik-Way to Hold Ruth Loop Tryouts," *Oakland Tribune*, August 23, 1957.
[19] Kwik Way advertisement, *Oakland Tribune*, December 15, 1953.
[20] Kwik Way advertisement, *Oakland Tribune*, December 15, 1953.

> Welcome! Welcome! Welcome! Yup, we made it! Kwik-Way 1st Anniversary. Saturday, May 1st. Northern California's first 19-cent self-service drive-in. Circus clowns, prizes, novelties. E. 14th at 63rd Ave. near Seminary (also at Telegraph & 22nd). 19-cent hamburgers, 49-cent fish 'n' fries, 69-cent fried chicken.[21]

Kwik Way #2 operated at 2150 Telegraph Avenue through at least 1969 under the management of Lehman and Mahoney.[22] The restaurant at 2150 Telegraph Avenue retained the Kwik Way name through circa 1996.[23] Kwik Way #2 was included in a review of "low-brow" restaurants in Oakland in 1984, written by Gerald Nauchman in the *Oakland Tribune*: "As an Oaklander bred and born, my roots go deep at Kwik Way Drive-In—a primitive McDonald's, a '50s pioneer in the see-through patty, the non-milk shake, the ice-floe Coke and twice-fried fries."[24]

Other Occupants

Beginning circa 2000, the Giant Burgers' chain took over the restaurant. Giant Burger remained at 2150 Telegraph Avenue through December 2014.[25] Space Burger took over operation of the restaurant in February 2015.

Architect / Builder

Architect

Building permits for 2150 Telegraph Avenue do not identify an architect for 2150 Telegraph Avenue. However, James A. Hutzler was identifed as the builder.

Builder

James A. Hutzler was born in Reno, Nevada on June 19, 1918, to Ernest and Loretta (Bullock) Hutzler.[26] After serving in the Navy during World War II, on the USS Massachusetts, Hutzler moved to the San Francisco Bay Area, where he owned and operated the Hutzler Construction Company. After 30 years in the Bay Area, Hutzler and his wife, Ora, moved to the Reno-Sparks area. While there, he owned the J&O Ranch and the Silver Appaloosa Ranch in the Smith Valley and Wellington areas. Hutzler was active in Masonics and was a member of the USS Massachusetts Association and the Disabled American Veterans. He died on January 16, 1999 in Reno.

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[21] Kwik Way advertisement, *Oakland Tribune*, April 21, 1954.
[22] R.L. Polk and Co., *Polk's Oakland City Directory*, online at SFPL.com.
[23] Essel Environmental Consulting, *Phase I Environmental Site Assessment, 495 22nd Street, Oakland, CA*, June 30, 2015.
[24] Gerald Nachman, "There Is No Quiche There," *Oakland Tribune / This World*, April 22, 1984: 13-15.
[25] Ethan Fletcher, "Space Burger Launches in Uptown Oakland," *San Francisco Chronicle*, February 24, 2015.
[26] *Reno Gazette-Journal*, January 20, 1999, online at Newspapers.com.

Building Type and Style - Drive-in Restaurant and Googie Style
Architectural historians generally agree that one of the nation's first drive-in restaurants was Sunbelt's Pig Stand, built on a highway between Dallas and Fort Worth, Texas in 1921.[27] At the Pig Stand, customers "would pull in to the parking lot and be immediately greeted by carhops, combination waiter-busboys, who served burgers and fries on trays that clipped on to the car's window."[28] The Pig Stand was quickly followed by other drive-ins throughout the country. One of the earliest drive-ins in California was Montgomery's Country Inn (later called the Tam o' Shanter Inn) on Los Feliz Boulevard in Los Angeles. By the early 1930s, drive-ins could be found throughout California. Perhaps the strongest indicator of the drive-in's popularity, the February 1940 issue of *Life* magazine featured a carhop on its cover.[29] The March 1940 issue of *Westways* included an article on drive-ins, referring to them as America's "belles of the boulevards."

The drive-in restaurant, along with other automobile-oriented building types, such as the motel, was a byproduct of the increasing popularity of automobile travel and, later, suburbinazation. "Drive-in architecture grew up to feed, service, and entertain the newly mobile public as they went about their lives on the far-flung streets and boulevards," writes historian Alan Hess.[30] They were fast and efficient for travelers, as they allowed patrons to be served in their cars. They were popular with restaurant owners, as well, because they required fewer employees, which meant higher profit margins.[31] As competition between drive-ins picked up, restaurants fought to stay ahead by providing faster service, resulting in gimmicks such as rollerskating carhops.

The first drive-ins presented a wild variety of designs as they tried to lure passersby. "In the beginning there were no design rules, and … the streets sprouted strange architectural anomalies. Spanish revival missions sat catty-corner from colonial mansions, and it was not uncommon to pull up to a 30-foot stucco pig and be served a hot dog from its 6-foot snout."[32] By the 1930s, drive-ins began to adopt common design features, such as octagonal or circular forms, large rooftop signs, and siting in the middle of a corner lots, which "allowed more cars to park close to the building, making service easier and

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[27] Alan Hess, *Googie Redux: Ultramodern Roadside Architecture* (San Francisco: Chronicle Books, 2004)
[28] Nate Barksdale, "Fries With That? A Brief History of Drive-Thru Dining," History.com, May 16, 2014, http://www.history.com/news/hungry-history/fries-with-that-a-brief-history-of-drive-thru-dining, accessed June 30, 2016.
[29] Jim Heimann, "Drive-Up Deluxe: In Memory of a Passing California Fancy," *California Magazine*, May 1983: 103-106.
[30] Alan Hess, *Googie Redux: Ultramodern Roadside Architecture* (San Francisco: Chronicle Books, 2004)
[31] Nate Barksdale, "Fries With That? A Brief History of Drive-Thru Dining," History.com, May 16, 2014, http://www.history.com/news/hungry-history/fries-with-that-a-brief-history-of-drive-thru-dining, accessed June 30, 2016.
[32] Jim Heimann, "Drive-Up Deluxe: In Memory of a Passing California Fancy," *California Magazine*, May 1983: 103-106.

attracting more customers."[33] Drive-ins of the 1930s, according to Alan Hess, "were arguably the most radically Modern buildings ever constructed in the United States. No other buildings were shaped so effectively by technology—by the automobile. No Modern building unified function, advertising, and urban presence more effectively.[34]

The practice of combining building design with advertising took off in the 1940s and 1950s. Architects of drive-in restaurants "recognized that, for a commercial building, advertising is a legitimate function to be expressed in architectural form. To make a relatively small building visible to customers from far down the street, the entire building was conceived as a sign to attract customers."[35] The result was revolutionary, a panapoly of hyper-modern, wimsical, eye-catching buildings that "fit the needs of the new California 'car culture' and the dreams of the even newer space age."[36] Popular design elements were bold angles, colorful neon signs, plate-glass windows, stainless steel, sweeping cantilevered roofs, and pop-culture imagery. The style became known as Googie, a term coined in 1949 by *House and Home* magazine editor Douglas Haskell to describe the design of Los Angeles coffee shop Googies, designed by California Modernist John Lautner.[37] Writing about Googie-style buildings, Alan Hess says that they were evocative of California's "prosperity and its distinctive lifestyle…made widely available to the average citizen. [They] brought a sense of California as a place where the future had already arrived, and was available to everyone as they went about their daily lives."[38] One of the "finest examples of Googie in Oakland," according to Hess, is Biff's/JJ's at 27th Street and Broadway, designed by Googie specialists Armét & Davis (Louis Armét and Eldon Davis), and completed in 1963. JJ's round design—symbolic of the 1950 and 60s fascination with the automobile and space travel—is a version of Googie called Coffee Shop Modern, established by Armet and Davis.[39]

Drive-in restaurants began to wane in popularity by the end of the 1950s, replaced in part by the drive-thru fast food restaurant model. Introduced by the In-N-Out chain in Southern California in 1948, drive-thrus proved even more fast and efficient than drive-ins, allowing motorists to order food from a drive in window, take their food to go, eating it on the

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[33] Alan Hess, *Googie Redux: Ultramodern Roadside Architecture* (San Francisco: Chronicle Books, 2004).
[34] Ibid.
[35] Alan Hess, *Googie Redux: Ultramodern Roadside Architecture* (San Francisco: Chronicle Books, 2004)
[36] Alan Hess, "Broadway Valdez District Specific Plan – Biff's Coffee Shop," October 13, 2013, Letter to the Oakland Landmarks Preservation Board, filed with the Oakland Cultural Heritage Survey.
[37] Alan Hess, *Googie Redux: Ultramodern Roadside Architecture* (San Francisco: Chronicle Books, 2004) 66-68.
[38] Alan Hess, "Broadway Valdez District Specific Plan – Biff's Coffee Shop," October 13, 2013, Letter to the Oakland Landmarks Preservation Board, filed with the Oakland Cultural Heritage Survey.
[39] Allyson Quibell, "It's Got Style: Googie by the Bay," *Oakland Heritage Alliance News* Vol. 24, No. 2 (Summer 2004).

go.[40] Drive-ins all but disappeared in the 1960s when fast-food franchises and coffee shops took over as the most successful drive-in restaurant models.[41]

Known Drive-In Restaurants in Oakland

The Oakland Cultural Heritage Survey maintains a file on historic drive-ins, coffee houses, and diners in Oakland. According to the list of sites in the file, Kasper's at 4521 Telegraph Avenue (extant), was one of the first drive-in restaurants in Oakland. It opened in 1943. The following is a sampling of other drive-in, coffee-shop, or diner restaurants (excluding Kwik Ways mentioned in previous sections) that followed and are currently extant:

- Klik's/King Drive-In, 801 East 12th Street (extant), opened circa 1945-46 (possibly owned by Lillian Klik)
- Dave's Coffee Shop, 4297-99 Broadway (extant), opened circa 1950
- Casper's, 1240 1st Avenue (extant), opened circa 1950
- Nikko's, 340 23rd Avenue (extant), opened 1952
- Sea Wolf/Scott's, 2 Broadway at Jack London Square (extant), opened circa 1952-54
- Mel's Diner, 1701 San Pablo Avenue (extant), opened circa 1953-54
- Coliseum Drive-In, 5401 Coliseum Way, opened 1964
- Hambrick's Giant Burger, 3625 E. 14th Street (extant), opened circa 1965
- Loard's, 2825 MacAurthur Boulevard (extant), opening date unknown
- Hambrick's Giant Burgers, 5325 San Pablo Avenue, opening date unknown
- Giant Burger, 4215 MacAurthur Boulevard, opening date unknown[42]

California Register of Historical Resources Evaluation

California Register Criterion 1: Event or Patterns of Events

Based on historical research, the building at 2150 Telegraph Avenue in Oakland, California does not qualify individually under California Register Criterion 1: Event/Patterns of Events, for either its association with the development of downtown Oakland or with the growing interest in and expansion of Fast Food Restaurants during the post-World War II era. While these are certainly historical contexts or events that could be linked to this building, the significance of this building is much more closely aligned with the development of the Googie style of architecture within the restaurant industry in California and Oakland, of which this is an outstanding example. The building does not possess an association with an important event that rises to a level of significance that would justify individual eligibility for the California Register.

[40] Nate Barksdale, "Fries With That? A Brief History of Drive-Thru Dining," History.com, May 16, 2014, http://www.history.com/news/hungry-history/fries-with-that-a-brief-history-of-drive-thru-dining, accessed June 30, 2016.

[41] Jim Heimann, "Drive-Up Deluxe: In Memory of a Passing California Fancy," *California Magazine* (May 1983): 103-106.

[42] OCHS file on drive-ins, coffee houses, and diners in Oakland.

California Register Criterion 2: Important Person(s)
Based on historical research the building at 2150 Telegraph Avenue is not associated with any individuals who have had an important role in local, California or national history. There does not appear to be a link between the owners or builders of this building and any significant historical events relating to Oakland history. The building does not appear to qualify under California Register Criterion 2: Important Person(s).

California Register Criterion 3: Design/Construction/Architecture
The Googie-style restaurant at 2150 Telegraph Avenue, historically known as the Kwik Way #2, appears to be individually eligible for the California Register of Historical Resources under Criterion 3: architecture. It is an excellent example of a building type, a diner / drive-in restaurant, and a style of architecture, Googie architecture. The building is associated with the expanded interest in quick service food that resulted in the development of a specific building type. It was one of several, small-scale restaurants developed under the Kwik Way brand in the east bay. The building possesses significance within the context of mid-twentieth century architecture and design as an example of the Googie style. The building conveys this significance through its intact building elements with a high level of integrity of location, design, materials, workmanship, feeling, association. The integrity of setting has changed somewhat over time as surrounding, older buildings have been replaced with more recent construction. However, the building retains angled corner orientation and there are still a large number of historic structures in the immediate vicinity which add to the overall setting.

2115 and 2127 Broadway and Banking Related Buildings in Uptown Oakland

There are two branch bank buildings dating to the mid-1970s on the project site. First, the Security Pacific National Bank, designed by William L. Pereira Associates in 1974 at 2115 Broadway. Second, the Sanwa Bank designed by Shigenori Iyama in 1975 at 2127 Broadway. Some contextual information on the development of the Modern branch bank, as well as bank expansion in this area of Oakland is provided first, and then each building is discussed and evaluated in detail. Lastly, a discussion of the cluster of bank buildings is provided.

After World War II, American commercial architecture departed from past expressions in scale, style, and building types. This is true of branch bank buildings which no longer employed Classical motifs or a temple front. Banking design shifted to box forms with minimal decoration in a Modern expression. To convey a Modern aesthetic and new financial services, banks often turned to local or regional architects who had embraced Modernism to build new, more suburban in character structures. This is reflected in California in a series of bank headquarters and branches by Modernism's significant California architects and firms including: John Carl Warnecke, William Pereira, William Wurster (Wurster Bernardini Emmons), Paul Revere Williams, Edward Durell Stone, Anchen & Allen, Skidmore, Ownings & Merrill, Welton Becket Associates, and others. The Modern branch bank included large expanses of glass, a sleek interior with shiny materials, drive-up and walk-up banking, parking (even in more urban settings), and large areas, usually of the grand-scale lobby, set aside for customers to meet individually with financial advisors.[43]

In Oakland, this transition in branch bank design also coincided with the development of BART. Envisioned and designed in the 1950s, construction on the BART system began in 1964, with the official first days of service occurring in September 1972 with the east bay service complete. The Transbay Tube went into full service in 1974. Two downtown BART stations were developed: one at 12th Street which became known as "City Center," and one servicing 19th and Broadway.[44] In the vicinity of the 19th Street BART station along both Broadway and Webster, at least thirteen bank-related buildings were constructed between 1960 and 1975. The last two structures constructed were the two branch banks on the project site at 2115 and 2127 Broadway.[45]

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[43] Mary Brown. *San Francisco Modern Architecture and Landscape Design, Historic Context Statement, 1935-1970*, San Francisco Planning Department, 2010 (section on modern banks); and Carol Dyson and Anthony Rubano, "Banking on the Future: Modernism and the Local Bank." *Preserving the Recent Past*, ed. by Deborah Slayton and William G. Foulks, National Park Service. Washington, D. C., 2000.

[44] Bay Area Rapid Transit (BART) history on the BART website at www.bart.gov/about/history.

[45] OCHS files and building permit research by Betty Marvin; various *Oakland Tribune* articles and photographs; Oakland Public Library. Oakland History Room Clippings File on Oakland Banks.

From the Oakland Tribune April 28,1961 the Central Valley National Bank. Source: OPL clipping file.

The Wells Fargo Bank pictured in the Oakland Tribune May 25, 1965 (Source: OPL clipping file).

Security Savings 1969 Oakland Tribune (Source: OPL Clipping File).

Banks developed along Broadway and Webster Streets in Oakland

Name	Address	Permit Year	Year Open	Permit Info, Etc.	Architect	Notes
Central Valley Bank	301 20th St	1960	1961	Planning Commission resolution plans submitted by Becket	Welton Becket & Associates	Demolished[a]
Sumitomo Bank	400 20th St / 2001 Franklin	1964	1966	C16715	Shigenori Iyama	Somewhat altered
Wells Fargo Bank	415 20th St	1964	1965	C19803	John Carl Warnecke	Significantly Altered[a]
First Security / National	2044 Franklin St	1965	1966	C22497, a cross-reference page refers to Lyman Jee, architect	Lyman Jee	Extant
Security Savings & Loan	2250 Broadway	1967	1969	C37772	Norton S. Curtis	Extant
Bank of California	1970 Franklin St	c. 1967	1968	permit not found		Extant
Bank of America	21st & Broadway	?	1967	?	?	Demolished[a]
Guaranty Savings	2000-20 Franklin St	c. 1967	1968	Permit illegible, correspondence refers to "Robert Goetz, architect"		Extant
First Savings	350-60 20th St	c. 1968	1968	address assigned 1960, permit not found		Extant
United California Bank	2040 Franklin St	c. 1968	1968	permit not found		Interior alterations
Bank of Tokyo	1740-50 Broadway	1972	1975	C64797	Van Bourg & Nakamura	Extant
Security Pacific National Bank	2115 Broadway	1974	1975	C80714, drawings from Pereira's office	William L. Pereira Associates	Extant
Sanwa Bank	2127 Broadway	1975	1975	C86187	Shigenori Iyama	Extant

[a] Buildings significantly altered or demolished.

Tribune Photo by Roy Williams

FINANCIAL DISTRICT—Security Pacific National Bank is seeking a branch in the vicinity of 20th Street (lower left), between Harrison Street and Broadway. The new branch would join other financial institutions shown in the area (as numbered): Bank of California (1), Wells Fargo (2), new Golden West Savings and Loan site (3), First Savings and Loan (4), Sumitomo Bank (5), United California (6), Security National (7), First Western (8), Bank of America (9), and First Chartered Bank of London (10). The area is popular also with investment houses and title companies. Picture was taken from top of Kaiser Center.

Oakland Tribune, 1968.

The above aerial photograph marking the numerous bank-related buildings in downtown Oakland taken from the Kaiser Center in 1968 shows that cluster of businesses that emerged in the 1960s around the 19th Street BART station. On the following page a map depicts the locations of all thirteen of the banking buildings and if they remain standing or not.

Map showing locations of existing bank-related buildings in Uptown Oakland (Source: Preservation Architecture, 2017).

2101-2115 Broadway – Former Security Pacific National Bank

A view of the 21th Street side of the building.

Subject Parcel & Past Evaluation

This building sits at the corner of Broadway and 21st Street in downtown Oakland on APN 008-648-18. The current OCHS Rating is *3 (less than 45 years old or modernized at the time of the survey). The building is not located within an identified historic district or an Area of Primary Importance (API). No extensive survey of Modern Buildings has been undertaken in downtown Oakland, nor has an historic context statement for Modern Architecture in Oakland been completed. Project drawings on file with the City of Oakland related to building permit # C80714 were completed by William L. Pereira Associates. These drawings were photographed in the office of the OCHS, but they have not yet been formally copied or scanned pending any permission that may be required.

William Pereira is a known master architect with an extensive body of work. There is a monograph on Pereira, edited by James Steele, that includes what Steele identifies as a somewhat incomplete list of projects, based on a log book of projects maintained by Pereira's office. At this time, based on research completed, it does not appear that Pereira completed any other buildings in Oakland. William L. Pereira Associates designed a number of buildings the Bay Area, including the Transamerica Building, the Crocker Bank Building, and a tower addition to the St. Francis Hotel in San Francisco; a California State Building in Sacramento; and a research institute near Stanford University.
Additionally, beginning in 1951 with an early partner Charles Luckman, then through the 1970s as William L. Pereira Associates, Pereira designed over 25 identified banking related

buildings, including branch banks and banking headquarter towers. Many of these examples were in Southern California, where a large collection of Pereira's work remains extant, but he also designed banking related buildings in Phoenix, Denver, Salt Lake City and New York. Two prominent examples of his branch bank buildings are the Farmers and Stockmen's Bank (1951) in Phoenix, with Luckman and the Gibraltar Savings Bank in southern California. Both of these buildings are pictured in Steele's monograph.

Pereira also completed a tower for Security Pacific National Bank in downtown Los Angeles, at 800 W. 6th Street, which has been renamed the Pacific Financial Center. From a review of the project list in Steele's monograph it is clear that Pereira often built multiple projects for clients in various locations. For instance, both branch banks and a headquarters for the Crocker Citizen's National Bank and multiple buildings for Prudential Insurance.

Current Architectural Description

The Security Pacific National Bank branch at 2101-15 Broadway was completed in 1975. A corner building, the structure is two stories in height, and rectangular in plan with a flat roof. The Broadway and 21st Street elevations are extensively glazed with large expanses of dark-colored glass. The second story is cantilevered over the first floor and appears to float above the lower story. The exterior walls are a combination of marble, aluminum, and glass. There is a cube-shaped inset, two-story component at the eastern end of the building this is sheathed in white marble forming a stark contrast to the dark glazing. The first-floor lobby is a double-height space. A landscaped area along the 21st Street side of the building leads to a projecting elevator tower also clad in white marble. At the Broadway elevation the sidewalk and a handicap access ramp continue to the building face. Additionally, at the Broadway side there is a door to the banking lobby and a door to the upper story offices. An ATM machine is centered on the lower portion of the Broadway elevation. There is a landscaped passage way between this structure and the adjacent 2121-27 Broadway.

History of Building

The *Oakland Tribune* announced in February 1973 that Security Pacific National Bank had hired preeminent Modernist architect William Pereira to design the building at the corner of Broadway and 21st Street.[46] This is confirmed by the building plans located in the City of Oakland archives clearly from the office of William L. Pereira Associates. The building permit lists the architect as ORS Corporation from Los Angeles and the builder as E.W. Hahn Construction Co. of Hayward.[47] ORS Corporation, appears to have specialized in banking fixtures, such as automated teller machines.[48] Security Pacific National Bank was

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[46] "Security Pacific Plans New Oakland Headquarters," *Oakland Tribune*, February 1, 1973: F11.
[47] City of Oakland Building Permit Number C807142, May 13, 1974,
[48] Shayne Watson. Conversation with Betty Marvin. OCHS. July 6, 2016; OCHS file on ORS Patents on Automatic Teller Machines.

formed in Southern California and by the middle of the twentieth century it was a well-respected large west coast banking institution. In 1992, Security Pacific merged with Bank of America.

Architect / Designer
Born in Chicago in 1909, William Leonard Pereira began working as a draftsman at a young age and soon became an architect's assistant, also supporting himself as a painter.[49] He graduated from the University of Illinois School of Architecture in 1931. After graduation, Pereira was employed by the well-known Chicago firm of Holabird and Root, where he contributed to the master plan of the 1933 Chicago World's Fair.

He began a partnership with his brother Hal, Pereira and Pereira, together focusing on movie theater design throughout the U.S. At the height of the Depression, in 1938, William Pereira moved to Los Angeles, and became a production designer for Paramount and RKO.

After World War II, Pereira taught at the University of Southern California School of Architecture. In 1950, he formed a partnership with Charles Luckman, the former president of Lever Brothers and fellow Illinois native. This partnership was somewhat short-lived (1951-58) and Pereira then formed William L. Pereira Associates in 1959. The firm created some of Los Angeles' most significant architectural landmarks, including the master plan and an iconic building, the Theme Building, at the Los Angeles International Airport. At one time, the firm employed four hundred people. Known for its projects at airports throughout the world, in campus and university settings and for major American corporations, including financial, insurance and large corporations like IBM.

The Los Angeles Conservancy notes of Pereira's practice, "the firm had its hand in designing everything from amusement parks to research facilities. Pereira and Associates not only gained national recognition for its buildings, but also for the many master plans produced by the firm, making Pereira a leading figure of master planning, so much so that it landed him on the cover of *Time* magazine in 1963."[50]

Pereira died in 1985 at age 76; his most recognized buildings include: the Los Angeles Metropolitan Water District complex (1963); the Los Angeles County Museum of Art (Mid-Wilshire, 1965); the Geisel Library at the University of California, San Diego (1970); San Francisco's Transamerica Pyramid (1972); and multiple works and master planning at the

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[49] Biographical information compiled from James Steele, ed. *William Pereira*. Los Angeles: Architecture Guild Press, 2002 "William L. Pereira, Architect; a Specialist in Planned Cities." *New York Times*. Obituary November 15, 1985; "Pereira Gave County Shape – and a Vision: Late Architect Believed in Orderly Growth, Open Spaces." *Los Angeles Times*. Obituary November 17, 1985;; Pacific Coast Architecture Database, http://pcad.lib.washington.edu.
[50] Los Angeles Conservancy website. https://www.laconservancy.org/architects/william-l-pereira-associates.

Los Angeles International Airport, the University of Southern California (USC) and the University of California, Irvine.[51]

Throughout his career Pereira was engaged in projects on college and university campuses, at airports and for the aviation industry, for corporate campuses and towers, civic centers, hotels, libraries, department stores, theaters and entertainment facilities, and many west coast banks. His bank buildings are found around Los Angeles, in Salt Lake City, Utah, and even one in Butte, Montana.

California Register of Historical Resources Evaluation

California Register Criterion 1: Event or Patterns of Events

Based on historical research, the building at 2101-2115 Broadway in downtown Oakland, California does not qualify *individually* under California Register Criterion 1: Event/Patterns of Events, for its association with the development of Uptown Oakland's financial and banking industry or with the BART development. The building does not possess an association with an important event that rises to a level of significance that would justify *individual* eligibility for the California Register. The building is one of a number of banking related structures that were built in Uptown between the mid-1960s and the mid-1970s. See discussion below related to this cluster of banking buildings.

California Register Criterion 2: Important Person(s)

Based on historical research, the building at 2101-2115 Broadway is not associated with any persons or individuals who have had an important role in local, California or national history. There does not appear to be a link between the owners or designers of this building and any significant historical events relating to Oakland history. The building does not appear to qualify *individually* under California Register Criterion 2: Important Person(s).

California Register Criterion 3: Design/Construction/Architecture

The former Security Pacific National Bank branch at 2101 Broadway does not appear to *individually* meet Criterion 3 of the California Register of Historical Resources as an exceptional example of corporate Mid-Century Modernism in Oakland. The work of William Pereira has been highly documented and given the length of his career, enough time has passed to understand his significant contributions to American and Modern Architecture. Clearly designed in a Modern idiom, with Modern materials, the building was intended to convey the importance of the Modern bank within an urban setting. However, after review of Pereira's banking work over the course of his career, and the other banking-related structures in this area of Oakland, this building does not stand out *individually* as an exceptional or outstanding design within Pereira's body of work or within the building type as exampled in Oakland. Additionally, the building falls outside of the period of significance for Pereira's well-known work as it was built in 1975.

[51] James Steele. *Pereira*; and both the NYT and LAT obituaries on Pereira.

2121-2127 Broadway – Former Sanwa Bank

Subject Parcel and Past Evaluations
This building faces Broadway between 21st and 22nd in downtown Oakland on APN # 008-648-17. The OCHS Rating is *3 (less than 45 years old or modernized). The building is not located within a historic district or an API. No extensive survey of Modern Buildings has been undertaken in downtown Oakland, nor has an historic context statement for Modern Architecture in Oakland been completed.

Current Architectural Desciption
The building at 2121-27 Broadway is two stories in height, rectangular in plan and has a flat roof. The exterior walls are concrete. The mid-block structure has punched openings at the Broadway facade that form a covered outdoor area and a glazed lobby. The overall character of the structure is somewhat Brutalist in its expression.

History of Building
The Sanwa Bank building at 2121-27 Broadway was completed circa 1975, and was designed by architect Shigenori Iyama of S. Iyama & Associates.[52] The Sanwa Bank was a major Japanese bank with branches in California. It operated from 1933 to 2002 when it merged with another Japanese banking institution.

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[52] City of Oakland Building Permit Number C86187, September 12, 1975, owner Sanwa Bank.

Architect / Designer

According to a 1962 *American Architects Directory*, Shigenori Iyama was born in Fukuoka, Japan on February 16, 1927 and was educated at the University of California, Berkeley graduating in 1949. United States Immigration Records indicate the Iyama family arrived in California on the *M. S. Asama Maru* from Kobe, Japan in August 1931 when he was four years old.[53] During World War II, Iyama was incarcerated at the Central Utah Relocation Center at Topaz. He married Mary Imagawa in 1951. Iyama applied for and was granted U.S. citizenship in 1954.[54] He worked for architects Jack Buchter and A. Hunter before starting his own firm.[55] He died at the age of 65 on May 25, 1992.[56]

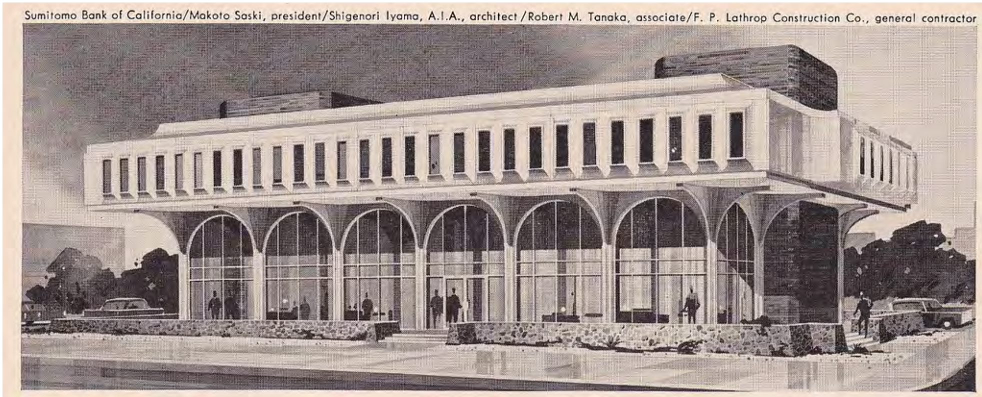
Neither the Pacific Architecture Database or the International Architecture Database contain very little information relating to Iyama. The University of California, College of Environmental Design does not list the archives of Shigenori Iyama amoung its collections

Iyama had an architecture office in Berkeley in the mid-1950s, and by the late 1950s he was working out of Oakland with Al Hunter as Hunter and Iyama.[57] A search of local newspaper indexes and survey books identified the following projects:

- St. Peter's Catholic Church (1961-62), San Rafael, Al Hunter & Shig Iyama;
- Mill Valley community and youth center (1964), Shig Iyama and Robert M. Tanaka. (*San Rafael Daily Independent Journal*, May 19, 1964);
- Vallombrosa retreat center (1964), Menlo Park, CA, (*San Mateo Times, California*, 1964);
- St. Sylvester’s Church (1966), San Rafael, CA (*San Rafael Daily Independent Journal*, May 7, 1966);
- Village Plaza (1967), Fairfax, CA (*San Rafael Daily Independent Journal*, March 24, 1967).

Iyama also designed, with his associate Robert Tanaka, the Sumitomo Bank Building at 2001 Franklin Street at 20th Street in downtown Oakland. The Franklin Street bank, occupies a prominent corner and is a more dramatic and architecturally sculpted structure than the buiding at 2121-27 Broadway.

[53] Manifest from the *M. S. Asama Maru* from Kobe, Japan in August 1931. Ancestry.com
[54] Ancestry.com; *California, Federal Naturalization Records, 1887-1991* [database on-line]; *U.S., Final Accountability Rosters of Evacuees at Relocation Centers, 1942-1946* [database on-line].
[55] American Institute of Architects. American Architects Directory, 1962, page 342.
[56] California Death Index. Ancestry.com.
[57] *San Rafael Daily Independent Journal*, March 8, 1957



The bank building Shigenori Iyama designed at 2001 Franklin.

California Register of Historical Resources Evaluation

California Register Criterion 1: Event or Patterns of Events

Based on historical research, the building at 2121-2127 Broadway in downtown Oakland, California does not qualify *individually* under California Register Criterion 1: Event/Patterns of Events, for either its association with the development of downtown Oakland or for its association with a financial or banking institution. While these are certainly historical contexts or events that could be linked to this building, the building does not possess an association with an important event that would elevate it to a level of significance to justify *individual* eligibility for the California Register.

California Register Criterion 2: Important Person(s)

Based on historical research, the building at 2121-2127 Broadway is not associated with any persons or individuals who have had an important role in local, California or national history. It does not appear to have been built for an important Oakland business entity and the building does not possess significant links to important persons or events. There does not appear to be a link between the owners or designers of this building and any significant historical events relating to Oakland history. The building does not appear to qualify *individually* under California Register Criterion 2: Important Person(s).

California Register Criterion 3: Design/Construction/Architecture

While the building at 2121-27 Broadway is associated with Iyama, limited information about his body of work was discovered making it difficult to assess his significance within the context of Corporate Modern Architecture in Oakland. Certainly, his building at 2001 Franklin is a more interesting, innovative, and iconic structure. While further research may be required to determine if Shigenori Iyama could be considered a master architect, it does appear that the building that more significantly represents his distinctive design capabilities in the context of Modern Architecture in Oakland is the bank building at 2001 Franklin Street. The building at 2121-27 Broadway is less than 50 years in age, and does not appear to be a significant example of Modernism in Oakland. While clearly displaying a modern idiom, the building does not possess the distinctive characteristics of a type, period, region, or method of construction, nor does it possess high artistic values that would make it *individually* significance under the California Register criteria.

Grouping of Bank Buildings in Uptown Oakland

As noted above, from 1961 to 1975 thirteen banking related structures were constructed in Uptown Oakland, some designed by important mid-century architects or architectural firms. A total of four buildings proposed for demolition include the Security Pacific, Sanwa Bank, Bank of Tokyo, and First/Security National banks. Remaining buildings include the Sumitomo, Bank of California, First Savings, Guaranty Savings, United California, and Security Savings banks. As shown in the previous map, there is a remaining cluster of bank buildings at Franklin between 21st and 22nd Streets that could be formed into an Area of Secondary Importance (ASI).

2135-2147 Broadway (Sherman Clay Building)

A view of the Sherman Clay Building along Broadway.

Subject Parcel & Past Evaluation

This building faces Broadway between 21st and 22nd Streets. It sits on APN # 008-648-1. The building is not located within the boundaries an API or ASI or in a designed historic district.

The previous OCHS Survey Rating was Dc3. D means properties of minor importance (existing rating at time of initial evaluation); c means condition "if restored" (contingency rating); and 3 means not in a historic district.

Current Architectural Description

The building at 2131-47 Broadway is a two-story structure, trapezoidal in plan, and sits on a corner lot at the southwest corner of Broadway and 22nd Street (22nd Street was formerly 21st Street – See 1950 Sanborn Map). As originally designed by architect William Weeks, this commercial building was a good example of a small-scale commercial structure employing the Chicago style. It had somewhat modified three-part, upper story windows popularized by American Chicago School architects from the 1880s into the 1920s. However, in January 1960, the building received a façade screen that altered its overall character.[58] This screen was removed circa 1994.[59] While the removal of the façade screen has improved the appearance and integrity of the structure to a certain degree, it has still been highly altered at the lower, storefront level at both the Broadway and 22nd Street facades. The primary storefront façade along Broadway have replacement storefront systems and the clerestory or transom windows above the storefronts are covered over and it is unclear if the windows are extant. At the 22nd Street side the clerestory windows have been infilled. The upper story appears to be more intact with possible original decorative fretwork detailing below the window sills and decorative modillions above. The brick was not likely originally painted.

History of Building

The building at 2135-47 Broadway was designed by architect William H. Weeks and built by Carnahan & Mulford in 1917 for H. S. Crane. This information is listed on City of Oakland Building Permit number 44670 dated January 29, 1917.[60] The project was described by the *Oakland Tribune* on February 4, 1917, with a report in the real estate section noting: "H. S. Crane, owner; Carnahan & Mulford, contractors; 2-story brick store and loft building, southwest corner Twenty-first and Broadway; $29,314.[61]

The building's construction was also announced in the February 1917 issue of *The Architect and Engineer*:

> "Carnahan and Mulford Get Contract"
> Messrs. Carnahan and Mulford, San Francisco contractors with offices at 45 Kearny street, have the contract for building a two-story store and loft building at Twenty-first street and Broadway, Oakland for H. S. Crane. Contract is close to $30,000. Wm. H. Weeks is the architect."[62]

The Sherman Clay Company appears to have moved into the building in the mid to late 1960s. The Sherman Clay Company was a music and musical instrument company founded in San Francisco in 1870 by Leander Sherman. Later, in 1879, Clement Clay joined him as a partner and the enterprise became known as the Sherman Clay Company. The business imported pianos and musical instruments, as well as music books and sheet music for sale in California. It also manufactured pianos and church organs from its own factory. As the firm expanded there were stores in Oakland, Fresno, Stockton, and Portland, Oregon.

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[58] City of Oakland Building Permit #B85699 – January 14, 1960; Orinda Properties Inc., owner; $52,000; remodel building fronts with aluminum curtain walls. Contractor, Christianson and Lyons.
[59] Oakland Cultural Heritage Survey file notes indicate screen removed 1994.
[60] City of Oakland Building Permit Number 44760 – January 26, 1917; M. S Crane, owner; W. H. Weeks, architect.
[61] *The Oakland Tribune*. Sunday, February 4, 1917, Real Estate Section Page 55. (newspapers.com)
[62] "Carnahan and Mulford Get Contract." *The Architect and Engineer*. February 1917 (Vol 48 No. 2) Page 129.

In 1906, the Sherman Clay Oakland Store was located at 1120 Broadway at the corner of 13th Street. After the earthquake and fire of 1906 wreaked havoc on downtown San Francisco, the Sherman Clay company records were salvaged and taken to the Oakland store. In 1910, the Oakland store had relocated to 14th Street. The 1950 Oakland City Directory has the Sherman Clay building at Broadway and Hobart (now 21st Street), in a building designed for the company by Wurster, Bernardi and Emmons in 1947 (no longer extant). That building, 2101 Broadway, was replaced by the bank structure that sits at the corner of Broadway and 21st Street (now vacant).

The 1967 Polk's Oakland City Directory lists the Sherman Clay store located at the building at 2135 Broadway. It is unclear when they moved from the building designed for them by Wurster, Bernardi and Emmons at Broadway and 21st Street.

Architect / Designer

William Henry Weeks was a prolific, well-known California architect. Over the course of his career, Weeks designed more than 500 buildings including libraries, schools, churches, courthouses, hospitals and private residences in Central and Northern California. He is particularly remembered for well-designed schools and his Carnegie Libraries throughout the state. Weeks' other Oakland projects include: the First Christian Church (111 Fairmount Avenue), the Lake Merritt Hotel (1800 Madison Avenue), the Leamington Hotel (1814 Franklin), and the Melrose Branch Library, a Carnegie Library (4805 Foothill Boulevard).[63]

California Register of Historical Resources Evaluation

California Register Criterion 1: Event or Patterns of Events

Based on historical research, the building at 2131-2147 Broadway in downtown Oakland, California does not qualify individually under California Register Criterion 1: Event/Patterns of Events, for either its association with the development of downtown Oakland or with a specific commercial enterprise in Oakland. While these are certainly historical contexts or events that could be linked to this building, no specific event or pattern of events was linked to this building. It does not possess an association with an important event that would elevate it to a level of significance to justify individual eligibility for the California Register.

California Register Criterion 2: Important Person(s)

Based on historical research, the building at 2135-2147 Broadway is not associated with any individuals who have had an important role in local, California or national history. It does not appear to have been built for an important Oakland business entity and the building does not possess significant links to important persons or events. Its association with the Sherman Clay Company appears to have begun in the mid-1960s and it was not built specifically for that enterprise as a music showroom. There does not appear to be a

[63] Betty Lewis. *W. H. Weeks, Architect*. Panorama West Books, 1985.

link between the owners or designers of this building and any significant historical events relating to Oakland history. The building does not appear to qualify under California Register Criterion 2: Important Person(s).

California Register Criterion 3: Design/Construction/Architecture

While the building at 2135-47 Broadway was designed by an important California architect, William H. Weeks, the structure is not among one of Week's most significant works. The structure has been altered at the storefront level which has impacted its overall integrity. As such, the commercial building at 2135-47 Broadway does not appear to be individually eligible for the California Register of Historical Resources under Criterion 3.

2100 Telegraph Avenue

Summary Information

The Telegraph Plaza Public Parking garage at 2100 Telegraph Avenue was constructed in the 1970s (exact date unknown); however, the Certificate of Occupancy is dated September 13, 1978. The OCHS files show no record of architect and builder; however Oakland Building Department records indicate the structure was designed by architects Van Bourg-Nakamura (known as VBNA, Inc.) and the contractors were Branagh, Inc. It is two stories in height and trapezoidal in plan. The walls are of concrete construction.

California Register of Historical Resources Evaluation

California Register Criterion 1: Event or Patterns of Events

Based on historical research, the structure at 2100 Telegraph in downtown Oakland, California does not qualify individually under California Register Criterion 1: Event/Patterns of Events, for either its association with the development of downtown Oakland or with a specific commercial enterprise in Oakland. While these are certainly historical contexts or events that could be linked to this building, no specific event or pattern of events was linked to this building. It does not possess an association with an important event that would elevate it to a level of significance to justify individual eligibility for the California Register.

California Register Criterion 2: Important Person(s)

Based on historical research, the building at 2100 Telegraph is not associated with any individuals who have had an important role in local, California or national history. It does not appear to have been built for an important Oakland business entity and the garage does not possess significant links to important persons or events. There does not appear to be a link between the owners or designers of this structure and any significant historical events relating to Oakland history. The structure does not appear to qualify under California Register Criterion 2: Important Person(s).

California Register Criterion 3: Design/Construction/Architecture

Oakland Building records contained considerable correspondence about cast concrete columns and "precast 'trees'" that "do not fall under a 'typical' design code requirement". However, the structure at 2100 Telegraph does not appear to embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of a master, or possesses high artistic values. Therefore, it does not appear to be individually eligible for the California Register under Criterion 3.

VI. OVERVIEW OF SURROUNDING PROPERTIES

The following section presents a summary of the properties surrounding the project site and within an approximate one or two-block radius, or within view from the subject property. The information in this section was collected from files at the Oakland Cultural Heritage Survey (OCHS) at the City of Oakland. Building files maintained by the OCHS sometimes include Building Permit Research Forms, which show information on architect and builder, as well as permitted alterations.

517-523 22nd Street

The residential structure at 517-523 22nd Street.

The building at 517-523 22nd Street is an 1898-99, four-family, Georgian-Revival residence. The OCHS files show no record of architect and builder. The building is two stories in height (over a basement) and rectangular in plan. Exterior walls are wood frame. The OCHS Rating is C1+ (Secondary Importance: Superior or visually important example, or very early [pre-1906]. Category C buildings "warrant limited recognition"). The building is located within an API (Cathedral District) and is considered a contributor to this API. As a contributor to the API, this building would be considered an historical resource under CEQA.

524 22nd Street/2201 Telegraph Avenue (First Baptist Church)

Julia Morgan's First Baptist Church at 2201 Telegraph Avenue.

The First Baptist Church at 2201 Telegraph Avenue/524 22nd Street was designed by Julia Morgan in the Romanesque Revival style and completed in 1903. It is three stories with towers flanking both ends is overall rectangular in plan. Exterior walls are sandstone and brick. The church was heavily damaged by the 1906 earthquake. Architect Julia Morgan was subsequently engaged to repair the earthquake damage and finish the sanctuary. The OCHS Rating is A1+ (Highest Importance: Outstanding architectural example or extreme historical importance). The building is listed in the Local Register. It is located within an API (Cathedral District) and is considered a contributor. As a contributor to the API and as an individually significant structure, this building would be considered an historical resource under CEQA.

2025 Broadway (Paramount Theatre)

The Parmount Theatre at 20125 Broadway.

The Art Deco Paramount Theatre at 2025 Broadway was completed in 1930. It is irregular in plan with an entrance lobby facing Broadway and a large auditorium space behind. Exterior walls are finished concrete with terracotta details and a large blade sign at the main façade. The architect is Timothy Pflueger. The OCHS Rating is A1+ (Highest Importance: Outstanding architectural example or extreme historical importance). The building was designated a National Historic Landmark in 1977. It is listed in the California Register of Historical Resources, the National Register of Historic Places, and the local register. It is a local landmark (#9). It is located within an Area of Primary Importance (Uptown Commercial) and is considered a contributor. As a National Historic Landmark and a designated City of Oakland Landmark, this building would be considered an historical resource under CEQA.

2201 Broadway/450-466 22nd Street (Breuner Company Building)

The Breuner Company building at 2201 Broadway.

The Art Deco Breuner Company Building at 2201 Broadway was completed in 1931. The architect was Albert Roller, and the builder was P.J. Walker. It is rectangular in plan and eight stories in height. Exterior walls are reinforced concrete with Gladding-McBean glazed terracotta. Architect and engineer Albert Roller chose the latest 'modern' design for the exterior. The reinforced concrete frame, faced with transparent glazed light green terra cotta rests on a base of polished black granite. The tile is incised with abstract floral designs at the parapet; over the east doorways, workers are depicted finishing a wooden chair; over the south entrance are depicted a bench and a high-backed chair. The store was founded by John Breuner, a German immigrant who lived in Cincinnati before establishing his California furniture store in Sacramento in 1856.[64]

The OCHS Previous Rating is A3 (Highest Importance: Outstanding architectural example or extreme historical importance). The building is listed in the Local Register. It is not located within a historic district or an API. This building, with a high rating in the OCHS, would be considered an historical resource under CEQA.

[64] Robert Bernhardi, *The Buildings of Oakland*, Oakland: Forest Hill Press, 1979, 25.

2211-2221 Broadway/407-417 West Grand Avenue (Hofbrau Building)

The commerical structure at 2211-21 Broadway.

The commercial building at 2211-2221 Broadway was completed in 1933. The architect was Reed & Corlett; the builder was F.A. Muller. It is two stories and rectangular in plan. Exterior walls are concrete with brick veneer in some areas. The OCHS Rating is Dc3 which means of Minor Importance: Representative example. The c means condition “if restored” (contingency rating) and the 3 means the building is not located within a historic district or an API.

2003-2009 Telegraph Avenue (Santa Fe/Continental Trailways Bus Depot)

The small-scale commerical structure at 2003-09 Telegraph Avenue.

The former Santa Fe/Continental Trailways Bus Depot at 2003-09 Telegraph Avenue is a 1948 commercial building. The architect was Carl S. Replogle, and the builder was F.H. White. It is one story in height and rectangular in plan. Exterior walls are concrete with terracotta and brick veneer details. The OCHS Rating is *3 (less than 45-years old at the time of the survey, not in a historic district). The building is not located within a historic district or an API.

2022 Telegraph Avenue

The small-scale commerical structure at 2022 Telegraph Avenue.

The small-scale commercial building at 2022 Telegraph Avenue was built in 1948. The OCHS files show no record of an architect and builder. It is one story in height and rectangular in plan. Exterior walls are masonry. The OCHS Rating is F3 (less than 45 years old or modernized). The building is not located within a historic district or an API.

2025-2035 Telegraph Avenue

The small-scale commerical structure at 2025 Telegraph Avenue.

The commercial building at 2025 Telegraph Avenue was completed in 1968. The builder is Hugo Muller Construction. The OCHS files show no record of architect. It is one story in height and T-shaped in plan. Exterior walls are concrete block. The OCHS Rating is F3 (less than 45-years old at the time of the survey) and the building is not in a historic district.

2040 Telegraph Avenue

The small-scale commerical structure at 2040 Telegraph Avenue.

The commercial building at 2040 Telegraph Avenue was completed in 1960. It is one story in height and rectangular in plan. The architect was Marshall, Welsh, McDonald; the builder was W. Barrett & Son. Exterior walls are masonry and glass. The structure has not received an OCHS Rating. It is not located in a historic district or an API.

2101-2115 Telegraph Avenue (YMCA)

The YMCA building at 2101-2115 Telegraph Avenue was first built in 1909, with two stories added a few years later.

The YMCA at 2101-2115 Telegraph Avenue was completed as a five story building 1909-10. The architect was William C. Hays and the YMCA was listed as the builder on the original building permit. Several years later two additional stories were added. The building is U-shaped in plan. Exterior walls are brick. The OCHS Rating is A3 (Highest Importance: Outstanding architectural example or extreme historical importance; not in a historic district). The building is listed in the Local Register. It is not located in a historic district or an API. This building has a high rating in the OCHS and would be considered an historical resource under CEQA.

2200 Telegraph Avenue

The gas station at 2200 Telegraph Avenue has a large canopy over the pumps.

The gas station at 2200 Telegraph Avenue was completed in 1987. The OCHS files show no record of architect and builder. It is one story in height and rectangular in plan. The OCHS Rating is F3 (less than 45 years old) and the building is not located within a historic district or an API.

2225 Telegraph Avenue

The gas station at 2225 Telegraph Avenue has a small masonry structure.

The gas station at 2225 Telegraph Avenue was completed in 1963. The OCHS files show no record of architect and builder. It is one story in height and rectangular in plan (there are two separate canopy structures covering filling stations). The OCHS Rating is F3 (less than 45 years old). The building is not located within a historic district or an API.

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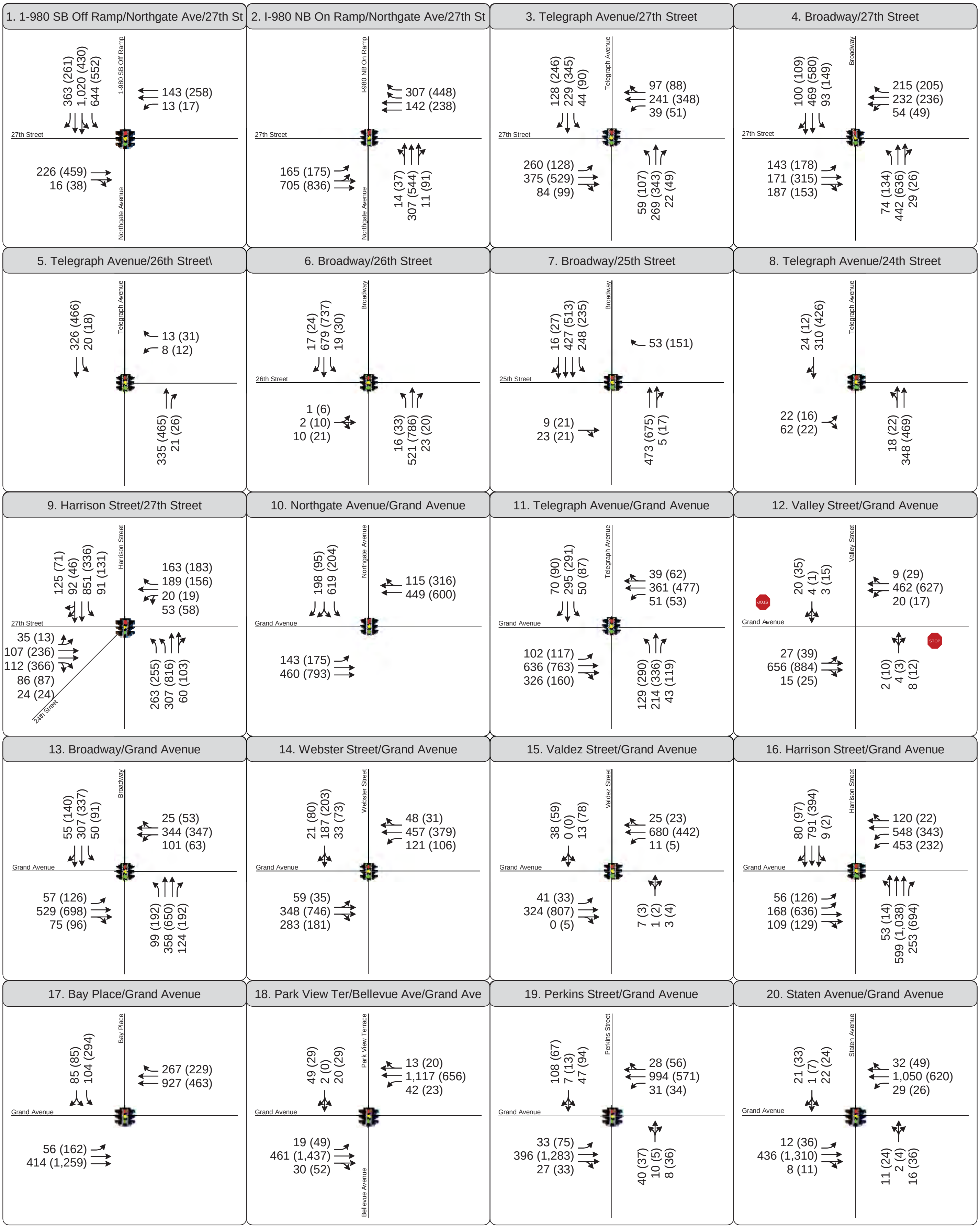
APPENDIX C.1: Traffic and Transportation Analysis



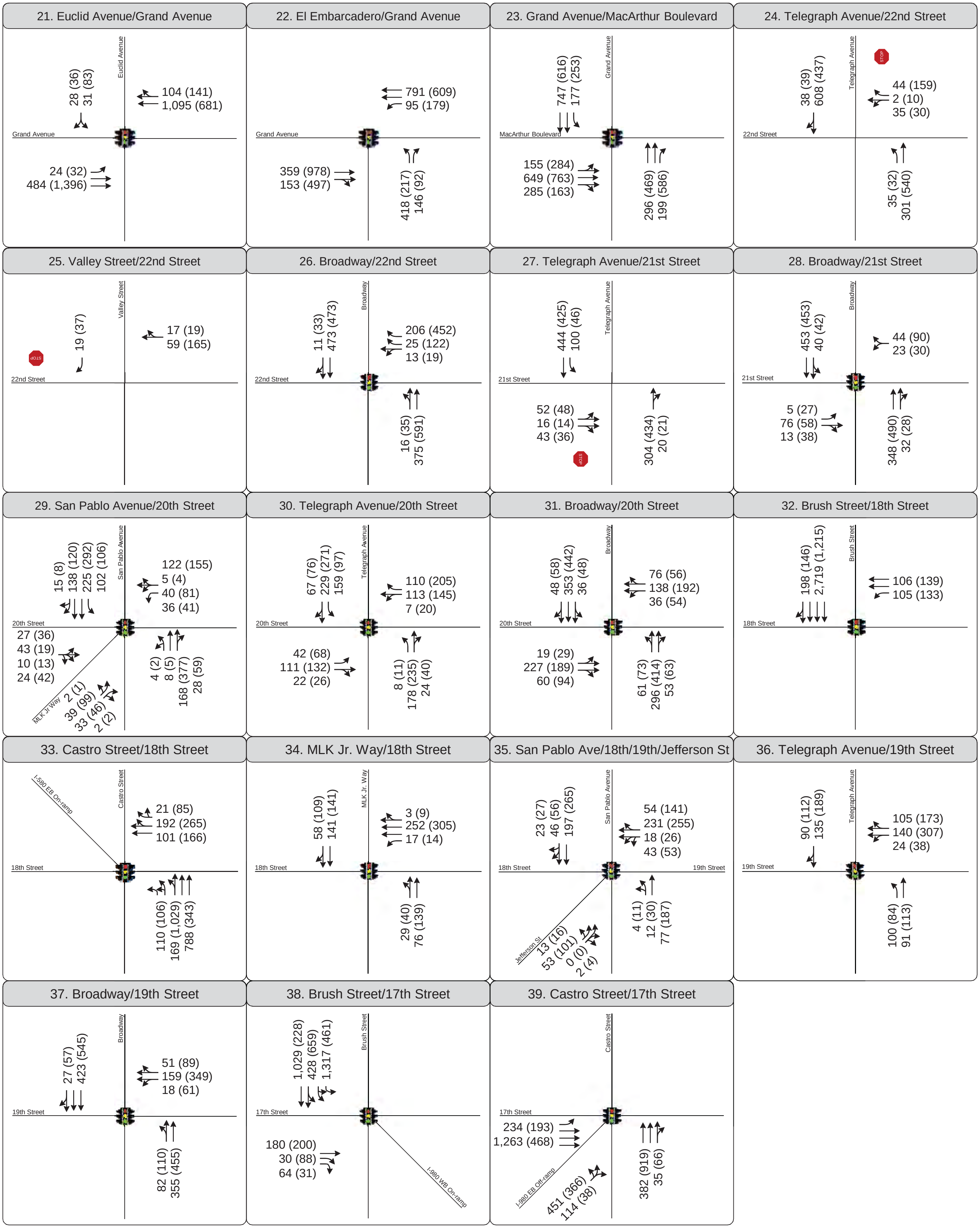
LEGEND XX (YY) AM (PM) Peak Hour Traffic Volumes

Signalized Intersection Stop Sign

Appendix C.1-1

Existing Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

OK16-0114.00_Appendix_Vol-Existing



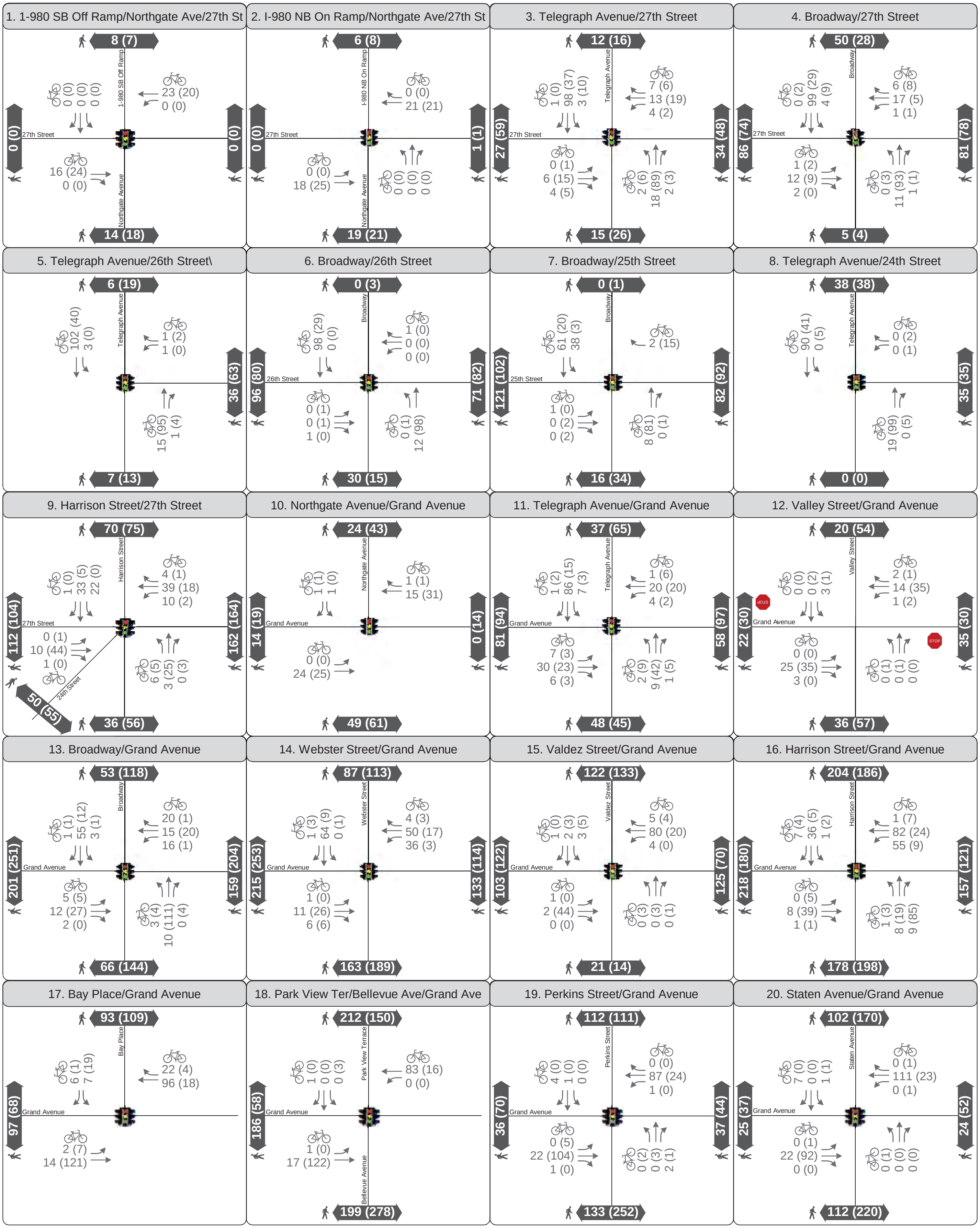
LEGEND XX (YY) AM (PM) Peak Hour Traffic Volumes

Signalized Intersection | Stop Sign

Appendix C.1-2

Existing Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

OK16-0114.00_Appendix_Vol-Existing



LEGEND

x (y) AM (PM) Peak Hour Pedestrian Volumes

x (y) AM (PM) Peak Hour Bicycle Volumes

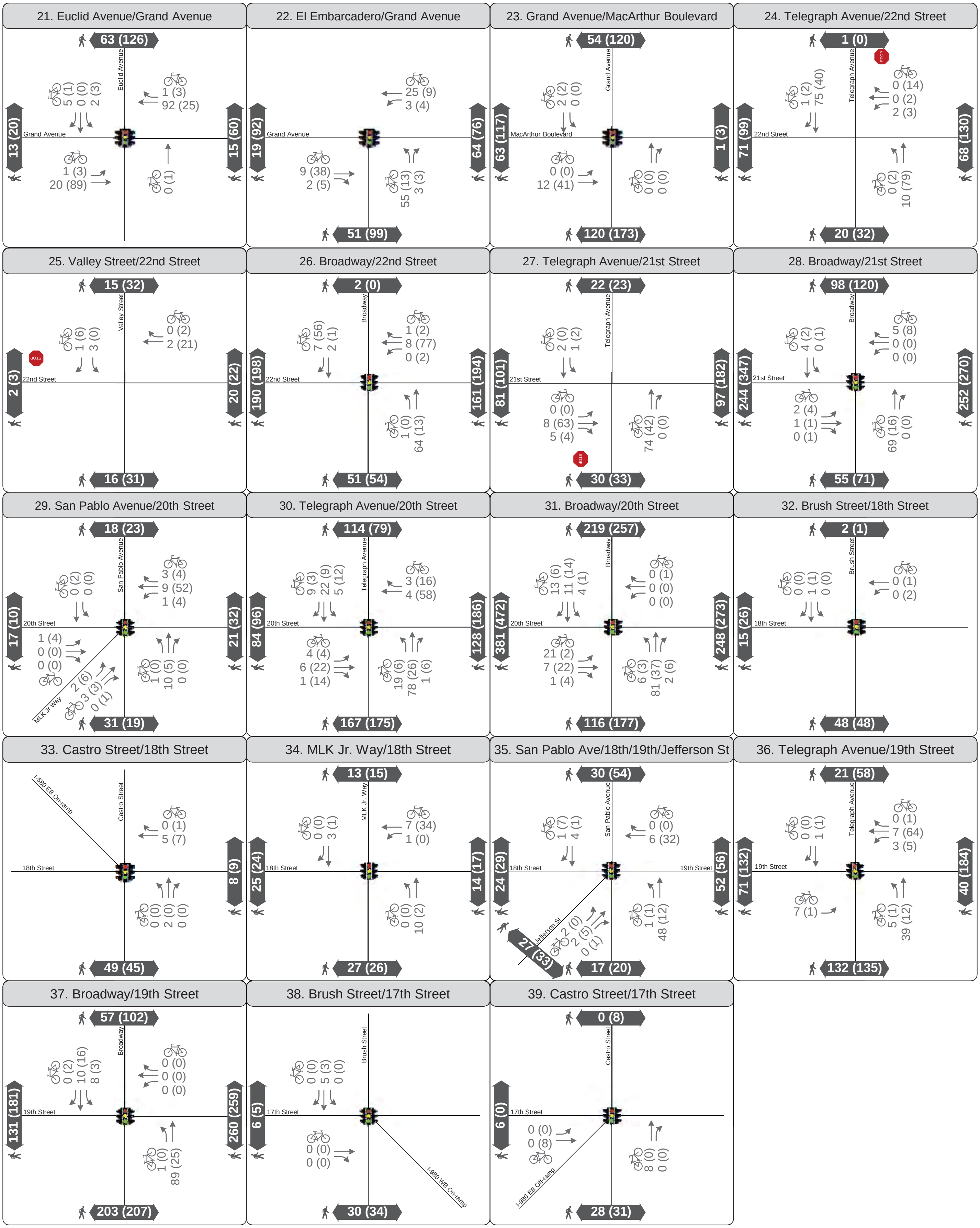
Signalized Intersection

Stop Sign

Appendix C.1-3

Existing Peak Hour Pedestrian and Bicycle Volumes

OK16-0114.00_Appendix_Vol-PedBike



LEGEND

x (y) AM (PM) Peak Hour Pedestrian Volumes

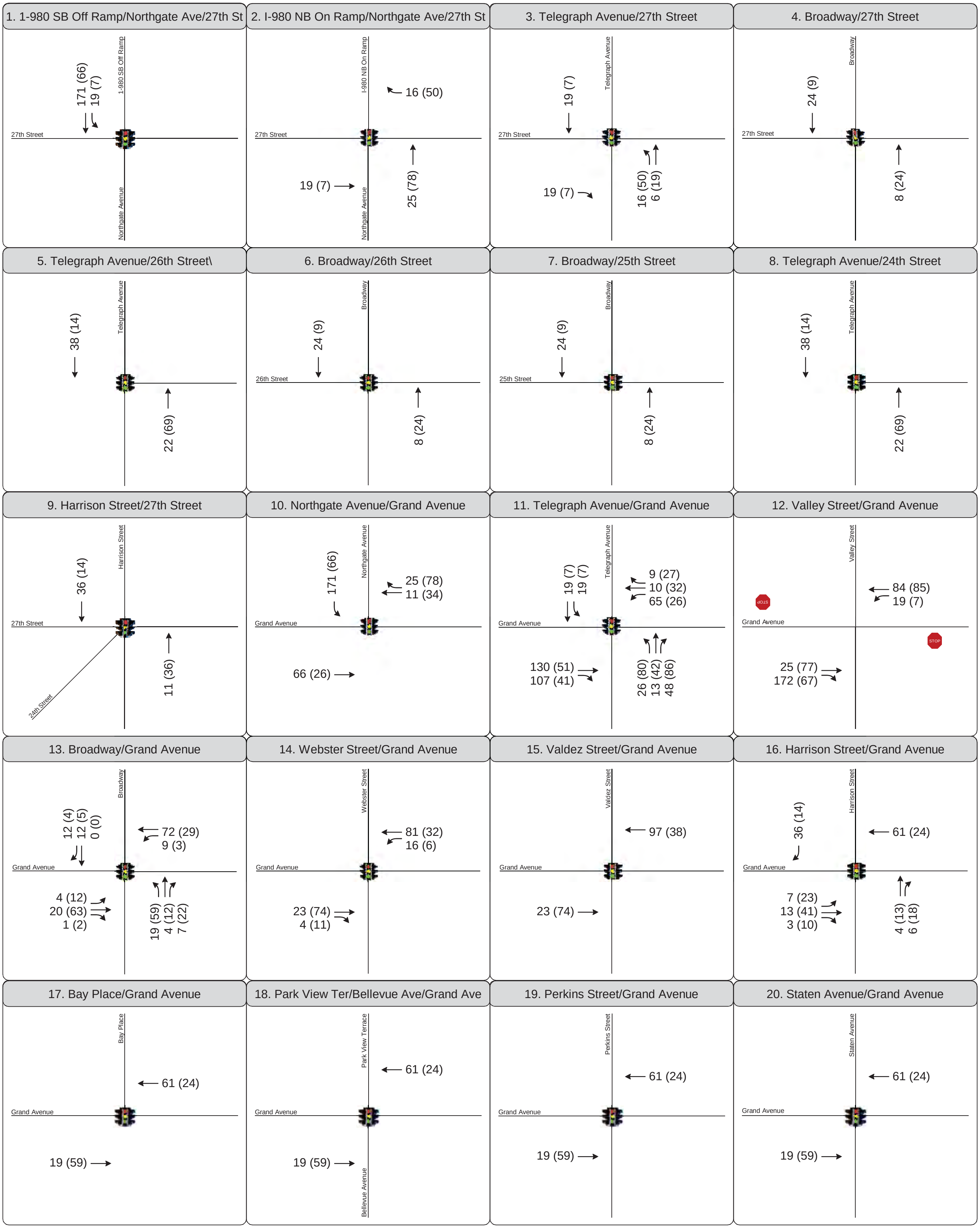
x (y) AM (PM) Peak Hour Bicycle Volumes

Signalized Intersection

Stop Sign

Appendix C.1-4

Existing Peak Hour Pedestrian and Bicycle Volumes

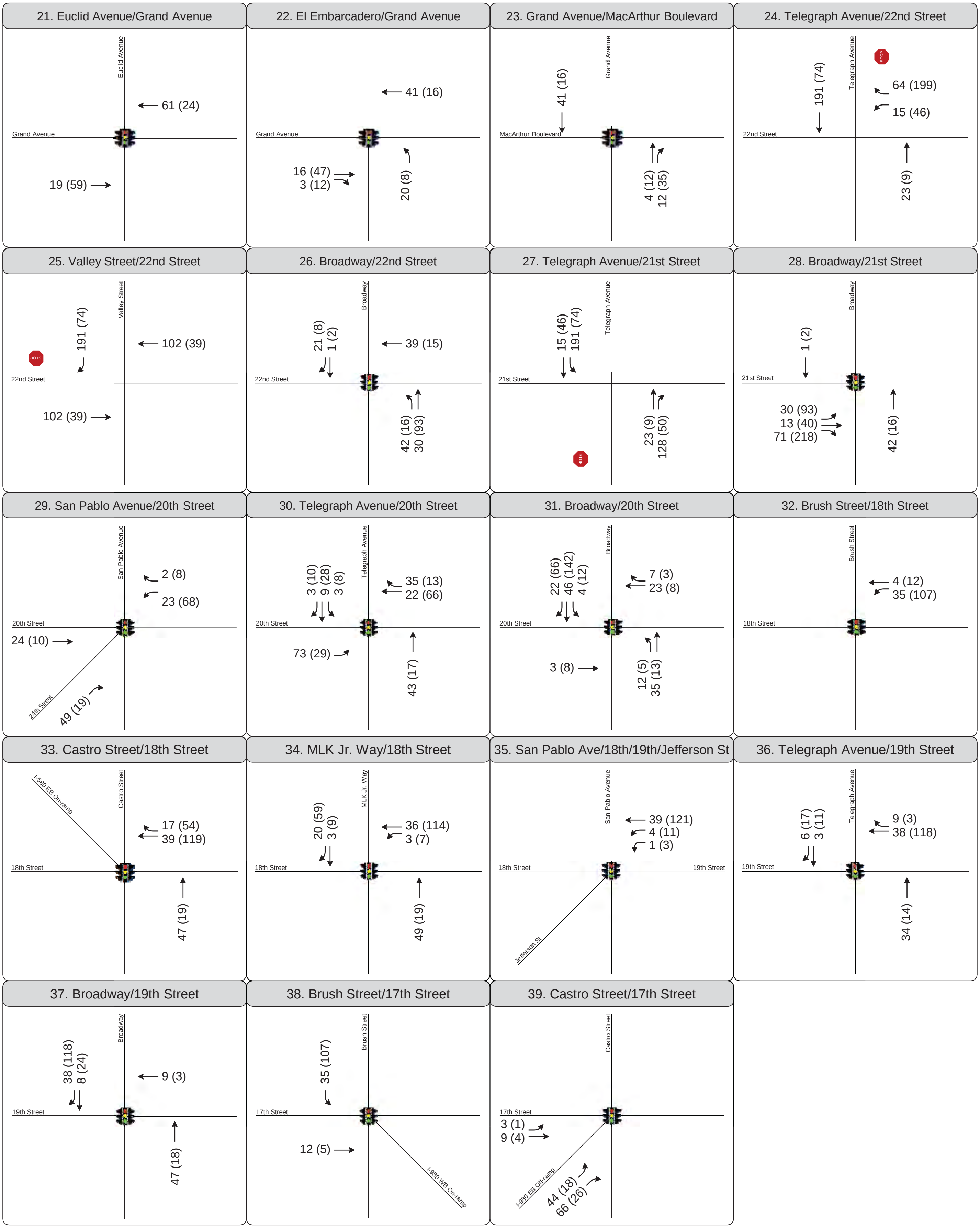


LEGEND XX (YY) AM (PM) Peak Hour Traffic Volumes

Signalized Intersection Stop Sign

Appendix C.1-5

Project Vehicle Trip Assignment



LEGEND XX (YY) AM (PM) Peak Hour Traffic Volumes

Signalized Intersection STOP Stop Sign

Project Vehicle Trip Assignment

OK16-0114.00_Appendix_Vol-Existing

Turning Movement Volumes

2016-No Project-AM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				644	1020	363		226	16	13	143	
Northgate Avenue NB	27th Street	14	307	11				165	705			142	307
Northgate Avenue	Grand Avenue				619		198	143	460			449	115
Telegraph Avenue	Grand Avenue	102	202	49	71	284	72	114	563	312	53	374	57
Broadway	Grand Avenue	99	358	124	50	307	55	57	529	75	101	344	25
Harrison Street	Grand Avenue	53	599	253	9	791	80	56	168	109	453	548	120
Telegraph Avenue	22nd Street	35	301			608	38				35	2	44
Broadway	22nd Street	16	375			473	11				13	25	206
Telegraph Avenue	21st Street		304	20	100	444		52	16	43			
Broadway	21st Street		348	32	40	453		5	76	13	23		44
Telegraph Avenue	20th Street	15	160	16	183	209	79	43	110	14	10	101	134
Broadway	20th Street	61	296	53	36	353	48	19	227	60	36	138	76
Telegraph Avenue	19th Street	100	91			135	90				24	140	105

2016-Residential and Office Mix FDP-AM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				663	1191	363		226	16	13	143	
Northgate Avenue NB	27th Street	14	332	11				165	724			142	323
Northgate Avenue	Grand Avenue				790		198	143	526			460	140
Telegraph Avenue	Grand Avenue	128	215	97	90	303	72	114	693	419	118	384	66
Broadway	Grand Avenue	118	362	131	50	319	67	61	549	76	110	416	25
Harrison Street	Grand Avenue	53	603	259	9	791	116	63	181	112	453	609	120
Telegraph Avenue	22nd Street	35	324			799	38				50	2	108
Broadway	22nd Street	58	405			474	32				13	64	206
Telegraph Avenue	21st Street		327	148	291	459		52	16	43			
Broadway	21st Street		390	32	40	454		35	89	84	23		44
Telegraph Avenue	20th Street	15	203	16	186	218	82	116	110	14	10	123	169
Broadway	20th Street	73	331	53	40	399	70	19	230	60	36	161	83
Telegraph Avenue	19th Street	100	125			138	96				24	178	114

2016-Maximum Office-AM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				687	1404	363		226	16	13	143	
Northgate Avenue NB	27th Street	14	336	11				165	748			142	326
Northgate Avenue	Grand Avenue				1003		198	143	609			460	144
Telegraph Avenue	Grand Avenue	131	217	126	113	326	72	114	856	552	202	385	67
Broadway	Grand Avenue	120	362	132	50	335	83	61	550	76	121	508	25
Harrison Street	Grand Avenue	53	604	259	9	791	162	63	183	112	453	687	120
Telegraph Avenue	22nd Street	35	352			1039	38				51	2	114
Broadway	22nd Street	111	408			474	59				13	112	206
Telegraph Avenue	21st Street		355	309	531	460		52	16	43			
Broadway	21st Street		443	32	40	454		38	90	89	23		44
Telegraph Avenue	20th Street	15	257	16	186	219	82	207	110	14	10	124	213
Broadway	20th Street	89	375	53	40	404	70	19	230	60	36	190	92
Telegraph Avenue	19th Street	100	168			139	96				24	182	125

2040-No Project-AM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				820	1190	430		280	20	20	170	
Northgate Avenue NB	27th Street	20	430	20				200	900			170	450
Northgate Avenue	Grand Avenue				730		260	210	770			840	190
Telegraph Avenue	Grand Avenue	180	210	60	110	320	90	130	930	350	70	740	80
Broadway	Grand Avenue	120	480	140	70	400	80	70	920	80	120	710	50
Harrison Street	Grand Avenue	60	890	340	10	1120	90	60	350	130	580	930	160
Telegraph Avenue	22nd Street	50	390			690	50				40	10	50
Broadway	22nd Street	30	430			590	20				30	30	310
Telegraph Avenue	21st Street		390	30	110	530		70	30	70			
Broadway	21st Street		390	50	70	560		10	120	20	60		70
Telegraph Avenue	20th Street	20	200	20	210	280	100	50	200	20	20	110	160
Broadway	20th Street	70	340	70	50	490	50	30	320	80	50	170	80
Telegraph Avenue	19th Street	120	100			220	100				30	160	150

2040-Residential and Office Mix FDP-AM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				839	1361	430		280	20	20	170	
Northgate Avenue NB	27th Street	20	455	20				200	919			170	466
Northgate Avenue	Grand Avenue				901		260	210	836			851	215
Telegraph Avenue	Grand Avenue	206	223	108	129	339	90	130	1060	457	135	750	89
Broadway	Grand Avenue	139	484	147	70	412	92	74	940	81	129	782	50
Harrison Street	Grand Avenue	60	894	346	10	1120	126	67	363	133	580	991	160
Telegraph Avenue	22nd Street	50	413			881	50				55	10	114
Broadway	22nd Street	72	460			591	41				30	69	310
Telegraph Avenue	21st Street		413	158	301	545		70	30	70			
Broadway	21st Street		432	50	70	561		40	133	91	60		70
Telegraph Avenue	20th Street	20	243	20	213	289	103	123	200	20	20	132	195
Broadway	20th Street	82	375	70	54	536	72	30	323	80	50	193	87
Telegraph Avenue	19th Street	120	134			223	106				30	198	159

2040-Maximum Office-AM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				863	1574	430		280	20	20	170	
Northgate Avenue NB	27th Street	20	459	20				200	943			170	469
Northgate Avenue	Grand Avenue				1114		260	210	919			851	219
Telegraph Avenue	Grand Avenue	209	225	137	152	362	90	130	1223	590	219	751	90
Broadway	Grand Avenue	141	484	148	70	428	108	74	941	81	140	874	50
Harrison Street	Grand Avenue	60	895	346	10	1120	172	67	365	133	580	1069	160
Telegraph Avenue	22nd Street	50	441			1121	50				56	10	120
Broadway	22nd Street	125	463			591	68				30	117	310
Telegraph Avenue	21st Street		441	319	541	546		70	30	70			
Broadway	21st Street		485	50	70	561		43	134	96	60		70
Telegraph Avenue	20th Street	20	297	20	213	290	103	214	200	20	20	133	239
Broadway	20th Street	98	419	70	54	541	72	30	323	80	50	222	96
Telegraph Avenue	19th Street	120	177			224	106				30	202	170

2016-No Project-PM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				552	430	261		459	38	17	258	
Northgate Avenue NB	27th Street	37	544	91				175	836			238	448
Northgate Avenue	Grand Avenue				204		95	175	793			600	316
Telegraph Avenue	Grand Avenue	281	343	105	96	294	135	117	739	147	59	500	108
Broadway	Grand Avenue	192	650	192	91	337	140	126	698	96	63	347	53
Harrison Street	Grand Avenue	14	1,038	694	2	394	97	126	636	129	232	343	22
Telegraph Avenue	22nd Street	32	540			437	39				30	10	159
Broadway	22nd Street	35	591			473	33				19	122	452
Telegraph Avenue	21st Street		434	21	46	425		48	14	36			
Broadway	21st Street		490	28	42	453		27	58	38	30		90
Telegraph Avenue	20th Street	27	216	45	113	252	93	55	155	32	24	131	176
Broadway	20th Street	73	414	63	48	442	58	29	189	94	54	192	56
Telegraph Avenue	19th Street	84	113			189	112				38	307	173

2016-Residential and Office Mix FDP-PM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				560	502	261		459	38	17	258	
Northgate Avenue NB	27th Street	37	626	91				175	844			238	501
Northgate Avenue	Grand Avenue				276		95	175	821			635	398
Telegraph Avenue	Grand Avenue	365	386	195	104	302	135	117	794	192	86	533	137
Broadway	Grand Avenue	254	662	215	91	342	145	139	762	99	67	377	53
Harrison Street	Grand Avenue	14	1,052	713	2	394	113	149	679	139	232	368	22
Telegraph Avenue	22nd Street	32	550			517	39				78	10	366
Broadway	22nd Street	53	688			476	42				19	139	452
Telegraph Avenue	21st Street		444	75	126	473		48	14	36			
Broadway	21st Street		508	28	42	456		124	99	266	30		90
Telegraph Avenue	20th Street	27	234	45	121	281	104	86	155	32	24	199	191
Broadway	20th Street	78	430	63	61	592	126	29	197	94	54	202	58
Telegraph Avenue	19th Street	84	127			200	130				38	431	177

2016-Maximum Office-PM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				563	532	261		459	38	17	258	
Northgate Avenue NB	27th Street	37	745	91				175	847			238	578
Northgate Avenue	Grand Avenue				306		95	175	832			687	517
Telegraph Avenue	Grand Avenue	488	449	315	107	305	135	117	816	211	98	581	178
Broadway	Grand Avenue	343	681	249	91	345	147	156	858	102	68	390	53
Harrison Street	Grand Avenue	14	1,073	739	2	394	119	183	745	153	232	379	22
Telegraph Avenue	22nd Street	32	553			551	39				149	10	669
Broadway	22nd Street	61	830			479	46				19	145	452
Telegraph Avenue	21st Street		447	98	160	544		48	14	36			
Broadway	21st Street		516	28	42	459		266	160	600	30		90
Telegraph Avenue	20th Street	27	241	45	133	324	120	98	155	32	24	301	198
Broadway	20th Street	81	435	63	77	811	228	29	209	94	54	206	61
Telegraph Avenue	19th Street	84	133			217	156				38	612	178

2040-No Project-PM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				760	520	320		600	50	30	310	
Northgate Avenue NB	27th Street	50	610	180				210	1,150			290	710
Northgate Avenue	Grand Avenue				280		140	250	1,220			990	410
Telegraph Avenue	Grand Avenue	320	460	150	120	340	190	130	1,170	210	70	890	120
Broadway	Grand Avenue	270	900	230	140	350	180	140	1,140	140	100	630	80
Harrison Street	Grand Avenue	40	1,670	860	10	650	190	250	860	250	270	600	30
Telegraph Avenue	22nd Street	40	730			540	50				40	20	180
Broadway	22nd Street	40	830			510	80				40	140	570
Telegraph Avenue	21st Street		620	30	50	540		60	20	50			
Broadway	21st Street		570	40	50	510		30	70	40	50		260
Telegraph Avenue	20th Street	40	380	60	130	350	110	60	200	40	30	170	210
Broadway	20th Street	90	480	80	60	490	70	40	230	120	110	240	70
Telegraph Avenue	19th Street	100	200			270	150				50	330	290

2040-Residential and Office Mix FDP-PM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				768	592	320		600	50	30	310	
Northgate Avenue NB	27th Street	50	692	180				210	1,158			290	763
Northgate Avenue	Grand Avenue				352		140	250	1,248			1,025	492
Telegraph Avenue	Grand Avenue	404	503	240	128	348	190	130	1,225	255	97	923	149
Broadway	Grand Avenue	332	912	253	140	355	185	153	1,204	143	104	660	80
Harrison Street	Grand Avenue	40	1,684	879	10	650	206	273	903	260	270	625	30
Telegraph Avenue	22nd Street	40	740			620	50				88	20	387
Broadway	22nd Street	58	927			513	89				40	157	570
Telegraph Avenue	21st Street		630	84	130	588		60	20	50			
Broadway	21st Street		588	40	50	513		127	111	268	50		260
Telegraph Avenue	20th Street	40	398	60	138	379	121	91	200	40	30	238	225
Broadway	20th Street	95	496	80	73	640	138	40	238	120	110	250	72
Telegraph Avenue	19th Street	100	214			281	168				50	454	294

2040-Maximum Office-PM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				771	622	320		600	50	30	310	
Northgate Avenue NB	27th Street	50	811	180				210	1,161			290	840
Northgate Avenue	Grand Avenue				382		140	250	1,259			1,077	611
Telegraph Avenue	Grand Avenue	527	566	360	131	351	190	130	1,247	274	109	971	190
Broadway	Grand Avenue	421	931	287	140	358	187	170	1,300	146	105	673	80
Harrison Street	Grand Avenue	40	1,705	905	10	650	212	307	969	274	270	636	30
Telegraph Avenue	22nd Street	40	743			654	50				159	20	690
Broadway	22nd Street	66	1,069			516	93				40	163	570
Telegraph Avenue	21st Street		633	107	164	659		60	20	50			
Broadway	21st Street		596	40	50	516		269	172	602	50		260
Telegraph Avenue	20th Street	40	405	60	150	422	137	103	200	40	30	340	232
Broadway	20th Street	98	501	80	89	859	240	40	250	120	110	254	75
Telegraph Avenue	19th Street	100	220			298	194				50	635	295

Existing-No Project-PM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate SB	27th St				5,520	4,300	2,610		4,590	380	170	2,580	
Northgate NB	27th St	370	5,440	910				1,750	8,360			2,380	4,480
Northgate Ave	Grand Av				2,040		950	1,750	7,930			6,000	3,160
Telegraph Ave	Grand Av	2,810	3,430	1,050	960	2,940	1,350	1,170	7,390	1,470	590	5,000	1,080
Broadway	Grand Av	1,920	6,500	1,920	910	3,370	1,400	1,260	6,980	960	630	3,470	530
Harrison St	Grand Av	140	10,380	6,940	20	3,940	970	1,260	6,360	1,290	2,320	3,430	220
Telegraph Ave	22nd St	320	5,400			4,370	390				300	100	1,590
Broadway	22nd St	350	5,910			4,730	330				190	1,220	4,520
Telegraph Ave	21st St		4,340	210	460	4,250		480	140	360			
Broadway	21st St		4,900	280	420	4,530		270	580	380	300		900
Telegraph Ave	20th St	270	2,160	450	1,130	2,520	930	550	1,550	320	240	1,310	1,760
Broadway	20th St	730	4,140	630	480	4,420	580	290	1,890	940	540	1,920	560
Telegraph Ave	19th St	840	1,130			1,890	1,120				380	3,070	1,730

Existing Residential and Office Mix FDP-PM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate SB	27th St				5,600	5,020	2,610		4,590	380	170	2,580	
Northgate NB	27th St	370	6,260	910				1,750	8,440			2,380	5,010
Northgate Ave	Grand Av				2,760		950	1,750	8,210			6,350	3,980
Telegraph Ave	Grand Av	3,650	3,860	1,950	1,040	3,020	1,350	1,170	7,940	1,920	860	5,330	1,370
Broadway	Grand Av	2,540	6,620	2,150	910	3,420	1,450	1,390	7,620	990	670	3,770	530
Harrison St	Grand Av	140	10,520	7,130	20	3,940	1,130	1,490	6,790	1,390	2,320	3,680	220
Telegraph Ave	22nd St	320	5,500			5,170	390				780	100	3,660
Broadway	22nd St	530	6,880			4,760	420				190	1,390	4,520
Telegraph Ave	21st St		4,440	750	1,260	4,730		480	140	360			
Broadway	21st St		5,080	280	420	4,560		1,240	990	2,660	300		900
Telegraph Ave	20th St	270	2,340	450	1,210	2,810	1,040	860	1,550	320	240	1,990	1,910
Broadway	20th St	780	4,300	630	610	5,920	1,260	290	1,970	940	540	2,020	580
Telegraph Ave	19th St	840	1,270			2,000	1,300				380	4,310	1,770

Existing-Maximum Office-PM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate SB	27th St				5,630	5,320	2,610		4,590	380	170	2,580	
Northgate NB	27th St	370	7,450	910				1,750	8,470			2,380	5,780
Northgate Ave	Grand Av				3,060		950	1,750	8,320			6,870	5,170
Telegraph Ave	Grand Av	4,880	4,490	3,150	1,070	3,050	1,350	1,170	8,160	2,110	980	5,810	1,780
Broadway	Grand Av	3,430	6,810	2,490	910	3,450	1,470	1,560	8,580	1,020	680	3,900	530
Harrison St	Grand Av	140	10,730	7,390	20	3,940	1,190	1,830	7,450	1,530	2,320	3,790	220
Telegraph Ave	22nd St	320	5,530			5,510	390				1,490	100	6,690
Broadway	22nd St	610	8,300			4,790	460				190	1,450	4,520
Telegraph Ave	21st St		4,470	980	1,600	5,440		480	140	360			
Broadway	21st St		5,160	280	420	4,590		2,660	1,600	6,000	300		900
Telegraph Ave	20th St	270	2,410	450	1,330	3,240	1,200	980	1,550	320	240	3,010	1,980
Broadway	20th St	810	4,350	630	770	8,110	2,280	290	2,090	940	540	2,060	610
Telegraph Ave	19th St	840	1,330			2,170	1,560				380	6,120	1,780

2040-No Project-PM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate SB	27th St				7,600	5,200	3,200		6,000	500	300	3,100	
Northgate NB	27th St	500	6,100	1,800				2,100	11,500			2,900	7,100
Northgate Ave	Grand Av				2,800		1,400	2,500	12,200			9,900	4,100
Telegraph Ave	Grand Av	3,200	4,600	1,500	1,200	3,400	1,900	1,300	11,700	2,100	700	8,900	1,200
Broadway	Grand Av	2,700	9,000	2,300	1,400	3,500	1,800	1,400	11,400	1,400	1,000	6,300	800
Harrison St	Grand Av	400	16,700	8,600	100	6,500	1,900	2,500	8,600	2,500	2,700	6,000	300
Telegraph Ave	22nd St	400	7,300			5,400	500				400	200	1,800
Broadway	22nd St	400	8,300			5,100	800				400	1,400	5,700
Telegraph Ave	21st St		6,200	300	500	5,400		600	200	500			
Broadway	21st St		5,700	400	500	5,100		300	700	400	500		2,600
Telegraph Ave	20th St	400	3,800	600	1,300	3,500	1,100	600	2,000	400	300	1,700	2,100
Broadway	20th St	900	4,800	800	600	4,900	700	400	2,300	1,200	1,100	2,400	700
Telegraph Ave	19th St	1,000	2,000			2,700	1,500				500	3,300	2,900

2040-Residential and Office Mix FDP-PM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate SB	27th St				7,680	5,920	3,200		6,000	500	300	3,100	
Northgate NB	27th St	500	6,920	1,800				2,100	11,580			2,900	7,630
Northgate Ave	Grand Av				3,520		1,400	2,500	12,480			10,250	4,920
Telegraph Ave	Grand Av	4,040	5,030	2,400	1,280	3,480	1,900	1,300	12,250	2,550	970	9,230	1,490
Broadway	Grand Av	3,320	9,120	2,530	1,400	3,550	1,850	1,530	12,040	1,430	1,040	6,600	800
Harrison St	Grand Av	400	16,840	8,790	100	6,500	2,060	2,730	9,030	2,600	2,700	6,250	300
Telegraph Ave	22nd St	400	7,400			6,200	500				880	200	3,870
Broadway	22nd St	580	9,270			5,130	890				400	1,570	5,700
Telegraph Ave	21st St		6,300	840	1,300	5,880		600	200	500			
Broadway	21st St		5,880	400	500	5,130		1,270	1,110	2,680	500		2,600
Telegraph Ave	20th St	400	3,980	600	1,380	3,790	1,210	910	2,000	400	300	2,380	2,250
Broadway	20th St	950	4,960	800	730	6,400	1,380	400	2,380	1,200	1,100	2,500	720
Telegraph Ave	19th St	1,000	2,140			2,810	1,680				500	4,540	2,940

2040-Maximum Office-PM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate SB	27th St				7,710	6,220	3,200		6,000	500	300	3,100	
Northgate NB	27th St	500	8,110	1,800				2,100	11,610			2,900	8,400
Northgate Ave	Grand Av				3,820		1,400	2,500	12,590			10,770	6,110
Telegraph Ave	Grand Av	5,270	5,660	3,600	1,310	3,510	1,900	1,300	12,470	2,740	1,090	9,710	1,900
Broadway	Grand Av	4,210	9,310	2,870	1,400	3,580	1,870	1,700	13,000	1,460	1,050	6,730	800
Harrison St	Grand Av	400	17,050	9,050	100	6,500	2,120	3,070	9,690	2,740	2,700	6,360	300
Telegraph Ave	22nd St	400	7,430			6,540	500				1,590	200	6,900
Broadway	22nd St	660	10,690			5,160	930				400	1,630	5,700
Telegraph Ave	21st St		6,330	1,070	1,640	6,590		600	200	500			
Broadway	21st St		5,960	400	500	5,160		2,690	1,720	6,020	500		2,600
Telegraph Ave	20th St	400	4,050	600	1,500	4,220	1,370	1,030	2,000	400	300	3,400	2,320
Broadway	20th St	980	5,010	800	890	8,590	2,400	400	2,500	1,200	1,100	2,540	750
Telegraph Ave	19th St	1,000	2,200			2,980	1,940				500	6,350	2,950

2016-No Project-AM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				644	1020	363		226	16	13	143	
Northgate Avenue NB	27th Street	14	307	11				165	705			142	307
Northgate Avenue	Grand Avenue				619		198	143	460			449	115
Telegraph Avenue	Grand Avenue	102	202	49	71	284	72	114	563	312	53	374	57
Broadway	Grand Avenue	99	358	124	50	307	55	57	529	75	101	344	25
Harrison Street	Grand Avenue	53	599	253	9	791	80	56	168	109	453	548	120
Telegraph Avenue	22nd Street	35	301			608	38				35	2	44
Broadway	22nd Street	16	375			473	11				13	25	206
Telegraph Avenue	21st Street		304	20	100	444		52	16	43			
Broadway	21st Street		348	32	40	453		5	76	13	23		44
Telegraph Avenue	20th Street	15	160	16	183	209	79	43	110	14	10	101	134
Broadway	20th Street	61	296	53	36	353	48	19	227	60	36	138	76
Telegraph Avenue	19th Street	100	91			135	90				24	140	105

2016-All Office FDP-AM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				671	1259	363		226	16	13	143	
Northgate Avenue NB	27th Street	14	325	11				165	732			142	319
Northgate Avenue	Grand Avenue				858		198	143	552			457	133
Telegraph Avenue	Grand Avenue	121	212	98	97	310	72	114	744	462	145	381	63
Broadway	Grand Avenue	112	361	129	50	324	72	59	543	76	113	446	25
Harrison Street	Grand Avenue	53	602	257	9	791	131	61	178	111	453	634	120
Telegraph Avenue	22nd Street	35	333			876	38				45	2	90
Broadway	22nd Street	75	396			474	40				13	80	206
Telegraph Avenue	21st Street		336	199	368	454		52	16	43			
Broadway	21st Street		407	32	40	454		26	85	63	23		44
Telegraph Avenue	20th Street	15	220	16	185	215	81	145	110	14	10	116	183
Broadway	20th Street	78	345	53	39	386	63	19	229	60	36	170	86
Telegraph Avenue	19th Street	100	139			137	94				24	167	117

2040-No Project-AM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				820	1190	430		280	20	20	170	
Northgate Avenue NB	27th Street	20	430	20				200	900			170	450
Northgate Avenue	Grand Avenue				730		260	210	770			840	190
Telegraph Avenue	Grand Avenue	180	210	60	110	320	90	130	930	350	70	740	80
Broadway	Grand Avenue	120	480	140	70	400	80	70	920	80	120	710	50
Harrison Street	Grand Avenue	60	890	340	10	1120	90	60	350	130	580	930	160
Telegraph Avenue	22nd Street	50	390			690	50				40	10	50
Broadway	22nd Street	30	430			590	20				30	30	310
Telegraph Avenue	21st Street		390	30	110	530		70	30	70			
Broadway	21st Street		390	50	70	560		10	120	20	60		70
Telegraph Avenue	20th Street	20	200	20	210	280	100	50	200	20	20	110	160
Broadway	20th Street	70	340	70	50	490	50	30	320	80	50	170	80
Telegraph Avenue	19th Street	120	100			220	100				30	160	150

2040-All Office FDP-AM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				847	1429	430		280	20	20	170	
Northgate Avenue NB	27th Street	20	448	20				200	927			170	462
Northgate Avenue	Grand Avenue				969		260	210	862			848	208
Telegraph Avenue	Grand Avenue	199	220	109	136	346	90	130	1111	500	162	747	86
Broadway	Grand Avenue	133	483	145	70	417	97	72	934	81	132	812	50
Harrison Street	Grand Avenue	60	893	344	10	1120	141	65	360	132	580	1016	160
Telegraph Avenue	22nd Street	50	422			958	50				50	10	96
Broadway	22nd Street	89	451			591	49				30	85	310
Telegraph Avenue	21st Street		422	209	378	540		70	30	70			
Broadway	21st Street		449	50	70	561		31	129	70	60		70
Telegraph Avenue	20th Street	20	260	20	212	286	102	152	200	20	20	125	209
Broadway	20th Street	87	389	70	53	523	65	30	322	80	50	202	90
Telegraph Avenue	19th Street	120	148			222	104				30	187	162

		2016-No Project-PM											
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				552	430	261		459	38	17	258	
Northgate Avenue NB	27th Street	37	544	91				175	836			238	448
Northgate Avenue	Grand Avenue				204		95	175	793			600	316
Telegraph Avenue	Grand Avenue	281	343	105	96	294	135	117	739	147	59	500	108
Broadway	Grand Avenue	192	650	192	91	337	140	126	698	96	63	347	53
Harrison Street	Grand Avenue	14	1038	694	2	394	97	126	636	129	232	343	22
Telegraph Avenue	22nd Street	32	540			437	39				30	10	159
Broadway	22nd Street	35	591			473	33				19	122	452
Telegraph Avenue	21st Street		434	21	46	425		48	14	36			
Broadway	21st Street		490	28	42	453		27	58	38	30		90
Telegraph Avenue	20th Street	27	216	45	113	252	93	55	155	32	24	131	176
Broadway	20th Street	73	414	63	48	442	58	29	189	94	54	192	56
Telegraph Avenue	19th Street	84	113			189	112				38	307	173

		2016-All Office FDP-PM											
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				559	493	261		459	38	17	258	
Northgate Avenue NB	27th Street	37	660	91				175	843			238	523
Northgate Avenue	Grand Avenue				267		95	175	817			649	432
Telegraph Avenue	Grand Avenue	399	404	225	103	301	135	117	787	186	84	547	148
Broadway	Grand Avenue	278	668	225	91	342	145	144	787	100	66	375	53
Harrison Street	Grand Avenue	14	1057	719	2	394	111	158	697	143	232	366	22
Telegraph Avenue	22nd Street	32	549			508	39				97	10	449
Broadway	22nd Street	51	728			477	41				19	136	452
Telegraph Avenue	21st Street		443	68	117	492		48	14	36			
Broadway	21st Street		506	28	42	457		164	115	356	30		90
Telegraph Avenue	20th Street	27	232	45	124	293	108	82	155	32	24	226	189
Broadway	20th Street	78	427	63	65	652	153	29	200	94	54	200	59
Telegraph Avenue	19th Street	84	126			205	137				38	480	176

2040-No Project-PM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				760	520	320		600	50	30	310	
Northgate Avenue NB	27th Street	50	610	180				210	1150			290	710
Northgate Avenue	Grand Avenue				280		140	250	1220			990	410
Telegraph Avenue	Grand Avenue	320	460	150	120	340	190	130	1170	210	70	890	120
Broadway	Grand Avenue	270	900	230	140	350	180	140	1140	140	100	630	80
Harrison Street	Grand Avenue	40	1670	860	10	650	190	250	860	250	270	600	30
Telegraph Avenue	22nd Street	40	730			540	50				40	20	180
Broadway	22nd Street	40	830			510	80				40	140	570
Telegraph Avenue	21st Street		620	30	50	540		60	20	50			
Broadway	21st Street		570	40	50	510		30	70	40	50		260
Telegraph Avenue	20th Street	40	380	60	130	350	110	60	200	40	30	170	210
Broadway	20th Street	90	480	80	60	490	70	40	230	120	110	240	70
Telegraph Avenue	19th Street	100	200			270	150				50	330	290

2040-All Office FDP-PM													
NB/SB	EB/WB	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Northgate Avenue SB	27th Street				767	583	320		600	50	30	310	
Northgate Avenue NB	27th Street	50	726	180				210	1157			290	785
Northgate Avenue	Grand Avenue				343		140	250	1244			1039	526
Telegraph Avenue	Grand Avenue	438	521	270	127	347	190	130	1218	249	95	937	160
Broadway	Grand Avenue	356	918	263	140	355	185	158	1229	144	103	658	80
Harrison Street	Grand Avenue	40	1689	885	10	650	204	282	921	264	270	623	30
Telegraph Avenue	22nd Street	40	739			611	50				107	20	470
Broadway	22nd Street	56	967			514	88				40	154	570
Telegraph Avenue	21st Street		629	77	121	607		60	20	50			
Broadway	21st Street		586	40	50	514		167	127	358	50		260
Telegraph Avenue	20th Street	40	396	60	141	391	125	87	200	40	30	265	223
Broadway	20th Street	95	493	80	77	700	165	40	241	120	110	248	73
Telegraph Avenue	19th Street	100	213			286	175				50	503	293

Traffic Noise Output

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Demolition Period Hauling Truck Trips 245 per day, 31 per hour.

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	0.0
Average automobile speed (mph):	0.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	31.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

50 Ft

Distance from center of 12-ft wide, single lane roadway (ft): 50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 60.8

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Grading period hauling truck trips, 103 per day, 13 per hour

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	0.0
Average automobile speed (mph):	0.0
Medium truck volume (v/h):	0.0
Average medium truck speed (mph):	0.0
Heavy truck volume (v/h):	13.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

50 Ft

Distance from center of 12-ft wide, single lane roadway (ft): 50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 57.0

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

21st Street west of Broadway PM Peak Hour Max Office Noise from project

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	858.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	36.0
Average medium truck speed (mph):	30.0
Heavy truck volume (v/h):	9.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft): 50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 63.5

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Grand Avenue east of Northgate Avenue AM Peak Hour Max Office Noise from project+cumulative projects

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	1387.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	58.0
Average medium truck speed (mph):	30.0
Heavy truck volume (v/h):	15.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft): 50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 65.6

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Grand Avenue east of Northgate Avenue AM Peak Hour Max Office Noise from cumulative projects

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	843.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	35.0
Average medium truck speed (mph):	30.0
Heavy truck volume (v/h):	9.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft): 50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 63.5

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Grand Avenue west of Telegraph Avenue PM Peak Hour Max Office Noise from project+cumulative projects

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	1349.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	57.0
Average medium truck speed (mph):	30.0
Heavy truck volume (v/h):	14.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft): 50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 65.5

* * * * CASE INFORMATION * * * *

* * * * Results calculated with TNM Version 2.5 * * * *

Grand Avenue west of Telegraph Avenue PM Peak Hour Max Office Noise from cumulative projects

* * * * TRAFFIC VOLUME/SPEED INFORMATION * * * *

Automobile volume (v/h):	941.0
Average automobile speed (mph):	30.0
Medium truck volume (v/h):	40.0
Average medium truck speed (mph):	30.0
Heavy truck volume (v/h):	10.0
Average heavy truck speed (mph):	30.0
Bus volume (v/h):	0.0
Average bus speed (mph):	0.0
Motorcycle volume (v/h):	0.0
Average Motorcycle speed (mph):	0.0

* * * * TERRAIN SURFACE INFORMATION * * * *

Terrain surface: hard

* * * * RECEIVER INFORMATION * * * *

DESCRIPTION OF RECEIVER # 1

person

Distance from center of 12-ft wide, single lane roadway (ft): 50.0
A-weighted Hourly Equivalent Sound Level without Barrier (dBA): 64.0

APPENDIX C.2: Non CEQA Transportation Assessment

FEHR PEERS

MEMORANDUM

Date: November 29, 2017

To: Carla Violet, UPP

From Rob Rees and Ron Ramos

Subject: 2100 Telegraph Avenue – Non-CEQA Transportation Assessment

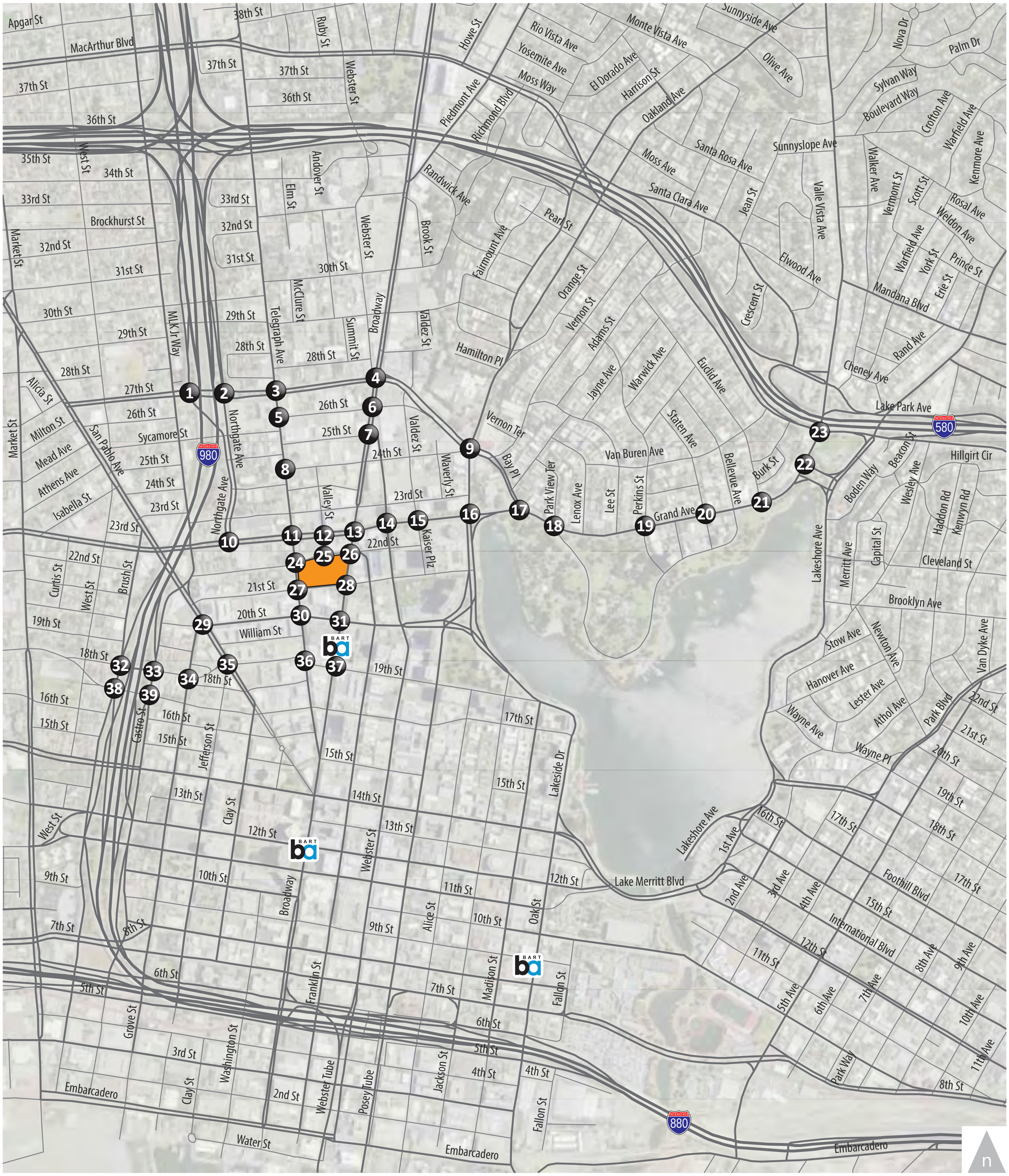
OK16-0114

This memorandum discusses transportation-related topics that are not considerations under CEQA but are evaluated to inform decision makers and the public about these issues. Some of the information in the CEQA document is repeated in this technical memorandum to provide context for the non-CEQA analysis. The information provided in this technical memorandum is based on the City of Oakland guidance published in October 2016. Sections in this memorandum include:

STUDY SCENARIOS ANALYZED

The analysis evaluates the transportation-related impacts of the project. **Figure 1** shows the Project study Area. Conditions are assessed for the following scenarios:

- **Existing**. Represents the existing setting at the time of the Notice of Preparation.
- **Existing Plus Project**. Represents the existing setting at the time of the Notice of Preparation plus traffic generated after completion of the project.
- **2020 No Project (CMP Analysis Only)**. Future conditions with planned population and employment growth, and planned transportation system changes, for the year 2040. This scenario assumes no changes to the project site.



LEGEND

Project Site

Study Intersection

Figure 1

Project Study Area and Study Intersections

OK16-0114.00_1_StudyArea

- **2020 Plus Project (CMP Analysis Only)**. 2040 No Project conditions plus traffic generated after completion of the proposed project.
- **2040 No Project (CMP Analysis Only)**. Future conditions with planned population and employment growth, and planned transportation system changes, for the year 2040. This scenario assumes no changes to the project site.
- **2040 Plus Project (CMP Analysis Only)**. 2040 No Project conditions plus traffic generated after completion of the proposed project.

EXISTING CONDITIONS

This section addresses the following topics:

- Existing Intersections
- Existing Transit

EXISTING INTERSECTIONS

Intersections are identified where the project would increase traffic volumes by a) 100 or more peak-hour trips; b) 50 or more trips where the intersection operates at LOS D, E, or F today; or c) 10 or more trips at the stop-controlled approach to side-street stop-controlled intersection.

Counts at 39 intersections in the vicinity of the project site were collected during the weekday morning (7:00 AM to 9:00 AM) and evening (4:00 PM to 6:00 PM) commute periods to define Existing conditions. These time periods were selected because traffic generated by the project, in combination with background traffic, is expected to represent typical worst traffic conditions. The study intersections are listed below and shown on Figure 1 (intersections under Caltrans jurisdiction are noted by #):

1. Northgate Avenue/1-980 Off-Ramp/27th Street #
2. Northgate Avenue/I-980 On-Ramp/27th Street #
3. Telegraph Avenue/27th Street
4. Broadway/27th Street
5. Telegraph Avenue/26th Street
6. Broadway/26th Street
7. Broadway/25th Street
8. Telegraph Avenue/24th Street
9. 24th Street/Harrison Street/27th Street
10. Grand Avenue/Northgate Avenue
11. Telegraph Avenue/Grand Avenue
12. Valley Street/Grand Avenue
13. Broadway/Grand Avenue
14. Webster Street/Grand Avenue

15. Valdez Street/ Grand Avenue
16. Harrison Street/Grand Avenue
17. Bay Place/ Grand Avenue
18. Bellevue Avenue/Park View Terrace/Grand Avenue
19. Perkins Street/Grand Avenue
20. Staten Avenue/Grand Avenue
21. Euclid Avenue/ Grand Avenue
22. El Embarcadero/Grand Avenue
23. MacArthur Boulevard/ Grand Avenue
24. Telegraph Avenue/22nd Street
25. Valley Street/22nd Street
26. Broadway/22nd Street
27. Telegraph Avenue/21st Street
28. Broadway/21st Street
29. MLK Jr. Way/San Pablo Avenue/20th Street
30. Telegraph Avenue/20th Street
31. Broadway/20th Street
32. Brush Street/18th Street
33. Castro Street/18th Street/I-980 NB On-Ramp
34. MLK Jr. Way/18th Street
35. Jefferson Street/San Pablo Avenue/19th Street
36. Telegraph Avenue/19th Street
37. Broadway/19th Street
38. Brush Street/I-980 On-Ramp/17th Street #
39. I-980 Off-Ramp/Castro Street/17th Street #

The intersection vehicle and bicycle turning movement counts, as well as pedestrian counts, were collected on weekdays in May and September 2016. The count data were collected on clear days, while area schools were in normal session. Within the AM and PM peak periods, the peak hours (i.e., the hour with the highest traffic volumes observed in the study area) are from 8:00 to 9:00 AM (AM peak hour) and from 4:45 to 5:45 PM (PM peak hour). **Attachment A** the existing AM and PM peak hour vehicle, bicycle, and pedestrian volumes; and the intersection lane configurations and traffic control.

Field reconnaissance was performed at each intersection to identify intersection lane configurations and signal operations data. Intersection operations were also observed at the study intersections. In addition, the City of Oakland provided signal timing data for the signalized study intersections.

Intersection Level of Service Methodology

Intersection operations are described using the term "Level of Service" (LOS). Level of Service is a qualitative description of traffic operations from the vehicle driver perspective and consists of the delay experienced by the driver at the intersection. It ranges from LOS A, with no congestion and little delay, to LOS F, with excessive congestion and delays. Different methodologies are used to assess signalized and unsignalized (stop-controlled) intersections.

Signalized Intersection

At signalized intersections, operations are evaluated using the methodology described in the 2010 *Highway Capacity Manual* (HCM) and the Synchro traffic analysis software program. This methodology uses various intersection characteristics, such as traffic volumes, lane geometries, and signal timing parameters, to estimate average control delays and assign an LOS. Control delay is defined as the delay associated with deceleration, stopping, moving up in the queue, and acceleration experienced by drivers at an intersection. **Table 1**, provides a description of various LOS and the corresponding ranges of delays for signalized intersections.

Unsignalized Intersections

At unsignalized intersection, LOS is also analyzed using the 2010 HCM and Synchro software. Delay is calculated for movements that are controlled by a stop sign or that must yield the right-of-way. This study reports delay and corresponding LOS for the approach with the highest delay and the whole intersection. LOS ranges for unsignalized intersections are shown in Table 1. They are lower than delay ranges for signalized intersections because drivers will tolerate more delay at signals.

Intersection Operations

This study evaluated existing traffic operations for the weekday AM and PM peak hours at the study intersections. The existing vehicle, bicycle, and pedestrian volumes were used with the existing lane configurations and signal timing parameters as inputs into the LOS calculations to evaluate current operations. **Table 2** summarizes the intersection analysis results. **Attachment B** provides the detailed intersection LOS calculation worksheets.

TABLE 1: INTERSECTION LEVEL OF SERVICE DEFINITIONS

Unsignalized			Signalized	
Description	**Average Total Vehicle Delay (Seconds)**	**Level of Service**	**Average Control Vehicle Delay (Seconds)**	**Description**
No delay for stop-controlled approaches.	≤10.0	A	≤10.0	Free Flow or Insignificant Delays: Operations with low delay, signal progression is extremely favorable and most vehicles arrive during green light phase. Most vehicles do not stop.
Operations with minor delay.	>10.0 and ≤15.0	B	>10.0 and ≤20.0	Stable Operation or Minimal Delays: Generally occurs with good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher average delay. An occasional approach phase is fully utilized.
Operations with moderate delays.	>15.0 and ≤25.0	C	>20.0 and ≤35.0	Stable Operation or Acceptable Delays: Higher delays resulting from fair signal progression and/or longer cycle lengths. Drivers begin having to wait through more than one red light. Most drivers feel somewhat restricted.
Operations with increasingly unacceptable delays.	>25.0 and ≤35.0	D	>35.0 and ≤55.0	Approaching Unstable or Tolerable Delays: Congestion becomes more noticeable. Longer delays from unfavorable signal progression, long cycle lengths, or high volume to capacity ratios. Drivers may wait through more than one red light. Queues develop and dissipate, without excessive delay.
Operations with high delays, and long queues.	>35.0 and ≤50.0	E	>55.0 and ≤80.0	Unstable Operation or Significant Delays: Considered limit of acceptable delay. High delays indicate poor signal progression, long cycle lengths and high volume to capacity ratios. Individual cycle failures are frequent and vehicles may wait through several signal cycles. Long queues form upstream from intersection.
Extreme congestion, very high delays and long queues unacceptable to most drivers.	>50.0	F	>80.0	Forced Flow or Excessive Delays: Occurs with oversaturation when flows exceed the intersection capacity. Represents jammed conditions. Many cycle failures. Queues may block upstream intersections.

Source: Transportation Research Board, Special Report 209, *Highway Capacity Manual*, 2010.

TABLE 2: EXISTING INTERSECTION LEVEL OF SERVICE SUMMARY

Intersection	Traffic Control [a]	AM Peak Hour		PM Peak Hour	
		Delay [b] (seconds)	LOS	Delay [b] (seconds)	LOS
1. Northgate Avenue/1-980 SB Off Ramp / 27th Street	Signal	11.0	B	15.4	B
2. Northgate Avenue/I-980 NB On Ramp / 27th Street	Signal	24.3	C	15.0	B
3. Telegraph Avenue / 27th Street	Signal	25.6	C	23.5	C
4. Broadway / 27th Street	Signal	10.7	B	14.6	B
5. Telegraph Avenue / 26th Street	Signal	1.3	A	1.0	A
6. Broadway / 26th Street	Signal	0.6	A	0.9	A
7. Broadway / 25th Street [c]	Signal	15.6	B	11.9	B
8. Telegraph Avenue / 24th Street	Signal	2.3	A	1.4	A
9. Harrison Street / 27th Street / 24th St [c]	Signal	46.8	D	55.2	E
10. Northgate Avenue / Grand Avenue	Signal	19.2	B	10.0	B
11. Telegraph Avenue / Grand Avenue	Signal	16.9	B	22.5	C
12. Valley Street / Grand Avenue	SSSC	1.1 (20.1)	A (C)	2.0 (42.3)	A (E)
13. Broadway / Grand Avenue	Signal	15.1	B	11.4	B
14. Webster Street / Grand Avenue	Signal	21.3	C	13.4	B
15. Valdez Street / Grand Avenue	Signal	7.4	A	8.1	A
16. Harrison Street / Grand Avenue	Signal	23.4	C	>55	E
17. Bay Place / Grand Avenue	Signal	11.2	B	-	F [d]
18. Bellevue Avenue/Park View Terrace / Grand Avenue	Signal	2.2	A	-	F [d]
19. Perkins Street / Grand Avenue	Signal	3.7	A	-	F [d]
20. Staten Avenue / Grand Avenue	Signal	2.0	A	-	F [d]
21. Euclid Avenue / Grand Avenue	Signal	20.5	C	-	F [d]
22. El Embarcadero / Grand Avenue	Signal	18.9	B	-	F [d]
23. MacArthur Boulevard / Grand Avenue	Signal	24.6	C	-	F [d]
24. Telegraph Avenue / 22nd Street	SSSC	1.5 (22.0)	A (C)	2.9 (24.7)	A (C)
25. Valley Street / 22nd Street	SSSC	1.8 (8.8)	A (A)	1.6 (9.7)	A (A)
26. Broadway / 22nd Street	Signal	4.7	A	11.0	B
27. Telegraph Avenue / 21st Street	SSSC	3.4 (29.2)	A (D)	2.1 (22.4)	A (C)
28. Broadway / 21st Street	Signal	6.3	A	6.1	A
29. MLK Jr. Way / San Pablo Avenue / 20th Street [c]	Signal	15.5	B	18.4	B
30. Telegraph Avenue / 20th Street	Signal	13.7	B	14.9	B
31. Broadway / 20th Street	Signal	9.6	A	11.4	B
32. Brush Street / 18th Street [e]	Signal	15.9	B	14.3	B
33. Castro Street / I-980 NB On-Ramp / 18th Street [c]	Signal	9.2	A	13.1	B

TABLE 2: EXISTING INTERSECTION LEVEL OF SERVICE SUMMARY

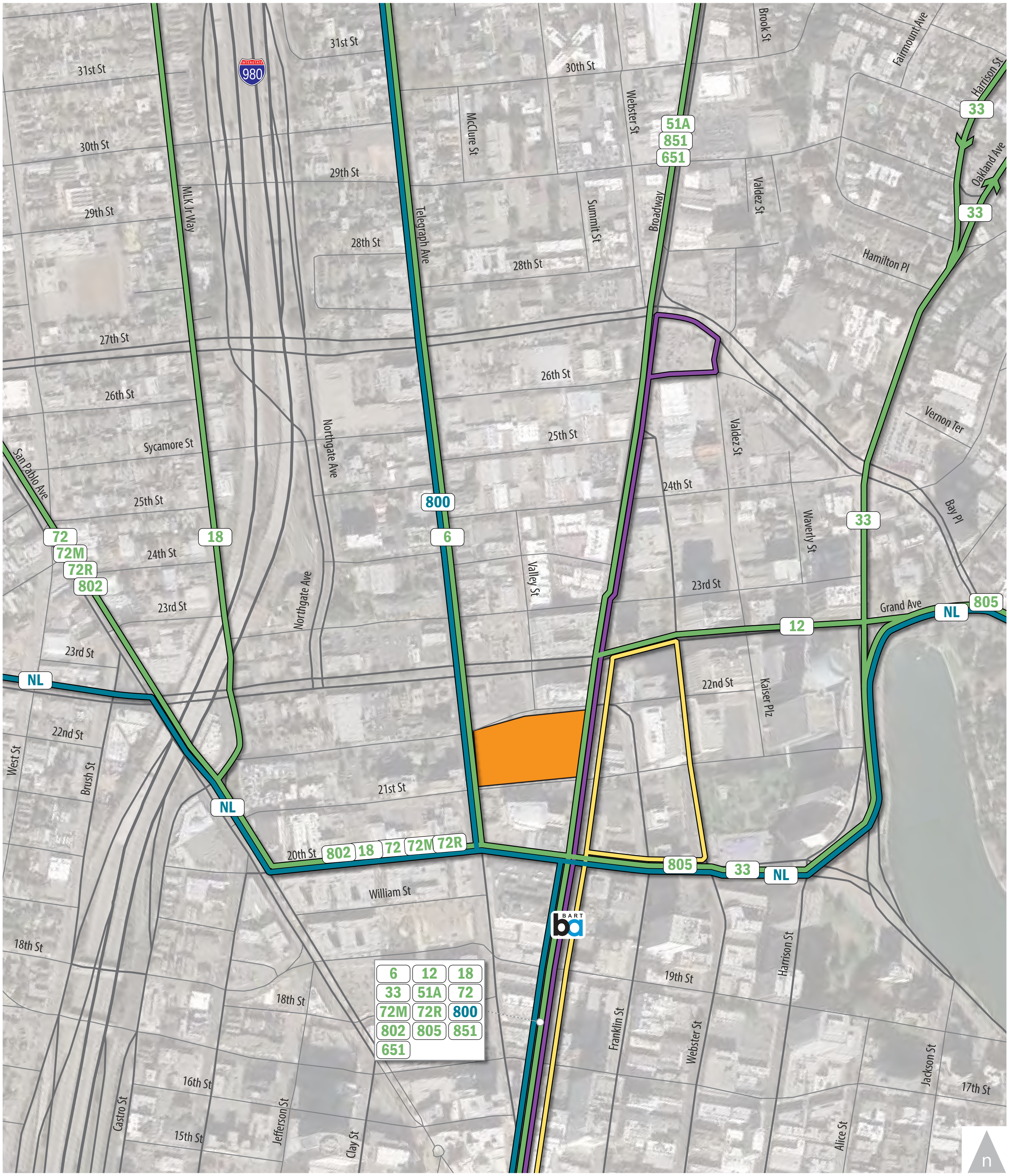
Intersection	Traffic Control [a]	AM Peak Hour		PM Peak Hour	
		Delay [b] (seconds)	LOS	Delay [b] (seconds)	LOS
34. MLK Jr. Way / 18th Street	Signal	11.1	B	11.2	B
35. Jefferson Street / San Pablo Avenue / 19th Street [c]	Signal	17.0	B	19.6	B
36. Telegraph Avenue / 19th Street	Signal	7.1	A	8.3	A
37. Broadway / 19th Street	Signal	5.2	A	6.0	A
38. Brush Street / I-980 Westbound On-ramp / 17th Street [c]	Signal	6.4	A	11.6	B
39. I-980 Eastbound Off-ramp / Castro Street / 17th Street [c]	Signal	23.7	C	36.2	D

[a] Signal = intersection is controlled by a traffic signal; SSSC = Intersection is controlled by a stop-sign on the side-street approach;
[b] For signalized intersections, average intersection delay and LOS based on the 2010 HCM method is shown. For side-street stop-controlled intersections, delays for worst movement and average intersection delay are shown: intersection average (worst movement)
[c] Denotes an intersection with average intersection delay and LOS based on the 2000 HCM method
[d] Delay cannot be estimated accurately because the Synchro software does not correctly account for the queues on eastbound Grand Avenue. Reported LOS is based on field observations.
[e] Vehicle queues at the off-ramp periodically extend back to the freeway mainline during the AM peak hour.
Source: Fehr & Peers, 2017

Most intersections currently operate at LOS D or better during both weekday AM and PM peak hours. The signalized 24th Street/Harrison Street/27th Street intersection (#9) operates at LOS E during the PM peak hour. The side-street stop-controlled Valley Street at Grand Avenue (Intersection #12) operates at LOS E for the northbound and southbound left-turn in the PM peak period. Queue spill back from the I-580 Eastbound On-ramp at Lakeshore Avenue (Intersection #23) reaches back to about Bay Place on Grand Avenue (Intersection #17) during the PM commute period. The reported LOS F operations at the intersections on Grand Avenue between Bay Place and MacArthur Boulevard (Intersections #17 thru #23) reflect the observed queue spill back from adjacent intersections along this segment of Grand Avenue.

EXISTING TRANSIT

Transit service providers in the project vicinity include AC Transit, which provides local and Transbay bus service with connections to the Transbay Terminal in San Francisco and Bay Area Rapid Transit (BART), which provides regional rail service. The existing transit services provided near the project site are shown on **Figure 2**.



LEGEND

Project Site | X AC Transit Transbay | # AC Transit Local | Broadway Shuttle (Night) | Broadway Shuttle (Day)

Figure 2

Existing Transit Service

OK16-0114.00_2_Transit

Table 3 shows the capacity and loads (passengers) of the AC Transit routes serving the project area and vicinity. Load factor is defined as the ratio of occupied seats to the number of seats on the bus. A load factor of 100% or more indicates that the bus operates at or above its seated capacity. During the weekday PM peak period (4:00 PM to 6:00 PM) the buses in the project vicinity generally operate below bus capacities. In general, Route 6 and Route 72 at the Uptown Transit Center and Route 51A at the Broadway/Grand Avenue intersection are the most heavily utilized bus routes in the study area.

The Pittsburg/Bay Point–SFO/Millbrae, Daly City/Millbrae–Richmond, and Richmond-Fremont lines provide service at the 19th Street BART Station. The station is served by up to 40 trains per hour during the peak periods. **Table 4** summarizes peak-hour loads near the 19th Street BART Station. Currently, both directions of the Pittsburg/Bay Point–SFO/Millbrae and the Richmond–Daly City/Millbrae lines have average load factors above BART's planning capacity (107 passengers per train car) during peak periods.

TABLE 3: AC TRANSIT PASSENGER LOAD CHARACTERISTICS (WEEKDAY)

Bus Route and Stop Location[a]	Direction	Average Capacity (Seats)	Average Load[b] (Passengers)	Maximum Load[c] (Passengers)	Maximum Load Factor
Route 6 on 20th Street at Telegraph Avenue	NB	36	17	53	1.5
	SB	36	14	41	1.1
Route 12 on Broadway at 20th Street	NB	26	12	33	1.3
	SB	26	12	35	1.3
Route 18 on Broadway at 19th Street	NB	36	10	31	1.2
	SB	36	11	31	0.9
Route 33 on Broadway at 19th Street [d]	EB	36	8	28	0.8
	WB	36	10	30	0.8
Route 51A on Broadway at Grand Avenue	NB	36	12	30	0.8
	SB	36	16	48	1.3
Route 72 on 20th Street at Telegraph Avenue	NB	36	16	45	1.3
Route 72 on Broadway at 19th Street	SB	36	17	38	1.1
Route 72M on 20th Street at Telegraph Avenue	NB	36	12	31	0.9
	SB	36	17	39	1.1
Route 72R on 20th Street at Telegraph Avenue	NB	32	12	30	0.8
	SB	32	16	43	1.3
Free-Broadway Shuttle (Day) on Broadway at 22nd Street	NB	25	12	31	1.0
Free-Broadway Shuttle (Day) on Broadway at 20th Street	SB	25	6	13	0.5

TABLE 3: AC TRANSIT PASSENGER LOAD CHARACTERISTICS (WEEKDAY)

Bus Route and Stop Location[a]	Direction	Average Capacity (Seats)	Average Load[b] (Passengers)	Maximum Load[c] (Passengers)	Maximum Load Factor
Free-Broadway Shuttle (Night) on Broadway at Grand Avenue	NB	25	9	23	0.9
	SB	25	3	9	0.4
Route NL on 20th Street at Broadway	EB	41	3	8	0.3
	WB	41	17	61	1.5
Route 800 on 20th Street at Telegraph Avenue	EB	51	9	23	0.6
	WB	51	12	35	0.7
Route 802 on 20th Street at Telegraph Avenue	NB	34	8	23	0.5
	SB	34	5	11	0.3
Route 805 on Broadway at 19th Street	EB	36	5	13	0.4
	WB	36	6	13	0.4
Route 851 on Broadway at Grand Avenue	NB	36	5	13	0.4
	SB	36	7	17	0.5
Route 651 on Broadway at Grand Avenue	NB	36	8	23	0.6
Route 651 on Broadway at 20th Street	SB	36	7	14	0.4

[a] Bus stop chosen is the closest to project site with data available.

[b] Average load is defined as the average number of passengers onboard when the bus departs that stop.

[c] Maximum load is the observed maximum number of passengers onboard the bus when it departs that stop during the weekday PM peak period (4:00 PM to 6:00 PM).

[d] AC transit changed Route 11 to Route 33 in June, 2017. Results are presented for formerly Route 11.

Source: AC Transit Fall 2016 data provided in Spring 2017, analyzed by Fehr & Peers, 2017.

TABLE 4: BART PEAK-HOUR LOADS BY LINE

Peak Period	Line	Peak Hour	Trains During Peak Hour	Average Cars per Peak Hour Train	Average Maximum Load (Passengers/Car)	Load Factor
AM	**Pittsburg/Bay Point -SFO/Millbrae**	**7:30 AM - 8:30 AM**	**11**	**9**	**112**	**1.05**
	SFO/Millbrae-Pittsburg/Bay Point	8:20 AM - 9:20 AM	7	10	13	0.12
	Daly City/Millbrae-Richmond	8:20 AM - 9:20 AM	5	9	19	0.18
	Richmond-Daly City/Millbrae	**8:00 AM - 9:00 AM**	**5**	**9**	**125**	**1.17**
	Fremont-Richmond	7:40 AM - 8:40 AM	5	7	39	0.36
	Richmond-Fremont	7:30 AM - 8:30 AM	5	6	39	0.36
PM	Pittsburg/Bay Point - SFO/Millbrae	5:00 PM - 6:00 PM	9	10	27	0.25
	SFO/Millbrae-Pittsburg/Bay Point	**5:10 PM - 6:10 PM**	**11**	**9**	**108**	**1.01**
	Daly City/Millbrae-Richmond	**5:20 PM - 6:20 PM**	**5**	**9**	**120**	**1.12**
	Richmond-Daly City/Millbrae	5:10 PM - 6:10 PM	5	9	35	0.33
	Fremont-Richmond	5:10 PM - 6:10 PM	5	6	72	0.67
	Richmond-Fremont	4:40 PM - 5:40 PM	5	7	66	0.62

[a] Load Factor defined as average load over the assumed design capacity (47 seats and 60 standing)
Bold indicates load above capacity.
Source: Fall 2016 data provided by BART in March 2017 and summarized by Fehr & Peers, 2017.

PROJECT TRANSPORTATION CHARACTERISTICS

This section addresses the following topics:

- Project Trip Generation
- Project Trip Distribution and Assignment

The project is located in the block bound by 22nd Street, Broadway, 21st Street, and Telegraph Avenue in Downtown Oakland. The block is currently occupied by Space Burger restaurant, a City owned Parking Garage, and three bank/retail buildings on Broadway. The project proposes a multi-level parking garage which would contain parking for the proposed uses as well as replacement parking from removal of the existing parking garage and loss of on-street parking spaces. The project has four development scenarios:

- The Residential/Office Mix Scenario would consist of 395 apartment units, 880,550 square feet of office space, 85,000 square feet of retail space, and 18,500 square feet of community space.
- The All Office Scenario would consist of 1,450,000 square feet of office space, 80,000 square feet of retail space, and 22,790 square feet of community space.
- The Maximum Office Scenario would consist of 2,689,000 square feet of office space and 87,000 square feet of retail space.
- The Maximum Residential Scenario would consist of 1,556 apartment units, 99,220 square feet of retail space, and 37,150 square feet of community space.

For purposes of this analysis, only the Residential/Office Mix Scenario is discussed. To allow flexibility for development to be responsive to market demands and opportunities, the transportation chapter of the EIR studies the maximum development envelope which includes up to 2.7 million square feet of office with 87,000 square feet of retail.

TRIP GENERATION

Table 5 summarizes automobile trip generation of the existing buildings which generated about 840 daily trips and 13 AM peak hour and 69 PM peak hour trips at the time of the NOP. These trips are deducted from the project trip generation to estimate the net change in automobile trips from the project. **Table 6** summarizes the change in automobile trip generation for the 2100 Telegraph site with the Residential/Office Mix Scenario replacing the existing uses. After completion the Residential/Office Mix Scenario is estimated to generate about 7,460 net new daily trips and 805 AM peak hour and 880 PM peak hour trips. Consistent with City of Oakland Transportation Impact Study Guidelines, **Table 7** presents the estimates of project trip generation for all travel modes.

TABLE 5: AUTOMOBILE TRIP GENERATION – EXISTING USES

Land Use, ITE Code	Units [a]	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Space Burger [b]	4.3 ksf	180	0	0	0	5	7	12
Retail [c]	24.0 ksf	1,020	14	9	23	43	46	89
Walk-in Bank [d]	10.2 ksf	380	0	0	0	27	35	62
Non-Auto Reduction (43%) [e]		-600	-6	-4	-10	-30	-35	-65
Pass-by-reduction [f]		-140	0	0	0	-15	-14	-29
Total Trips		**840**	**8**	**5**	**13**	**30**	**39**	**69**

[a] DU = Dwelling Units, KSF = 1,000 square feet.
[b] Driveway counts collected on April 24, 2014.
[c] ITE Trip Generation (9th Edition) land use category 820 (Shopping Center – Adj. Streets, 7-9 AM, 4-6 PM):
Daily: T = 42.70(X)
AM Peak Hour: T = 0.96(X) (62% in, 38% out)
PM Peak Hour: T = 3.71(X) (48% in, 52% out)
[d] ITE Trip Generation (9th Edition) land use category 911 (Walk-in Bank – Adj. Streets, 4-6 PM) reduced by 50% to account for low observed activity at the site:
Daily: T = 36.98 (X)
PM Peak Hour: T = 6.07 (X) (44% in, 56% out)
[e] The 43% reduction is based on data from the City of Oakland Transportation Impact Study Guidelines for development in an urban environment within 0.5 miles of a BART Station.
[f] PM peak hour pass-by rates based on ITE Trip Generation Handbook (3rd Edition). The weekday PM peak hour average pass-by rates for land use category 820 is 34%. Pass-by rates are not applied to the AM peak hour. Half of the reduction (17%) is applied to the daily trips. Same rates are applied to land use category 911.
Source: Fehr & Peers, 2017

TABLE 6: AUTOMOBILE TRIP GENERATION – RESIDENTIAL/OFFICE MIX SCENARIO

Land Use, ITE Code	Units [a]	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Residential[b]	395 DU	2,630	40	162	202	159	86	245
Retail [c]	85 KSF	6,120	88	54	142	258	280	538
Office [d]	880.55 KSF	6,860	960	131	1,091	181	884	1,065
Non-Auto Reduction (43%) [e]		-6,710	-468	-149	-617	-257	-538	-795
Pass-by-reduction [f]		-600	0	0	0	-52	-52	-104
Existing Trip Generation [g]		-840	-8	-5	-13	-30	-39	-69
Total Trips		**7,460**	**612**	**193**	**805**	**259**	**621**	**880**

[a] DU = Dwelling Units, KSF = 1,000 square feet.
[b] ITE Trip Generation (9th Edition) land use category 220 (Apartment- Adj. Streets, 7-9 AM, 4-6 PM):
Daily: T = 6.65*(X)
AM Peak Hour: T = 0.51*(X) (20% in, 80% out)
PM Peak Hour: T = 0.62*(X) (65% in, 35% out)
[c] ITE Trip Generation (9th Edition) land use category 820 (Shopping Center – Adj. Streets, 7-9 AM, 4-6 PM):
Daily: Ln(T) = 0.65 * ln(X) + 5.83
AM Peak Hour: Ln(T) = 0.61 * ln(X) + 2.24 (62% in, 38% out)
PM Peak Hour: Ln(T) = 0.67 * ln(X) + 3.31 (48% in, 52% out)
[d] ITE Trip Generation (9th Edition) land use category 710 (General Office Building – Pk. Hr. of Generator):
Daily: Ln(T) = 0.76 * ln(X) + 3.68
AM Peak Hour: Ln(T) = 0.80 * ln(X) + 1.57 (88% in, 12% out)
PM Peak Hour: T = 1.12(X) + 78.45 (17% in, 83% out)
[e] The 43% reduction is based on data from the City of Oakland Transportation Impact Study Guidelines for development in an urban environment within 0.5 miles of a BART Station.
[f] PM peak hour pass-by rates based on ITE Trip Generation Handbook (3rd Edition). The weekday PM peak hour average pass-by rates for land use category 820 is 34%. Pass-by rates are not applied to the AM peak hour. Half of the reduction (17%) is applied to the daily trips.
[g] See Table 5
Source: Fehr & Peers, 2017

TABLE 7: TRIP GENERATION BY TRAVEL MODE – RESIDENTIAL/OFFICE MIX SCENARIO

Travel Mode	Mode Share Adjustment Factors [a]	Daily	Weekday AM Peak Hour	Weekday PM Peak Hour
Automobile	57.0%	7,460	805	880
BART / AC Transit	30.4%	3,980	429	469
Bike	3.9%	510	55	60
Walk	23.0%	3,010	325	355
Total Trips		**14,960**	**1,614**	**1,764**

[a] Based on City of Oakland Transportation Impact Study Guidelines assuming project site is in an urban environment within 0.5 miles of a BART Station.
Source: Fehr & Peers, 2017

PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

The trip distribution and assignment process is used to estimate how the vehicle trips generated by a project site would be distributed across the roadway network. Based on existing travel patterns, locations of complementary land uses, results of the Alameda County Transportation Commission's (Alameda CTC) Travel Demand Model, and the one-way street network and turn restrictions in Downtown Oakland, Fehr & Peers determined directions of approach to and departure from the Project site. **Figure 3** shows the resulting trip distribution.

The new automobile trips generated by the project, as shown in Table 6, were assigned to the roadway network according to the trip distribution. The trip assignment accounts for project access via 21st and 22nd Streets. Figures in Attachment A show the resulting net peak hour trip assignment at the intersection level. This analysis assumes that most vehicles would use the major streets, such as Broadway, Telegraph Avenue, and West Grand Avenue, to travel to and from the site. Existing parking garage trips were reassigned from Telegraph Avenue to 21st Street.

EXISTING PLUS PROJECT CONDITIONS

This section addresses traffic conditions with the Residential/Office Mix Scenario traffic added to the Existing Conditions at study intersections in the project vicinity are described below. This section addresses the following topics:

- Existing Plus Project Intersection Operations
- Existing Plus Project Transit Operations
- Project Parking Demand

EXISTING PLUS PROJECT INTERSECTION OPERATIONS

Attachment A shows traffic volumes under Existing Plus Project conditions, which consists of Existing traffic volumes plus added traffic volumes generated by the Residential/Office Mix Scenario.

Table 8 summarizes the intersection operations results for the Existing No Project and Existing Plus Project conditions. Most of the study intersections would remain operating at LOS D or better during both weekday AM and PM peak hours. Attachment B provides the detailed intersection LOS calculation worksheets.

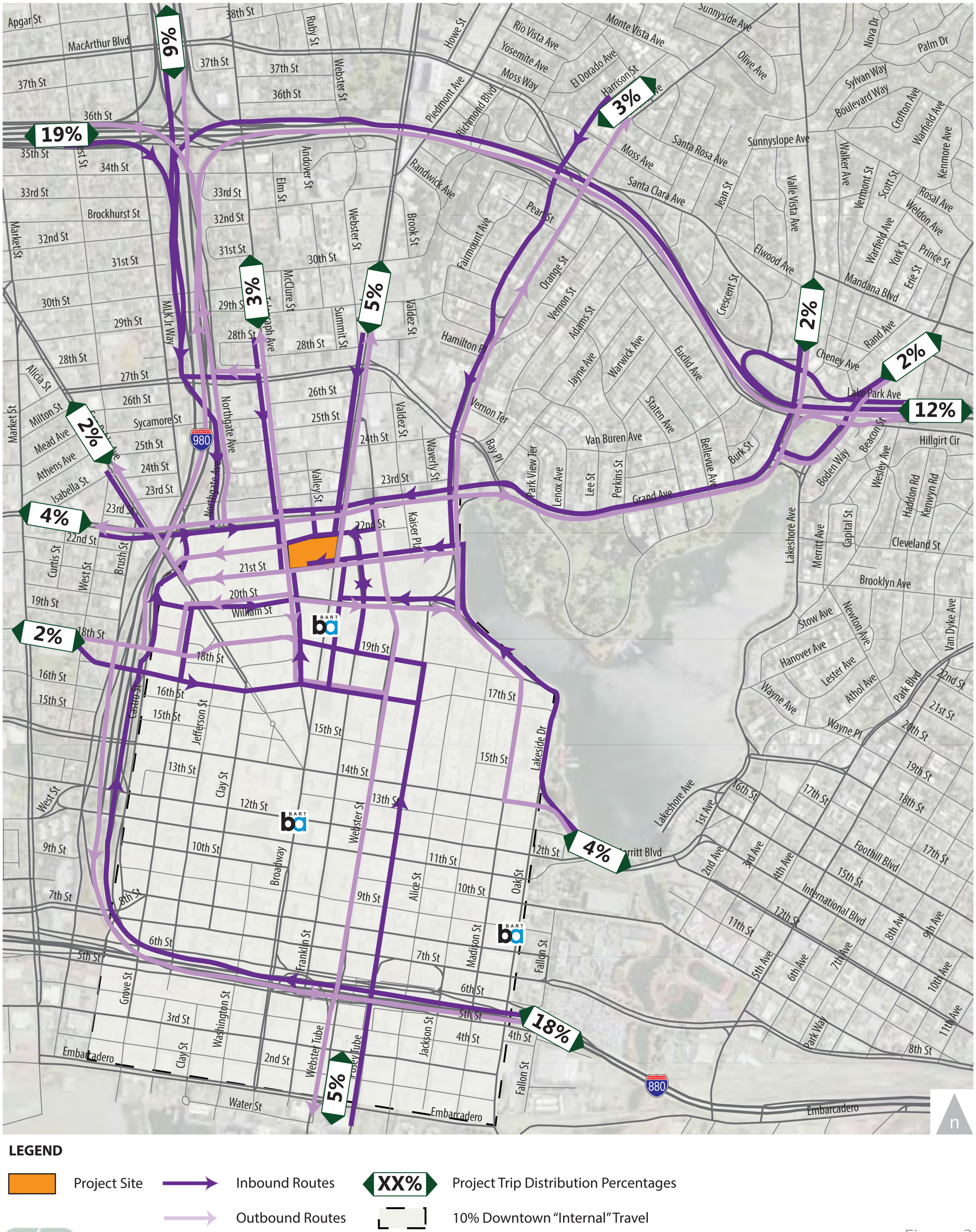


Figure 3

Project Vehicle Trip Distribution

TABLE 8: INTERSECTION LEVEL OF SERVICE SUMMARY

Intersection	Traffic Control [a]	Peak Hour	Existing Conditions		Existing Plus Project	
			Delay [b] (seconds)	LOS	Delay [b] (seconds)	LOS
Northgate Avenue/1-980 SB Off Ramp / 27th Street	Signal	AM PM	11.0 15.4	B B	11.2 15.5	B B
Northgate Avenue/I-980 NB On Ramp / 27th Street	Signal	AM PM	24.3 15.0	C B	24.4 15.6	C B
Telegraph Avenue / 27th Street	Signal	AM PM	25.6 23.5	C C	24.4 24.6	C C
Broadway / 27th Street	Signal	AM PM	10.7 14.6	B B	10.7 14.5	B B
Telegraph Avenue / 26th Street	Signal	AM PM	1.3 1.0	A A	1.0 1.1	A A
Broadway / 26th Street	Signal	AM PM	0.6 0.9	A A	0.6 0.9	A A
Broadway / 25th Street [c]	Signal	AM PM	15.6 11.9	B B	15.1 11.7	B B
Telegraph Avenue / 24th Street	Signal	AM PM	2.3 1.4	A A	2.2 1.3	A A
Harrison Street / 27th Street / 24th St [c]	Signal	AM PM	46.8 55.2	D E	47.2 55.6	D E
Northgate Avenue / Grand Avenue	Signal	AM PM	19.2 10.0	B B	20.2 12.8	C B
Telegraph Avenue / Grand Avenue	Signal	AM PM	16.9 22.5	B C	31.0 28.6	C C
Valley Street / Grand Avenue	SSSC	AM PM	1.1 (20.1) 2.0 (42.3)	A (C) A (E)	1.2 (26.6) 2.5 (62.3)	A (D) A (F)
Broadway / Grand Avenue	Signal	AM PM	15.1 11.4	B B	15.4 11.6	B B
Webster Street / Grand Avenue	Signal	AM PM	21.3 13.4	C B	21.6 13.5	C B
Valdez Street / Grand Avenue	Signal	AM PM	7.4 8.1	A A	7.9 8.1	A A
Harrison Street / Grand Avenue	Signal	AM PM	23.4 >55	C E [d]	22.3 >55	C E [d]
Bay Place / Grand Avenue [d]	Signal	AM PM	11.2 -	B F [d]	11.4 -	B F [d]
Bellevue Avenue/Park View Terrace / Grand Avenue [d]	Signal	AM PM	2.2 -	A F [d]	2.3 -	A F [d]
Perkins Street / Grand Avenue [d]	Signal	AM PM	3.7 -	A F [d]	3.6 -	A F [d]
Staten Avenue / Grand Avenue [d]	Signal	AM PM	2.0 -	A F [d]	2.1 -	A F [d]
Euclid Avenue / Grand Avenue [d]	Signal	AM PM	20.5 -	C F [d]	22.3 -	C F [d]

TABLE 8: INTERSECTION LEVEL OF SERVICE SUMMARY

Intersection	Traffic Control [a]	Peak Hour	Existing Conditions		Existing Plus Project	
			Delay [b] (seconds)	LOS	Delay [b] (seconds)	LOS
El Embarcadero / Grand Avenue [d]	Signal	AM PM	18.9 -	B F [d]	19.3 -	B F [d]
MacArthur Boulevard / Grand Avenue [d]	Signal	AM PM	24.6 -	C F [d]	24.1 -	C F [d]
Telegraph Avenue / 22nd Street	SSSC	AM PM	1.5 (22.0) 2.9 (24.7)	A (C) A (C)	2.4 (32.3) 8.1 (37.8)	A (D) A (E)
Valley Street / 22nd Street	SSSC	AM PM	1.8 (8.8) 1.6 (9.7)	A (A) A (A)	5.8 (10.7) 3.6 (10.6)	A (B) A (B)
Broadway / 22nd Street	Signal	AM PM	4.7 11.0	A B	5.6 11.0	A B
Telegraph Avenue / 21st Street	SSSC	AM PM	3.4 (29.2) 2.1 (22.4)	A (D) A (C)	6.6 (86.0) 3.1 (36.5)	A (F) A (E)
Broadway / 21st Street	Signal	AM PM	6.3 6.1	A A	7.7 12.0	A B
MLK Jr. Way / San Pablo Avenue / 20th Street [c]	Signal	AM PM	15.5 18.4	B B	16.9 23.5	B C
Telegraph Avenue / 20th Street	Signal	AM PM	13.7 14.9	B B	14.7 15.6	B B
Broadway / 20th Street	Signal	AM PM	9.6 11.4	A B	9.5 10.9	A B
Brush Street / 18th Street [e]	Signal	AM PM	15.9 14.3	B B	16.1 15.7	B B
Castro Street / I-980 NB On-Ramp / 18th Street [c]	Signal	AM PM	9.2 13.1	A B	10.0 16.3	B B
MLK Jr. Way / 18th Street	Signal	AM PM	11.1 11.2	B B	11.1 11.7	B B
Jefferson Street / San Pablo Avenue / 19th Street [c]	Signal	AM PM	17.0 19.6	B B	17.5 21.0	B C
Telegraph Avenue / 19th Street	Signal	AM PM	7.1 8.3	A A	7.2 9.0	A A
Broadway / 19th Street	Signal	AM PM	5.2 6.0	A A	5.2 5.7	A A
Brush Street / I-980 Westbound On-ramp / 17th Street [c]	Signal	AM PM	6.4 11.6	A B	6.5 13.5	A B
I-980 Eastbound Off-ramp / Castro Street / 17th Street [c]	Signal	AM PM	23.7 36.2	C D	28.1 48.1	C D

[a] Signal = intersection controlled by traffic signal; SSSC = Intersection controlled by stop-sign on side-street approach;
[b] Signalized intersections, average intersection delay and LOS based on 2010 HCM method. Side-street stop-controlled intersections, delays for worst movement and average intersection delay: intersection average (worst movement)
[c] Denotes an intersection with average intersection delay and LOS based on the 2000 HCM method
[d] Delay cannot be estimated accurately because the Synchro software does not correctly account for the queues on eastbound Grand Avenue. Reported LOS is based on field observations.
[e] Vehicle queues at the off-ramp periodically extend back to the freeway mainline during the AM peak hour..
Source: Fehr & Peers, 2017

The signalized 24th Street/Harrison Street/27th Street intersection (Intersection #9) would remain operating at LOS E during the PM peak hour. The side-streets stop-controlled Valley Street at Grand Avenue (Intersection #12), 22nd Street at Telegraph Avenue (Intersection #24), and 21st Street at Telegraph Avenue (Intersection #24) would operate at LOS F for the left-turn in the PM peak period.

Queue spill back from the I-580 Eastbound On-ramp at Lakeshore Avenue reaches back to about Bay Place on Grand Avenue during the PM commute period. The LOS F operations reflect the observed queue spill back from adjacent intersections between MacArthur Boulevard and Bay Place on Grand Avenue. The project would contribute delay to this corridor but the delay is ultimately caused by the I-580 Eastbound queues instead of the corridor intersections. Some intersections experience a slight delay improvement due to adding traffic to the main coordinated corridor better utilizing the effective green which provides an overall delay reduction.

EXISTING PLUS PROJECT TRANSIT OPERATIONS

AC Transit bus operating speeds under Existing and Existing Plus Project conditions were analyzed along the Telegraph Avenue and Broadway corridors between 20th Street and 27th Street utilizing the *Transit Capacity and Quality of Service Manual* (TCQSM), 3rd Edition. The TCQSM methodology is an equation-based model that is accepted as the industry standard for estimating transit impacts using inputs that describe the existing corridor, current ridership, and projected auto and transit trip generation along the corridors being analyzed.

Existing and Existing Plus Project operating speeds were analyzed for the weekday AM peak hour (8:00-9:00 AM) and PM peak hour (5:00-6:00 PM) for Route 6 along Telegraph Avenue, and for Routes 12, 51A, and the Free-B Shuttle along Broadway.

Methodology

The TCQSM model is a three-step process that includes the calculation of dwell time at each transit stop, a capacity analysis for the corridor, and the resulting speed of transit operations along the specific corridor described in Chapter 6 of the TCQSM, 3rd Edition. Key inputs to the model include average on and off boardings at transit stops, signal timings near transit stops, and traffic volumes along the corridor. **Attachment C** outlines all model inputs and data sources. This process was completed for Existing conditions and assumed Existing Plus Project conditions.

Analysis Results

Fehr & Peers calculated the bus operating speeds along the Telegraph Avenue and Broadway corridors using the TCQSM methodologies. **Table 9** summarizes the model outputs for Existing and Existing Plus Project conditions which shows that transit speed impacts would be less than one mile per hour. The Broadway Route 12 would have the greatest impact with a 0.7 mph speed reduction in the northbound direction during the PM peak hour.

TABLE 9: TCQSM MODEL OUTPUTS

Corridor	Route	Existing Speeds (mph)				Existing Plus Project Speeds (mph)				Percent Difference			
		AM		PM		AM		PM		AM		PM	
		NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
Telegraph Avenue	6	10.3	10.3	10.1	10.5	10.1	10.0	9.5	10.1	-2%	-3%	-6%	-4%
Broadway	12	8.9	8.1	7.8	8.6	8.7	7.7	7.1	8.3	-2%	-5%	-9%	-4%
Broadway	51A	8.7	8.6	8.6	8.3	8.4	8.4	8.2	7.8	-4%	-2%	-5%	-6%
Broadway	Free-B Shuttle	8.6	--	8.7	--	8.4	--	8.7	--	-2%	--	0%	--

Source: Fehr & Peers, 2017

According to the TCQSM there are several factors that could increase speed such as introducing skip-stop operations, increasing stop spacing, reducing dwell times, introducing bus boarding islands, and providing dedicated bus lanes. Bus boarding islands, according to the TCQSM, provide a 7-percent increase in overall speed for buses operating in the corridor. Boarding islands are also identified by the City of Oakland as a Transportation Demand Management (TDM) measure. Installing bus boarding islands along Telegraph Avenue (4 total) and Broadway (6 total) between 20th and 27th Streets would off-set the project’s impact on transit speeds.

Added Load

Table 10 shows the loads (passengers) of the AC Transit routes serving the project area and vicinity. Load factor is defined as the ratio of occupied seats to the number of seats on the bus. A load factor of 100 percent or more indicates that the bus operates at or above its seated capacity. During the weekday PM peak period (4:00 PM to 6:00 PM) the buses in the project vicinity generally operate below bus capacities. In general, Routes 6, 12, 51A, 72R, and NL are the most heavily utilized bus routes in the study area. The load factors generally remain the same with the added project passengers which equate to one to three additional riders on each bus serving the project vicinity.

TABLE 10: EXISTING AND EXISTING PLUS PROJECT LOAD FACTORS

Route	Direction	Stop [a]	Existing Conditions		Existing Plus Project	
			Average Load [b]	Maximum Load [c]	Average Load [b]	Maximum Load [c]
6	NB	20th Street at Telegraph	0.5	1.5	0.5	1.5
6	SB	20th Street at Telegraph	0.4	1.1	0.4	1.2
11	EB	Broadway at 19th Street	0.2	0.8	0.2	0.8
11	WB	Broadway at 19th Street	0.3	0.8	0.3	0.9
12	NB	Broadway at 22nd Street	0.4	1.3	0.5	1.4
12	SB	Broadway at 20th Street	0.4	1.2	0.4	1.2
18	NB	Broadway at 19th Street	0.3	0.9	0.3	0.9
18	SB	Broadway at 19th Street	0.3	0.8	0.4	0.9
51A	NB	Broadway at Grand Avenue	0.4	1.3	0.5	1.4
51A	SB	Broadway at Grand Avenue	0.4	1.3	0.5	1.3
72	NB	20th Street at Telegraph	0.4	1.1	0.5	1.1
72	SB	Broadway at 19th Street	0.3	0.9	0.4	0.9
72M	NB	20th Street at Telegraph	0.5	1.1	0.5	1.1
72M	SB	20th Street at Telegraph	0.3	0.8	0.4	0.9
72R	NB	20th Street at Telegraph	0.5	1.3	0.5	1.4
72R	SB	20th Street at Telegraph	0.4	1.0	0.4	1.0
BSD	NB	Broadway at 22nd Street	0.2	0.5	0.3	0.5
BSD	SB	Broadway at 20th Street	0.4	0.9	0.4	0.9
BSN	NB	Broadway at Grand Avenue	0.1	0.4	0.2	0.4
BSN	SB	Broadway at Grand Avenue	0.1	0.3	0.1	0.4
NL	EB	20th Street at Broadway	0.4	1.5	0.4	1.5
NL	WB	20th Street at Broadway	0.2	0.6	0.2	0.6
800	EB	20th Street at Telegraph	0.2	0.7	0.3	0.7
800	WB	20th Street at Telegraph	0.1	0.5	0.2	0.5
802	NB	20th Street at Telegraph	0.1	0.3	0.2	0.4
802	SB	20th Street at Telegraph	0.1	0.4	0.2	0.4
802	NB	20th Street at Telegraph	0.2	0.4	0.2	0.4
802	SB	20th Street at Telegraph	0.1	0.4	0.2	0.4
805	EB	Broadway at 19th Street	0.2	0.5	0.2	0.5
805	WB	Broadway at 19th Street	0.2	0.6	0.2	0.7
851	NB	Broadway at 20th Street	0.2	0.4	0.2	0.4
851	SB	Broadway at 20th Street	0.2	0.4	0.2	0.4
851	NB	Broadway at Grand Avenue	0.2	0.4	0.2	0.4
851	SB	Broadway at Grand Avenue	0.2	0.4	0.2	0.4
651	NB	Broadway at Grand Avenue	0.2	0.4	0.2	0.5
651	SB	Broadway at 20th Street	0.1	0.3	0.1	0.3

[a] Bus stop chosen is the closest to project site with data available.
[b] Average load is defined as the average number of passengers onboard when the bus departs that stop.
[c] Maximum load is the observed maximum number of passengers onboard when the bus departs that stop.
Source: AC Transit Fall 2016 data provided in Spring 2017, analyzed by Fehr & Peers, 2017.

PROJECT PARKING DEMAND

Parking supply in new developments has a direct correlation with mode split for those travelling to and from the site. Fehr & Peers conducted an analysis to determine adequate parking to meet the needs of the project site.

Estimated Parking Demand

Table 11 provides the estimated weekday parking demand, current site parking provided, and proposed provided parking for the Residential/Office Mix Scenario. Applied parking rates are derived from Institute of Transportation Engineer's (ITE) *Parking Generation*, 4th Edition; Urban Land Institute's *Shared Parking*, 2nd Edition; and American Community Survey data. Where applicable and similar to the trip generation completed for this project, a non-auto adjustment of 43-percent (Oakland City guidelines for mode split adjustment within half a mile from BART) is applied to account for non-automobile trips.

TABLE 11: PARKING DEMAND ESTIMATE (RESIDENTIAL/OFFICE MIX SCENARIO)

Land Use	Size	Unit [a]	Parking Rate per Unit	Demand
Demand				
Apartment (Residents)	395	DU	0.50 [b]	198
Apartment (Visitors)	395	DU	0.09 [c]	36
Retail	85	KSF	1.45 [d]	124
Community Space	19	KSF	0.01 [e]	0
Office	881	KSF	1.63 [f]	1,425
Subtotal				**1,783**
Current Site Parking [g]				
Garage Parking				336
On-Street Parking				24
Total Demand				**2,143**
Proposed Parking Supply				**1,750**
			Parking Deficit	**393**

[a] DU = Dwelling Unit; KSF = 1,000 square-feet
[b] Based on average vehicle ownership data for census tract 4028 from the 2013 American Community Survey. Rate assumes rental apartments that are leased.
[c] Based on ULI's *Shared Parking* rate for visitors and applying a non-auto reduction of 43%
[d] Based ITE *Parking Generation*, 4th Edition land use category 820 (Shopping Center; non-Friday Weekday Non-December) and applying a non-auto reduction 43%
[e] Assuming all trips to land use are internal, and therefore do not demand additional parking.
[f] Based on ITE *Parking Generation*, 4th Edition land use category 701 (Office Building; weekday suburban) and applying a non-auto reduction 43%
[g] The proposed project will replace public parking one for one
Sources: ITE *Parking Generation*, 4th Edition; ULI *Shared Parking*, 2nd Edition; Fehr & Peers, 2017.

Residential Parking Demand

Parking demand for the residential land use of the proposed project is two-fold; it must include parking demand by residents and by guests. Parking demand for the residential component of the project was determined using average vehicle ownership rates in downtown Oakland. According to American Community Survey estimates, average vehicle ownership in the study area (census tract 4028) is 0.5 vehicles per rented dwelling unit and 1.01 vehicles per owner-occupied unit. The City of Oakland's non-auto adjustment was not applied to this rate, as even if residents are choosing to commute by non-automobile transportation modes, it cannot be assumed they do not own a vehicle and thus require a parking space. Residential visitor demand was estimated using the Urban Land Institute's *Shared Parking* rate of 0.15, adjusted to include the non-auto reduction of 43-percent. The adjusted rate applied is 0.09 parking spaces per unit.

Retail Parking Demand

Parking demand for the retail land use was based on ITE's *Parking Generation*, 4th Edition. The parking rate determined most relevant for the land use was "Shopping Center" (ITE Land Use Code 820) on a weekday (excluding Friday) outside of December. Oakland's non-auto trip adjustment of 43-percent was applied to this rate, producing a rate of 1.45 spaces per 1,000 square-feet of retail.

Office Parking Demand

Parking demand for the office land use of the proposed project was based on ITE's *Parking Generation*, 4th Edition. The parking rate determined most relevant for the land use was "Office Building" (ITE Land Use Code 701) on a weekday in a suburban setting. While the proposed project is in downtown Oakland, by choosing the suburban rate, it is acceptable to apply Oakland's non-auto trip adjustment. A rate of 1.62 per 1,000 square-feet of office space was applied.

Community Space Parking Demand

The community space proposed does not generate parking demand. It is assumed the space will be used by employees and residents of the project and therefore does not generate new trips or parking demand.

Current Land Use Parking Demand

The proposed project will replace a 336-stall garage and 24 metered on-street parking spots. The proposed project will replace these public parking spaces on a one-to-one ratio.

Parking Analysis Results

Table 11 shows that the Residential/Office Mix Scenario results in a parking deficit of approximately 393 spaces based on the demand analysis assuming that all apartments are leased. Owner occupied apartments would increase the parking deficit to 590 spaces. This analysis assumes that the peak parking demand for all land uses would occur at the same time of day and each use would have its own parking supply.

While the parking demand analysis shows a parking deficit, there are demographic factors that could minimize the parking deficit. The Project's proximity to both regional transit, as well as employment centers and other neighborhood amenities, is likely to result in relatively high rates of walking, bicycling and transit use by residents, employees and visitors. This is evidenced in part by the travel patterns of the area's existing residents. Based on US Census data, **Table 12** summarizes the transportation mode split for employed residents' journey to work, and **Table 13** summarizes vehicle ownership per household for the census tracts in the project vicinity.

Almost half of the households in the area do not own a vehicle and only 32 percent report driving alone to work. Overall, the greatest proportion of residents, approximately 36 percent, used public transportation to travel to work. The proportion of residents who walked to work was also relatively high, with 15 percent reporting walking to work.

TABLE 12: JOURNEY TO WORK FOR EMPLOYED RESIDENTS

Transportation Mode	Percent of Employed Residents in Surrounding Census Tracts
Drove alone	32%
Carpooled	8%
Public transportation (excluding taxicab)	36%
Bicycle	4%
Walked	15%
Taxicab, motorcycle, or other means	1%
Worked at home	4%
Total	100%

Source: U.S. Census Bureau, 2011-2015 American Community Survey 5-Year Estimates, Census Tracts 4013, 4027, 4028, 4029, 4030, and 4031

TABLE 13: VEHICLE OWNERSHIP PER HOUSEHOLD

Vehicle Ownership	Percent of Households in Surrounding Census Tracts
No vehicle available	48%
1 vehicle available	39%
2 vehicles available	10%
3 or more vehicles available	3%
Total	100%

Source: U.S. Census Bureau, 2011-2015 American Community Survey 5-Year Estimates, Census Tracts 4013, 4027, 4028, 4029, 4030, and 4031

INFRASTRUCTURE IMPROVEMENTS

This section addresses the following topics:

- Motor Vehicle Impacts
- Pedestrian Impacts
- Bicycle Impacts
- Bus Rider Impacts
- Commercial Loading Impacts
- Construction Impacts

The final detailed design for the project would be reviewed during the City's Design Review Process to ensure consistency with applicable design standards, such as adequate sight distance for pedestrians and vehicles at project driveways. The final design review process for the project would minimize potential conflicts between various modes and provide safe and efficient pedestrian, bicycle, and vehicle circulation within the project buildings and parking facilities and between the project and the surrounding circulation systems. The project would result in increased vehicular traffic and pedestrian and bicycle activity in and around the project area. In addition, the project proposes changes to the public right-of-way and changes to access and circulation for various travel modes. The project site would be completely demolished including all sidewalks around the site perimeter. The project elements, after construction, would include:

- Sidewalks on the project site would be replaced with new sidewalks that meet or exceed the PMP design guidance, including:
    - o 15- to 20-foot sidewalks on the Broadway frontage.

  - o 20-foot sidewalks on the 21st Street frontage
  - o 20-foot sidewalks on the Telegraph Avenue frontage.
  - o 10- to 22-foot sidewalks on the 22nd Street frontage
- Commercial truck loading for trucks on 22nd Street.
- Primary parking garage access would be on 21st Street and include two inbound and two outbound lanes. Secondary parking garage access would be on 22nd Street. All parking garage access would be controlled with gates.
- Open space would be provided on the Telegraph Avenue frontage and in the vicinity of the Broadway/21st Street intersection. Both open space areas would be located behind the back of sidewalk.

There are several additional infrastructure changes that would encourage bicycling, walking, and transit usage. These suggested changes are summarized below.

MOTOR VEHICLE IMPACTS

The project would locate the primary and secondary automobile access to its parking garage on 21st Street (one-way eastbound) and 22nd Street (one-way westbound), respectively. By removing the two existing driveways from Telegraph Avenue, the project enhances the Class 4 Protected Bicycle Lane operations.

All motorists destined to the primary parking garage on 21st Street would need to use Telegraph Avenue, traveling through the unsignalized 21st Street intersection. With its Class 4 Protected Bicycle Lane, Telegraph Avenue is also anticipated to be the primary route for bicyclists riding to the project site, and those riders would also travel through the same unsignalized intersection. The intersection traffic controls and side-street stop signs are inadequate to accommodate the increased motorist and bicyclist activity, and the increased motor vehicle and bicycle volumes warrant signalizing the 21st Street intersection with Telegraph Avenue.

All project traffic destined to the parking garage entrance on 21st Street must turn left or right onto 21st Street from Telegraph Avenue because 21st Street is one-way eastbound. The turning movements would overload the available intersection turning capacity and block both motor vehicle and bicycle movements on Telegraph Avenue, unless access to the primary parking is distributed to both Telegraph Avenue and Broadway. In addition, 21st Street is occasionally closed to automobile traffic between Telegraph Avenue and Broadway to either stage special event loading at the Paramount Theater or allow special event activities to occur on the street, and these closures will restrict access to the project’s primary parking under existing traffic patterns.

The following recommendation would improve access for motorists as well as bicyclists.

Recommendation TRANS-1: While not required to address a CEQA impact, as part of the project, consider installing a traffic signal at the Telegraph Avenue/21st Street intersection.

- Provide marked crosswalks on all approaches with directional curb ramps and ADA-compliant pedestrian push buttons.
- Provide two-stage left-turn bike box for southbound and northbound Telegraph Avenue.
- Provide left-turn traffic signal phasing for Telegraph Avenue left turns.

The environmental consequences of Recommendation TRANS-1 have been considered. The recommended traffic signal at the Telegraph Avenue/21st Street can be accommodated within the existing right-of-way. Implementation of Recommendation TRANS-1 would not result in any significant CEQA impacts.

Recommendation TRANS-2: While not required to address a CEQA impact, as part of the project, consider converting 21st Street to a two-way street between San Pablo Avenue and Broadway.

- Provide a single lane in each direction while maintaining on-street meter parking. The two-way configuration to San Pablo Avenue provides a consistent design along the entire corridor between Harrison Street and San Pablo Avenue and sets driver expectations minimizing wrong-way driving where 21st Street now transitions from one-way to two-way configurations.
- Provide at least 20 feet of red curb on either side of the project driveway on 21st Street.
- Provide right-turn only movements to/from the 21st Street intersection with San Pablo Avenue with appropriate left-turn prohibition signs in the median, and provide a stop sign on 21st Street at San Pablo Avenue.
- Implement Recommendation TRANS-1.
- Modify all street regulatory and guide signs for two-way street operation.

The environmental consequences of Recommendation TRANS-2 have been considered. The recommended two-way street operation can be accommodated within the existing right-of-way, and would not induce additional traffic. Implementation of Recommendation TRANS-2 would not result in any significant CEQA impacts.

Recommendation TRANS-3: While not required to address a CEQA impact, as part of the project, maintain two-way traffic on 21st Street between Telegraph Avenue and Broadway at all times. Require the project applicant to work with the Paramount Theater to develop a special event operational plan establishing procedures for the theater to continue using 21st Street for special event loading on one side of the street while maintaining two-way motor vehicle travel to and from Broadway.

The environmental consequences of Recommendation TRANS-3 have been evaluated. While there will be a change in theater operations, implementation of Recommendation TRANS-3 would not result in any significant CEQA impacts.

PEDESTRIAN IMPACTS

Table 7 shows that the project would generate up to 3,010 daily pedestrian trips (355 during the PM peak hour) and 3,980 pedestrian trips (470 during the PM peak hour) that would walk between the project site and nearby transit stops. The project would reconstruct the sidewalks around the perimeter of the project site. The new sidewalks would all meet or exceed the design guidance in City of Oakland's PMP. The sidewalks would all provide at least 8-foot-wide through pedestrian zones (i.e., the paved part of the sidewalk usable by pedestrians).

The project would enhance pedestrian safety on Telegraph Avenue, a primary pedestrian street in Downtown, by removing all Telegraph Avenue driveways. The project would also reconfigure the 22nd Street approach to Telegraph Avenue, reducing the pedestrian crossing width from about 80 feet to 32 feet, a substantial benefit to pedestrians walking along Telegraph Avenue.

Project features may increase pedestrian and bicycle activities on 22nd Street near Valley Street and along the Valley Street corridor north across West Grand Avenue, which is an unsignalized intersection with high visibility crosswalks. Under current conditions, West Grand Avenue at Valley Street serves about 1,600 vehicles and 75 bicyclists during the PM peak hour and about 60 pedestrians cross West Grand Avenue at Valley Street during the same hour. Project features could add up to 40 more pedestrians crossing West Grand Avenue during the PM peak hour and add about 20 bicyclists turning to and from Valley Street.

According to the National Cooperative Research Program (NCHRP) Synthesis 498 rectangular Rapid Flashing Beacons (RRFBs) lose effectiveness as hourly traffic volumes exceed 1,500 vehicles and therefore this option was discarded as a potential enhancement. A Pedestrian Hybrid Beacon (PHB) would be an appropriate enhancement given the vehicle and pedestrian volume conditions, and California's Manual on Uniform Traffic Control Devices (MUTCD) regards this condition as an instance where a red signal-type device is appropriate. While PHB installations provide the red signal-type device, it is not recommended for Valley Street because a) PHBs typically only have one crosswalk, whereas Valley Street has two crosswalks; b) a substantial number of bicyclists would turn to / from Valley Street further complicating PHB operations; and c) adjacent signalized intersections are about 340 feet from Valley Street (as measured from intersection center-lines) and a PHB would be more difficult to optimize vehicle flows through signal progression.

A traffic signal installation at Valley Street would accommodate pedestrian and bicycle movements while maintaining both crosswalks, and provide a red signal-type device consistent with MUTCD intent. In addition, the number of pedestrians (up to 100 during the PM peak hour) crossing West Grand Avenue at Valley Street after the project is completed would exceed the minimum threshold for signalization per MUTCD, Warrant 4, Pedestrian Volume.

The 22nd Street corridor is expected to be a low vehicle volume street, primarily providing vehicle access to the project's commercial loading area and parking. These users, automobile and truck drivers as well as bicyclists and pedestrians, converge at the Valley Street intersection with 22nd Street.

The total sidewalk width at the parking garage driveways on 21st and 22nd Streets would be about 20 feet. The driveway and sidewalk design shown would provide adequate sight lines between motorists exiting the garage and pedestrians only if pedestrians walked at least 10 feet away from the face of the building where cars cross sidewalks.

The following recommendation would improve access for pedestrians.

Recommendation TRANS-4: While not required to address a CEQA impact, as part of the project, consider installing high-visibility crosswalks crossing 22nd Street at Valley Street.

- Provide high visibility crosswalks on both sides of Valley Street with directional curb ramps.
- Provide red curb for 20 feet on either side of each crosswalk.

The environmental consequences of Recommendation TRANS-4 have been considered, and would not result in any significant CEQA impacts.

Recommendation TRANS-5: While not required to address a CEQA impact, as part of the project, consider installing a traffic signal at the West Grand Avenue/Valley Street intersection.

- Prior to installing a traffic signal conduct an engineering study that includes the full set of warrants for signalization, and use this engineering study as the basis for designing the traffic signal.

- Incorporate the traffic signal into the existing intersection, provide ADA accessible directional ramps, and include two stage left-turn bike boxes for bicyclists turning onto Valley Street if bike lanes are installed on West Grand Avenue.
- Provide red curb for 20 feet on either side of each crosswalk.

The environmental consequences of Recommendation TRANS-5 have been considered. The recommended traffic signal can be accommodated within the existing right-of-way, and would not result in any significant CEQA impacts.

Recommendation TRANS-6: While not required to address a CEQA impact, as part of the project, consider installing pedestrian features to enhance safety at the garage and commercial loading driveways.

- Use street furniture, landscaping, and other features to establish desire lines for pedestrian such that pedestrians cross the parking garage and commercial loading dock driveways at least 10 feet from the building façade at the driveway.

The environmental consequences of Recommendation TRANS-6 have been evaluated. The recommended features can be accommodated within the proposed sidewalk width, potentially requiring some minor landscape modifications at the parking garage exits. Implementation of Recommendation TRANS-6 would not result in any significant CEQA impacts.

BICYCLE IMPACTS

Table 7 shows that the project would generate almost 510 daily bicycle trips, 60 of the project's bicycle trips would occur during the PM peak hour. As mentioned previously, the project would eliminate all driveways along the project's Telegraph Avenue frontage and this benefits bicyclists riding through the area on the Telegraph Avenue Class 4 Protected Bicycle Lanes.

The project site plan identifies secure bicycle parking adjacent to the truck delivery area on 22nd Street. Access to the bike parking would be through a service door on 22nd Street or through the office lobbies via the commercial loading docks. The site plan does not identify the amount or type (short-term or long-term) of bicycle parking. Nor does the site plan identify convenient short term parking adjacent to building entrances such as bike racks adjacent to plaza space or on-street bike corrals. The project would need to provide bike parking consistent with Municipal Code Section 17.117.090, .100, and .110.

After completion of the project, the majority of bicyclists would access the project site via the Telegraph Avenue corridor which has Class 4 Protected Bicycle Lanes. These riders would be expected to access the site via 21st Street and then navigate through the office lobbies, walking their bikes, to access the bicycle parking behind the commercial loading docks on 22nd Street. This circuitous route to access bike parking may result in wrong-way riding on 22nd Street which is one-way westbound. Or, riders may choose to use less comfortable bicycle routes to access the project site via West Grand Avenue, using Valley Street, or via Broadway, using 22nd Street, and riding through the commercial loading area to access the secure bike parking behind it.

Bike lanes were considered and discarded for 21st Street and 22nd Street. After completion of the project and with Recommendation TRANS-2, these streets would operate with speeds at about 25 mph and single vehicle lane on 22nd Street and a vehicle lane each way on 21st Street, reflecting a Level of Traffic Stress (LTS) of 2. Both streets would be used for on-street commercial loading, Paramount Theater would use 21st Street and the project would use 22nd Street. On-street loading activities would frequently block bike lanes resulting in a LTS of 3.

There is a gap in the bike lane network on West Grand Avenue/Grand Avenue between Telegraph Avenue and Webster. The project would not preclude the installation of bike lanes by others.

Providing bike lanes on West Grand Avenue between Telegraph Avenue and Broadway would remove 30 parking spaces, one commercial loading zone, and one bike parking corral. Adding bike lanes on this segment of West Grand Avenue would increase the demand for bicyclists to use West Grand Avenue via Valley Street to access the project site and the secure bike parking facilities adjacent to the loading docks on 22nd Street. The increased turning activities to/from Valley Street at West Grand Avenue would necessitate a traffic signal with two stage left turn boxes (See Recommendation TRANS-5) if bike lanes are installed on West Broadway at Valley Street.

There is also a gap in the Grand Avenue bike lanes east of Broadway to Webster Street. Providing bike lanes on Grand Avenue east of Broadway would require removal of 13 parking spaces, 2 commercial loading zones, 1 parklet, and 1 bus stop.

The following recommendation would improve access, comfort, and safety for bicyclists.

Recommendation TRANS-7: While not required to address a CEQA impact, as part of the project, consider installing secure bicycle parking easily accessible from 21st Street, and short-term bicycle parking conveniently located throughout the site in the vicinity of building entrances, and conveniently located in on-street bike corrals.

The environmental consequences of Recommendation TRANS-7 have been considered. The recommended features can be accommodated within the project site. Implementation of Recommendation TRANS-7 would not result in any significant CEQA impacts.

Recommendation TRANS-8: While not required to address a CEQA impact, as part of the project, consider installing Class IV Bike Lanes on West Grand Avenue between Telegraph Avenue and Broadway, and install a traffic signal with two stage left-turn boxes (if bike lanes are provided) to facilitate bike access to/from Valley Street (see Recommendation TRANS-5).

- Replace the 8-foot-wide on-street parking with 6-foot bike lanes with a 2-foot striped buffer between Telegraph Avenue and Broadway.
- Remove 30 on-street meter parking spaces. The change in parking would remove 3.7 percent of the parking meters within ¼-mile of the project, increasing on-street parking occupancy from 89 percent to 91 percent during the midday and from 91 to 93 percent during the weekday evening, exceeding optimal parking occupancy which is 85 percent.
- One commercial loading zone would be in conflict with the eastbound bike lane. The loading zone is used by an adjacent restaurant and there are no other loading alternatives.
- Relocate one bike parking corral from West Grand Avenue to Broadway, incorporating it into the bus island design (Recommendation TRANS-9) for Broadway bus stops at 22nd Street.
- Implement Recommendation TRANS-5.

The environmental consequences of Recommendation TRANS-8 have been considered, and would not result in any significant CEQA impacts.

BUS RIDER IMPACTS

Bus riders would use pedestrian facilities to travel between the bus stops and the project site. The nearest bus stops to the project site are on Broadway at 22nd Street and all buses can be accessed by walking one block from the project site to the Uptown Transit Center. Bus shelters are not provided at the bus stops located near 22nd Street. The Broadway and Telegraph Avenue sidewalks between the project site and the Uptown Transit Center meet or exceed the design guidance in City of Oakland's PMP, providing at least 8-foot-wide through pedestrian zones (i.e., the paved part of the sidewalk usable by pedestrians). With the installation of a traffic signal at the Telegraph Avenue intersection with 21st Street (Recommendation TRANS-1) pedestrians would have signal controlled crossings, with crosswalks and pedestrian signal heads, between the site and the Uptown Transit Center.

Recommendation TRANS-9: While not required to address a CEQA impact, as part of the project, consider installing bus shelters along with bus islands at the Broadway bus stops at 22nd Street to facilitate passenger loading. To further improve bus rider comfort and bus speeds consider installing additional bus boarding islands along Telegraph Avenue (4 total) and Broadway (4 total) between 20th and 27th Streets to off-set the project's impact on transit speeds.

The environmental consequences of Recommendation TRANS-9 have been considered, and would not result in any significant CEQA impacts.

Recommendation TRANS-10: While not required to address a CEQA impact, as part of the project, consider installing real-time transit information displays in the buildings to inform transit riders when the next BART train or transit bus at the Uptown Transit Center will arrive.

The environmental consequences of Recommendation TRANS-10 have been considered, and would not result in any significant CEQA impacts.

COMMERCIAL LOADING IMPACTS

After completion of the project, 22nd Street will become the primary commercial delivery corridor for the project site. 22nd Street is currently the primary commercial delivery corridor to the existing building across the street from the project site. 22nd Street is one-way westbound, and between 26 and 32 feet wide, accommodating on-street parking along the project's frontage, except west of Valley Street where parking is on both sides of the street. All delivery vehicles would access the project site via Broadway, and with on-street parking removal, tractor-trailer trucks can negotiate the right turn from Broadway onto 22nd Street and back into the commercial loading docks as long as the commercial loading docks are angled to facilitate backing maneuvers into the dock space.

The following recommendation would improve access, comfort, and safety for commercial loading.

Recommendation TRANS-11: While not required to address a CEQA impact, as part of the project, consider prohibiting all on-street parking (about 24 spaces) on 22nd Street between Broadway and Telegraph Avenue, and provide a 100-foot loading zone for the existing office building on the north side of the street.

- Angle loading docks to the street such that tractor-trailer trucks can back into each loading dock space while minimizing multiple backing maneuvers.
- Provide loading dock access so docks are accessible even if adjacent docks are occupied.

The environmental consequences of Recommendation TRANS-11 have been considered, and would not result in any significant CEQA impacts.

CONSTRUCTION IMPACTS

During the construction period for the project, temporary and intermittent transportation impacts may result from truck movements as well as construction worker vehicles to and from the project site. The construction-related traffic may temporary reduce capacities of roadways in the project vicinity because of the slower movements and larger turning radii of construction trucks compared to passenger vehicles.

Considering the proximity of freeway ramps on 17th and 18th Streets to I-980, as well as the freeway ramps at 27th Street to I-80/I-580 and SR 24, it is expected that construction trucks on local roadways would be limited to 17th Street, 18th/19th Street, Telegraph Avenue, West Grand Avenue, and Northgate Avenue. Truck traffic that occurs during the peak commute hours (7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.) may result in worse operations and higher delays at intersections during the construction period, both of which are non-CEQA issues.

Parking for construction workers' vehicles would need to be accommodated while maintaining adequate parking supply for downtown workers. Since nearby parking facilities operate at or near capacity on typical weekdays, it is expected that parking for most construction workers would exacerbate parking conditions. If parking cannot be accommodated within the project site, it would temporarily increase parking occupancy levels in the area.

Potential construction activity along the Telegraph Avenue and Broadway frontages, especially in the public right-of-way, could result in temporary closure of sidewalks, prohibition of on-street parking, impede bicycle operations in the Class 4 Protected bicycle Lanes, and/or may impact the operations of AC Transit buses along Broadway and Telegraph Avenue.

The City of Oakland SCA-TRANS-1: Construction Activities in the Public Right-Of-Way (#68), as listed above, requires that a Traffic Control Plan be developed as part of a larger Construction Management Plan to address potentially significant impacts during the project's construction.

The following recommendation would improve access, comfort, and safety during construction.

Recommendation TRANS-12: While not required to address a CEQA impact, as part of the project, consider further enhancements to SCA-UTL-2, Construction Management Plan (#13).

- Incorporate Supplemental Design Guidance: Accommodating Pedestrians, Bicyclists, And Bus Facilities In Construction Zones into a set of comprehensive traffic control measures for motor vehicles, transit, bicycle, and pedestrian access and circulation during each phase of construction.
- A construction period parking management plan to ensure that parking demands for construction workers and downtown businesses are accommodated during each phase of construction.
- A set of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak traffic hours, detour signs if required, lane closure procedures, signs, cones for drivers, and designated construction access routes.
- Limit construction truck traffic to the following corridors: 17th Street, 18th/19th Street, Telegraph Avenue, West Grand Avenue, and Northgate Avenue as part of the contract for project construction.
- Notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur.
- Location of construction staging areas for materials, equipment, and vehicles at an approved location.
- A process for responding to, and tracking, complaints pertaining to construction activity, including identification of an onsite complaint manager. The manager shall determine the cause of the complaints and shall take prompt action to correct the problem. Planning and Zoning shall be informed who the Manager is prior to the issuance of the first permit issued by Building Services.
- Any damage to the street caused by heavy equipment, or as a result of this construction, shall be repaired, at the project applicant's expense, within one week of the occurrence of the damage (or excessive wear), unless further damage/excessive wear may continue; in such case, repair shall occur prior to issuance of a final inspection of the building permit. All damage that is a threat to public health or safety shall be repaired immediately. The street shall be restored to its condition prior to the new construction as established by the City Building Inspector and/or photo documentation, at the project sponsor's expense, before the issuance of a Certificate of Occupancy.
- Any heavy equipment brought to the construction site shall be transported by truck, where feasible.
- No materials or equipment shall be stored on the traveled roadway at any time.
- Prior to construction, a portable toilet facility and a debris box shall be installed on the site, and properly maintained through project completion.
- All equipment shall be equipped with mufflers.

- Prior to the end of each work day during construction, the contractor or contractors shall pick up and properly dispose of all litter resulting from or related to the project, whether located on the property, within the public rights-of-way, or properties of adjacent or nearby neighbors.

The environmental consequences of Recommendation TRANS-12 have been considered. The project would not result in any substantial adverse effect on the circulation system during construction of the project. Implementation of Recommendation TRANS-12 would not result in any significant CEQA impacts.

CMP AND MTS ROADWAY SEGMENTS

Alameda CTC conducts periodic monitoring of the major roadways on the Congestion Management Program (CMP) and Metropolitan Transportation System (MTS) in Alameda County. The most recent Level of Service Monitoring on the Congestion Management Program Roadway Network was released in November 2016. The ACTC monitoring report assesses existing freeway operations through commercial speed data or "floating car" travel time surveys, which are conducted on all freeway segments and major arterials during the evening peak hours (4:00 PM to 6:00 PM). Based on the results of these surveys, ACTC assigns a LOS grade to each segment according to the method described in the 1985 HCM with the exception that Tier 2 arterial segments which are reported using HCM 2000. Any freeway segment with an average speed less than 30 miles per hour is assigned LOS F. Freeway ramps and special freeway segments with speeds below 50% of free flow speed are assigned LOS F. The travel time surveys concluded that 40 freeway segments, five freeway ramps and special freeway segments, and 16 arterial segments within Alameda County operate at LOS F during the PM peak hours, including the following 14 freeway segments and six freeway ramp and special freeway segments in the project vicinity:

- Freeway Segments
  - I-80 eastbound: Toll Plaza to I-580 (grandfathered)[1]
  - I-580 eastbound: I-80 to I-980 (grandfathered segment)
  - I-580 eastbound: I-980 to Harrison Street

[1] Grandfathered segments operated at LOS F during the initial ACTC data collection effort in 1991, and are therefore "grandfathered," meaning that they are exempt from LOS standards. The other segments are not exempt meaning that they operate at unacceptable conditions based on ACTC standards. ACTC requires preparation of a deficiency plan for non-grandfathered segments that fail to meet the established standards.

    - I-580 eastbound: Harrison Street to Lakeshore Avenue
    - I-580 eastbound: Coolidge Avenue to SR 13
    - I-580 westbound: SR 24 to I-80/580 Split (grandfathered segment)
    - I-880 northbound: between I-80 Ramps
    - I-880 southbound: between I-80 merge to Jct. 980
    - I-880 southbound: between I-980 to 23rd Avenue
    - SR 13 northbound: Moraga Avenue to Hiller Drive
    - SR 13 southbound: Redwood Road to I 580
    - SR 24 eastbound: I-580 to Broadway/SR 13 (grandfathered segment)
    - SR 24 eastbound: Broadway/SR 13 to Caldecott Tunnel (grandfathered segment)
    - SR 24 eastbound: Caldecott Tunnel to Fish Ranch Road (grandfathered segment)
- Freeway Ramps
    - I-80/I 580 Interchange: I-580 westbound to I-80 northbound
    - I-580/SR 24 Interchange: I-580 westbound to SR 24 eastbound
    - I-580/SR 24 Interchange: SR 24 westbound to I-580 eastbound
    - SR 13/SR 24 Interchange: SR 13 northbound to SR 24 eastbound (grandfathered segment)
    - I-880/SR 260 Connection: SR 260 eastbound to I 880 northbound
    - I-880 northbound off-ramp to 5th Street/Broadway intersection

In addition, the travel time surveys concluded that 28 freeway segments, three freeway ramps and special freeway segments, and six arterial segments within Alameda County operate at LOS F during the AM peak hours, including the following eight freeway segments and one freeway ramp in the project vicinity:

- Freeway Segments
    - I-80 westbound: I 580 to Toll Plaza
    - I-80 westbound: Toll Plaza to San Francisco County
    - I-580 westbound: Foothill Boulevard to MacArthur Blvd/SR 13
    - I-580 westbound: SR 13 to Fruitvale Avenue
    - I-580 westbound: SR 24 to I 880/580
    - I-880 northbound: SR 112 to Hegenberger Road

  - o I-880 northbound: Hegenberger Road to High Street/42nd Avenue
  - o I-880 northbound: High Street/42nd Avenue to 23rd Avenue
- Freeway Ramps
  - o I-880/SR 260 Connection: SR 260 eastbound to I 880 northbound

Based on the LOS Monitoring Report, all non-freeway CMP and MTS roadway segments in the project vicinity operate at LOS E or better during both AM and PM peak hours.

CONGESTION MANAGEMENT PROGRAM (CMP) ANALYSIS

Since the proposed Plan, as defined in the Project description, will generate more than 100 peak-hour trips, assessment of the impacts of the Project on the regional transportation system requires the use of the Alameda County Transportation Commission (Alameda CTC) Countywide Travel Demand Model for year 2020 and 2040 conditions. The impact analysis for roadways includes MTS[1] roadways and CMP-designated roadways, plus several local MTS streets in the vicinity of the Project. The scope of the MTS and CMP facility analysis conforms with the guidelines in the 2015 Alameda County Congestion Management Program. The year 2020 and 2040 traffic forecasts are derived from the version of the countywide model that was current at the time the Notice of Preparation (NOP) was issued December 2016.

The Alameda CTC Model used in this study is a regional travel demand model that uses socio-economic data and roadway and transit network assumptions to forecast traffic volumes and transit ridership using a four-step modeling process that includes trip generation, trip distribution, mode split, and trip assignment. This process accounts for changes in travel patterns due to future growth and balances trip productions and attractions. This version of the Countywide Model is based on Association of Bay Area Governments (ABAG) Projections 2013 land uses for 2020 and 2040. For the purposes of this CMP and MTS Analysis, the proposed 2100 Telegraph Avenue project is assumed not to be included in the Alameda CTC Model to present a more conservative analysis. The traffic forecasts for the 2020 and 2040 scenarios were extracted from the ACTC Model for the CMP and MTS roadway segments from that model and used as the "No Project" forecasts. Vehicle trips generated by the project were added to the "No Project" forecasts to estimate the "Plus Project" forecasts.

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[1] The Metropolitan Transportation System (MTS) is a network of highways (including highways identified as CMP facilities) and roadways that are part of a regional transit system.

The CMP and MTS segments were assessed using a v/c ratio methodology. For freeway segments, a per-lane capacity of 2,000 vehicles per hour (vph) was used, consistent with the latest CMP documents. For surface streets, a per-lane capacity of 800 vph was used. Roadway segments with a v/c ratio greater than 1.00 signify LOS F.

The "Plus Project" results were compared to the baseline results for the 2020 and 2040 horizon years. **Attachment D** provides the 2020 and 2040 peak hour volumes, v/c ratios and the corresponding levels of service for No Project and Plus Project conditions.

The project would contribute to 2020 and 2040 increases in traffic congestion on MTS roadways. However, the 2100 Telegraph Avenue project would not cause a roadway segment on the MTS to degrade from LOS E or better to LOS F. The project also would not increase the v/c ratio by more than 3 percent for roadway segments that would operate at LOS F without the project. The proposed project would not have a noticeable effect at the study roadways under Existing Plus Project conditions.

ATTACHMENTS

Attachment A – AM and PM Peak Hour Multimodal Intersection Volumes and Geometries

Attachment B – Intersection Level of Service Calculations

Attachment C – TCQSM Model Inputs and Data Sources

Attachment D – CMP Volumes, V/C Ratios, and LOS

Attachment A

Traffic Count Data Worksheets, Multimodal Intersection Volumes and Geometries

FEHR PEERS

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7388-001 Northgate Ave/SR 24 Off Ramp & 27th St
Date : 5/26/2016

Unshifted Count = All Vehicles & Uturns

	Northgate Ave/SR 24 Off Ramp					27th St					Northgate Ave/SR 24 Off Ramp					27th St						
	Southbound					Westbound					Northbound					Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	100	178	45	0	323	3	10	0	0	13	0	0	0	0	0	0	21	3	0	24	360	0
7:15	82	187	64	0	333	2	13	0	0	15	0	0	0	0	0	0	28	3	0	31	379	0
7:30	123	209	69	0	401	1	21	0	1	23	0	0	0	0	0	0	54	2	0	56	480	1
7:45	122	221	86	0	429	1	25	0	1	27	0	0	0	0	0	0	54	3	0	57	513	1
Total	427	795	264	0	1486	7	69	0	2	78	0	0	0	0	0	0	157	11	0	168	1732	2
8:00	158	252	77	0	487	0	38	0	2	40	0	0	0	0	0	0	64	3	0	67	594	2
8:15	175	243	104	0	522	3	33	0	1	37	0	0	0	0	0	0	54	7	0	61	620	1
8:30	143	257	87	0	487	2	36	0	3	41	0	0	0	0	0	0	56	2	0	58	586	3
8:45	166	268	95	0	529	2	36	0	0	38	0	0	0	0	0	0	52	4	0	56	623	0
Total	642	1020	363	0	2025	7	143	0	6	156	0	0	0	0	0	0	226	16	0	242	2423	6
16:00	81	92	48	0	221	4	56	0	2	62	0	0	0	0	0	0	103	4	0	107	390	2
16:15	95	86	48	0	229	10	52	0	0	62	0	0	0	0	0	0	75	6	0	81	372	0
16:30	78	84	65	0	227	2	53	0	3	58	0	0	0	0	0	0	100	12	0	112	397	3
16:45	107	99	58	0	264	5	42	0	2	49	0	0	0	0	0	0	94	6	0	100	413	2
Total	361	361	219	0	941	21	203	0	7	231	0	0	0	0	0	0	372	28	0	400	1572	7
17:00	106	86	55	0	247	6	54	0	2	62	0	0	0	0	0	0	116	5	0	121	430	2
17:15	151	109	67	0	327	2	74	0	0	76	0	0	0	0	0	0	108	10	0	118	521	0
17:30	148	116	78	0	342	5	71	0	2	78	0	0	0	0	0	0	123	13	0	136	556	2
17:45	142	119	61	0	322	4	59	0	3	66	0	0	0	0	0	0	110	10	0	120	508	3
Total	547	430	261	0	1238	17	258	0	7	282	0	0	0	0	0	0	457	38	0	495	2015	7
Grand Total	1977	2606	1107	0	5690	52	673	0	22	747	0	0	0	0	0	0	1212	93	0	1305	7742	22
Apprch %	34.7%	45.8%	19.5%	0.0%		7.0%	90.1%	0.0%	2.9%		0.0%	0.0%	0.0%	0.0%		0.0%	92.9%	7.1%	0.0%			
Total %	25.5%	33.7%	14.3%	0.0%	73.5%	0.7%	8.7%	0.0%	0.3%	9.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	15.7%	1.2%	0.0%	16.9%	100.0%	

AM PEAK HOUR	Northgate Ave/SR 24 Off Ramp					27th St					Northgate Ave/SR 24 Off Ramp					27th St					
	Southbound					Westbound					Northbound					Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	158	252	77	0	487	0	38	0	2	40	0	0	0	0	0	0	64	3	0	67	594
8:15	175	243	104	0	522	3	33	0	1	37	0	0	0	0	0	0	54	7	0	61	620
8:30	143	257	87	0	487	2	36	0	3	41	0	0	0	0	0	0	56	2	0	58	586
8:45	166	268	95	0	529	2	36	0	0	38	0	0	0	0	0	0	52	4	0	56	623
Total Volume	642	1020	363	0	2025	7	143	0	6	156	0	0	0	0	0	0	226	16	0	242	2423
% App Total	31.7%	50.4%	17.9%	0.0%		4.5%	91.7%	0.0%	3.8%		0.0%	0.0%	0.0%	0.0%		0.0%	93.4%	6.6%	0.0%		
PHF	.917	.951	.873	.000	.957	.583	.941	.000	.500	.951	.000	.000	.000	.000	.000	.000	.883	.571	.000	.903	.972

PM PEAK HOUR	Northgate Ave/SR 24 Off Ramp					27th St					Northgate Ave/SR 24 Off Ramp					27th St					
	Southbound					Westbound					Northbound					Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	106	86	55	0	247	6	54	0	2	62	0	0	0	0	0	0	116	5	0	121	430
17:15	151	109	67	0	327	2	74	0	0	76	0	0	0	0	0	0	108	10	0	118	521
17:30	148	116	78	0	342	5	71	0	2	78	0	0	0	0	0	0	123	13	0	136	556
17:45	142	119	61	0	322	4	59	0	3	66	0	0	0	0	0	0	110	10	0	120	508
Total Volume	547	430	261	0	1238	17	258	0	7	282	0	0	0	0	0	0	457	38	0	495	2015
% App Total	44.2%	34.7%	21.1%	0.0%		6.0%	91.5%	0.0%	2.5%		0.0%	0.0%	0.0%	0.0%		0.0%	92.3%	7.7%	0.0%		
PHF	.906	.903	.837	.000	.905	.708	.872	.000	.583	.904	.000	.000	.000	.000	.000	.000	.929	.731	.000	.910	.906

ALL TRAFFIC DATA

(916) 771-8700
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City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

File Name : 16-7388-001 Northgate Ave/SR 24 Off Ramp & 27th St
Date : 5/26/2016

Bank 1 Count = Bikes & Peds

	Northgate Ave/SR 24 Off Ramp Southbound					27th St Westbound					Northgate Ave/SR 24 Off Ramp Northbound					27th St Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	1	0	0	1	0	0	1	0	0	0	1	0	0	2	0	0	2	3	2
7:15	0	0	0	2	0	0	1	0	0	1	0	0	0	2	0	0	5	0	0	5	6	4
7:30	0	0	0	1	0	0	6	0	0	6	0	0	0	4	0	0	2	0	0	2	8	5
7:45	0	0	0	6	0	0	4	0	0	4	0	0	0	2	0	0	4	0	0	4	8	8
Total	0	0	0	10	0	0	12	0	0	12	0	0	0	9	0	0	13	0	0	13	25	19
8:00	0	0	0	4	0	0	4	0	0	4	0	0	0	2	0	0	2	0	0	2	6	6
8:15	0	0	0	2	0	0	6	0	0	6	0	0	0	4	0	0	7	0	0	7	13	6
8:30	0	0	0	2	0	0	8	0	0	8	0	0	0	6	0	0	3	0	0	3	11	8
8:45	0	0	0	0	0	0	5	0	0	5	0	0	0	2	0	0	4	0	0	4	9	2
Total	0	0	0	8	0	0	23	0	0	23	0	0	0	14	0	0	16	0	0	16	39	22
16:00	0	0	0	3	0	0	4	0	0	4	0	0	0	1	0	0	0	0	0	0	4	4
16:15	0	0	0	1	0	0	6	0	0	6	0	0	0	2	0	0	4	0	0	4	10	3
16:30	0	0	0	0	0	0	7	0	0	7	0	0	0	1	0	0	6	0	0	6	13	1
16:45	0	0	0	3	0	0	6	0	0	6	0	0	0	4	0	0	6	0	0	6	12	7
Total	0	0	0	7	0	0	23	0	0	23	0	0	0	8	0	0	16	0	0	16	39	15
17:00	0	0	0	0	0	0	3	0	0	3	0	0	0	3	0	0	7	0	0	7	10	3
17:15	0	0	0	3	0	0	6	0	0	6	0	0	0	7	0	0	4	0	0	4	10	10
17:30	0	0	0	3	0	0	6	0	0	6	0	0	0	1	0	0	6	0	0	6	12	4
17:45	0	0	0	1	0	0	5	0	0	5	0	0	0	7	0	0	7	0	0	7	12	8
Total	0	0	0	7	0	0	20	0	0	20	0	0	0	18	0	0	24	0	0	24	44	25
Grand Total	0	0	0	32	0	0	78	0	0	78	0	0	0	49	0	0	69	0	0	69	147	81
Apprch %	0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%				
Total %	0.0%	0.0%	0.0%		0.0%	0.0%	53.1%	0.0%		53.1%	0.0%	0.0%	0.0%		0.0%	0.0%	46.9%	0.0%		46.9%	100.0%	

AM PEAK HOUR	Northgate Ave/SR 24 Off Ramp Southbound					27th St Westbound					Northgate Ave/SR 24 Off Ramp Northbound					27th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	0	0	4	0	0	4	0	0	4	0	0	0	2	0	0	2	0	0	2	6
8:15	0	0	0	2	0	0	6	0	0	6	0	0	0	4	0	0	7	0	0	7	13
8:30	0	0	0	2	0	0	8	0	0	8	0	0	0	6	0	0	3	0	0	3	11
8:45	0	0	0	0	0	0	5	0	0	5	0	0	0	2	0	0	4	0	0	4	9
Total Volume	0	0	0	8	0	0	23	0	0	23	0	0	0	14	0	0	16	0	0	16	39
% App Total	0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.000	.000	.000		.000	.000	.719	.000		.719	.000	.000	.000		.000	.000	.571	.000		.571	.750

PM PEAK HOUR	Northgate Ave/SR 24 Off Ramp Southbound					27th St Westbound					Northgate Ave/SR 24 Off Ramp Northbound					27th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	0	0	0	0	0	3	0	0	3	0	0	0	3	0	0	7	0	0	7	10
17:15	0	0	0	3	0	0	6	0	0	6	0	0	0	7	0	0	4	0	0	4	10
17:30	0	0	0	3	0	0	6	0	0	6	0	0	0	1	0	0	6	0	0	6	12
17:45	0	0	0	1	0	0	5	0	0	5	0	0	0	7	0	0	7	0	0	7	12
Total Volume	0	0	0	7	0	0	20	0	0	20	0	0	0	18	0	0	24	0	0	24	44
% App Total	0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.000	.000	.000		.000	.000	.833	.000		.833	.000	.000	.000		.000	.000	.857	.000		.857	.917

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

File Name : 16-7388-002 Northgate Ave/SR 24 On Ramp & 27th St
Date : 5/26/2016

Unshifted Count = All Vehicles & Uturns

	Northgate Ave/SR 24 On Ramp Southbound					27th St Westbound					Northgate Ave/SR 24 On Ramp Northbound					27th St Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	0	0	0	0	0	0	8	37	0	45	2	33	4	0	39	21	99	0	0	120	204	0
7:15	0	0	0	0	0	0	17	44	1	62	0	47	4	0	51	23	89	0	0	112	225	1
7:30	0	0	0	0	0	0	21	82	0	103	0	52	0	0	52	44	125	0	1	170	325	1
7:45	0	0	0	0	0	0	25	69	0	94	1	60	3	0	64	39	146	0	0	185	343	0
Total	0	0	0	0	0	0	71	232	1	304	3	192	11	0	206	127	459	0	1	587	1097	2
8:00	0	0	0	0	0	0	36	75	0	111	7	92	2	0	101	50	173	0	0	223	435	0
8:15	0	0	0	0	0	0	32	71	0	103	2	82	2	0	86	40	184	0	1	225	414	1
8:30	0	0	0	0	0	0	42	84	0	126	1	56	4	0	61	37	169	0	0	206	393	0
8:45	0	0	0	0	0	0	32	77	1	110	4	77	3	0	84	38	179	0	0	217	411	1
Total	0	0	0	0	0	0	142	307	1	450	14	307	11	0	332	165	705	0	1	871	1653	2
16:00	0	0	0	0	0	0	57	131	1	189	6	179	14	0	199	50	134	0	0	184	572	1
16:15	0	0	0	0	0	0	54	120	1	175	7	128	8	0	143	46	119	0	0	165	483	1
16:30	0	0	0	0	0	0	51	132	2	185	7	144	12	0	163	47	147	0	0	194	542	2
16:45	0	0	0	0	0	0	52	121	1	174	4	114	15	0	133	40	155	0	0	195	502	1
Total	0	0	0	0	0	0	214	504	5	723	24	565	49	0	638	183	555	0	0	738	2099	5
17:00	0	0	0	0	0	0	52	135	1	188	9	162	25	0	196	44	181	0	0	225	609	1
17:15	0	0	0	0	0	0	67	117	0	184	9	142	24	0	175	40	208	0	1	249	608	1
17:30	0	0	0	0	0	0	60	108	2	170	12	137	25	0	174	55	228	0	0	283	627	2
17:45	0	0	0	0	0	0	59	88	0	147	7	103	17	0	127	33	219	0	2	254	528	2
Total	0	0	0	0	0	0	238	448	3	689	37	544	91	0	672	172	836	0	3	1011	2372	6
Grand Total	0	0	0	0	0	0	665	1491	10	2166	78	1608	162	0	1848	647	2555	0	5	3207	7221	15
Apprch %	0.0%	0.0%	0.0%	0.0%		0.0%	30.7%	68.8%	0.5%		4.2%	87.0%	8.8%	0.0%		20.2%	79.7%	0.0%	0.2%			
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.2%	20.6%	0.1%	30.0%	1.1%	22.3%	2.2%	0.0%	25.6%	9.0%	35.4%	0.0%	0.1%	44.4%	100.0%	

AM PEAK HOUR	Northgate Ave/SR 24 On Ramp Southbound					27th St Westbound					Northgate Ave/SR 24 On Ramp Northbound					27th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	0	0	0	0	0	36	75	0	111	7	92	2	0	101	50	173	0	0	223	435
8:15	0	0	0	0	0	0	32	71	0	103	2	82	2	0	86	40	184	0	1	225	414
8:30	0	0	0	0	0	0	42	84	0	126	1	56	4	0	61	37	169	0	0	206	393
8:45	0	0	0	0	0	0	32	77	1	110	4	77	3	0	84	38	179	0	0	217	411
Total Volume	0	0	0	0	0	0	142	307	1	450	14	307	11	0	332	165	705	0	1	871	1653
% App Total	0.0%	0.0%	0.0%	0.0%		0.0%	31.6%	68.2%	0.2%		4.2%	92.5%	3.3%	0.0%		18.9%	80.9%	0.0%	0.1%		
PHF	.000	.000	.000	.000	.000	.000	.845	.914	.250	.893	.500	.834	.688	.000	.822	.825	.958	.000	.250	.968	.950

PM PEAK HOUR	Northgate Ave/SR 24 On Ramp Southbound					27th St Westbound					Northgate Ave/SR 24 On Ramp Northbound					27th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	0	0	0	0	0	52	135	1	188	9	162	25	0	196	44	181	0	0	225	609
17:15	0	0	0	0	0	0	67	117	0	184	9	142	24	0	175	40	208	0	1	249	608
17:30	0	0	0	0	0	0	60	108	2	170	12	137	25	0	174	55	228	0	0	283	627
17:45	0	0	0	0	0	0	59	88	0	147	7	103	17	0	127	33	219	0	2	254	528
Total Volume	0	0	0	0	0	0	238	448	3	689	37	544	91	0	672	172	836	0	3	1011	2372
% App Total	0.0%	0.0%	0.0%	0.0%		0.0%	34.5%	65.0%	0.4%		5.5%	81.0%	13.5%	0.0%		17.0%	82.7%	0.0%	0.3%		
PHF	.000	.000	.000	.000	.000	.000	.888	.830	.375	.916	.771	.840	.910	.000	.857	.782	.917	.000	.375	.893	.946

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7388-002 Northgate Ave/SR 24 On Ramp & 27th St
Date : 5/26/2016

Bank 1 Count = Bikes & Peds

	Northgate Ave/SR 24 On Ramp Southbound					27th St Westbound					Northgate Ave/SR 24 On Ramp Northbound					27th St Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	1	0	0	1	0	0	1	0	0	0	1	0	0	2	0	0	2	3	2
7:15	0	0	0	2	0	0	2	0	0	2	0	0	0	3	0	0	4	0	0	4	6	5
7:30	0	0	0	1	0	0	5	0	0	5	0	0	0	2	0	0	2	0	0	2	7	3
7:45	0	0	0	9	0	0	4	0	1	4	0	0	0	3	0	0	4	0	0	4	8	13
Total	0	0	0	13	0	0	12	0	1	12	0	0	0	9	0	0	12	0	0	12	24	23
8:00	0	0	0	3	0	0	5	0	1	5	0	0	0	7	0	0	3	0	0	3	8	11
8:15	0	0	0	1	0	0	6	0	0	6	0	0	0	4	0	0	8	0	0	8	14	5
8:30	0	0	0	2	0	0	8	0	0	8	0	0	0	4	0	0	3	0	0	3	11	6
8:45	0	0	0	0	0	0	2	0	0	2	0	0	0	4	0	0	4	0	0	4	6	4
Total	0	0	0	6	0	0	21	0	1	21	0	0	0	19	0	0	18	0	0	18	39	26
16:00	0	0	0	2	0	0	4	0	0	4	0	0	0	2	0	0	0	0	0	0	4	4
16:15	0	0	0	1	0	0	6	0	0	6	0	0	0	2	0	0	5	0	0	5	11	3
16:30	0	0	0	1	0	0	6	0	0	6	0	0	0	0	0	0	6	0	0	6	12	1
16:45	0	0	0	3	0	0	5	0	2	5	0	0	0	3	0	0	4	0	1	4	9	9
Total	0	0	0	7	0	0	21	0	2	21	0	0	0	7	0	0	15	0	1	15	36	17
17:00	0	0	0	1	0	0	4	0	1	4	0	0	0	4	0	0	7	0	0	7	11	6
17:15	0	0	0	1	0	0	5	0	0	5	0	0	0	8	0	0	3	0	0	3	8	9
17:30	0	0	0	4	0	0	6	0	0	6	0	0	0	3	0	0	7	0	0	7	13	7
17:45	0	0	0	2	0	0	6	0	0	6	0	0	0	6	0	0	8	0	0	8	14	8
Total	0	0	0	8	0	0	21	0	1	21	0	0	0	21	0	0	25	0	0	25	46	30
Grand Total	0	0	0	34	0	0	75	0	5	75	0	0	0	56	0	0	70	0	1	70	145	96
Apprch %	0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%				
Total %	0.0%	0.0%	0.0%		0.0%	0.0%	51.7%	0.0%		51.7%	0.0%	0.0%	0.0%		0.0%	0.0%	48.3%	0.0%		48.3%	100.0%	

AM PEAK HOUR	Northgate Ave/SR 24 On Ramp Southbound					27th St Westbound					Northgate Ave/SR 24 On Ramp Northbound					27th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	0	0	3	0	0	5	0	1	5	0	0	0	7	0	0	3	0	0	3	8
8:15	0	0	0	1	0	0	6	0	0	6	0	0	0	4	0	0	8	0	0	8	14
8:30	0	0	0	2	0	0	8	0	0	8	0	0	0	4	0	0	3	0	0	3	11
8:45	0	0	0	0	0	0	2	0	0	2	0	0	0	4	0	0	4	0	0	4	6
Total Volume	0	0	0	6	0	0	21	0	1	21	0	0	0	19	0	0	18	0	0	18	39
% App Total	0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.000	.000	.000		.000	.000	.656	.000		.656	.000	.000	.000		.000	.000	.563	.000		.563	.696

PM PEAK HOUR	Northgate Ave/SR 24 On Ramp Southbound					27th St Westbound					Northgate Ave/SR 24 On Ramp Northbound					27th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	0	0	1	0	0	4	0	1	4	0	0	0	4	0	0	7	0	0	7	11
17:15	0	0	0	1	0	0	5	0	0	5	0	0	0	8	0	0	3	0	0	3	8
17:30	0	0	0	4	0	0	6	0	0	6	0	0	0	3	0	0	7	0	0	7	13
17:45	0	0	0	2	0	0	6	0	0	6	0	0	0	6	0	0	8	0	0	8	14
Total Volume	0	0	0	8	0	0	21	0	1	21	0	0	0	21	0	0	25	0	0	25	46
% App Total	0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.000	.000	.000		.000	.000	.875	.000		.875	.000	.000	.000		.000	.000	.781	.000		.781	.821

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7683-005 Telegraph Ave & 27th St
Date : 9/29/2016

Unshifted Count = All Vehicles & Uturns

	Telegraph Ave Southbound					27th St Westbound					Telegraph Ave Northbound					27th St Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:30	8	35	30	0	73	3	25	8	0	36	7	50	2	0	59	55	58	11	1	125	293	1
7:45	6	44	28	0	78	5	34	19	3	61	12	67	10	0	89	58	70	23	1	152	380	4
8:00	11	57	33	0	101	9	70	15	3	97	13	63	5	0	81	63	86	18	1	168	447	4
8:15	7	45	28	0	80	3	64	27	3	97	16	65	5	0	86	54	79	18	2	153	416	5
Total	32	181	119	0	332	20	193	69	9	291	48	245	22	0	315	230	293	70	5	598	1536	14
8:30	14	64	26	0	104	7	53	30	1	91	16	64	5	0	85	65	117	20	2	204	484	3
8:45	12	63	41	0	116	8	54	25	5	92	14	77	7	0	98	72	93	28	1	194	500	6
9:00	12	66	32	0	110	5	59	23	4	91	15	59	14	0	88	55	91	20	0	166	455	4
9:15	9	56	26	0	91	14	66	15	5	100	13	62	6	0	81	53	84	29	2	168	440	7
Total	47	249	125	0	421	34	232	93	15	374	58	262	32	0	352	245	385	97	5	732	1879	20
16:00	21	84	74	0	179	4	106	20	4	134	33	72	12	0	117	39	89	23	3	154	584	7
16:15	27	83	60	0	170	15	79	22	7	123	22	87	10	0	119	30	87	20	1	138	550	8
16:30	21	102	71	0	194	9	103	30	4	146	27	94	14	0	135	29	79	26	1	135	610	5
16:45	20	73	69	0	162	7	94	23	5	129	13	78	16	0	107	44	111	29	2	186	584	7
Total	89	342	274	0	705	35	382	95	20	532	95	331	52	0	478	142	366	98	7	613	2328	27
17:00	27	87	87	0	201	13	100	17	4	134	25	86	11	1	123	26	95	27	1	149	607	6
17:15	11	86	62	0	159	9	107	19	3	138	30	88	8	0	126	33	144	32	2	211	634	5
17:30	29	84	51	0	164	4	79	31	2	116	20	77	19	0	116	34	164	22	0	220	616	2
17:45	23	88	46	0	157	16	62	21	0	99	31	92	11	0	134	30	126	18	2	176	566	2
Total	90	345	246	0	681	42	348	88	9	487	106	343	49	1	499	123	529	99	5	756	2423	15
Grand Total	258	1117	764	0	2139	131	1155	345	53	1684	307	1181	155	1	1644	740	1573	364	22	2699	8166	76
Apprch %	12.1%	52.2%	35.7%	0.0%		7.8%	68.6%	20.5%	3.1%		18.7%	71.8%	9.4%	0.1%		27.4%	58.3%	13.5%	0.8%			
Total %	3.2%	13.7%	9.4%	0.0%	26.2%	1.6%	14.1%	4.2%	0.6%	20.6%	3.8%	14.5%	1.9%	0.0%	20.1%	9.1%	19.3%	4.5%	0.3%	33.1%	100.0%	

AM PEAK HOUR	Telegraph Ave Southbound					27th St Westbound					Telegraph Ave Northbound					27th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:30 to 09:30																					
Peak Hour For Entire Intersection Begins at 08:30																					
8:30	14	64	26	0	104	7	53	30	1	91	16	64	5	0	85	65	117	20	2	204	484
8:45	12	63	41	0	116	8	54	25	5	92	14	77	7	0	98	72	93	28	1	194	500
9:00	12	66	32	0	110	5	59	23	4	91	15	59	14	0	88	55	91	20	0	166	455
9:15	9	56	26	0	91	14	66	15	5	100	13	62	6	0	81	53	84	29	2	168	440
Total Volume	47	249	125	0	421	34	232	93	15	374	58	262	32	0	352	245	385	97	5	732	1879
% App Total	11.2%	59.1%	29.7%	0.0%		9.1%	62.0%	24.9%	4.0%		16.5%	74.4%	9.1%	0.0%		33.5%	52.6%	13.3%	0.7%		
PHF	.839	.943	.762	.000	.907	.607	.879	.775	.750	.935	.906	.851	.571	.000	.898	.851	.823	.836	.625	.897	.940

PM PEAK HOUR	Telegraph Ave Southbound					27th St Westbound					Telegraph Ave Northbound					27th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	20	73	69	0	162	7	94	23	5	129	13	78	16	0	107	44	111	29	2	186	584
17:00	27	87	87	0	201	13	100	17	4	134	25	86	11	1	123	26	95	27	1	149	607
17:15	11	86	62	0	159	9	107	19	3	138	30	88	8	0	126	33	144	32	2	211	634
17:30	29	84	51	0	164	4	79	31	2	116	20	77	19	0	116	34	164	22	0	220	616
Total Volume	87	330	269	0	686	33	380	90	14	517	88	329	54	1	472	137	514	110	5	766	2441
% App Total	12.7%	48.1%	39.2%	0.0%		6.4%	73.5%	17.4%	2.7%		18.6%	69.7%	11.4%	0.2%		17.9%	67.1%	14.4%	0.7%		
PHF	.750	.948	.773	.000	.853	.635	.888	.726	.700	.937	.733	.935	.711	.250	.937	.778	.784	.859	.625	.870	.963

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7683-005 Telegraph Ave & 27th St
Date : 9/29/2016

Bank 1 Count = Bikes & Peds

	Telegraph Ave Southbound					27th St Westbound					Telegraph Ave Northbound					27th St Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:30	0	13	0	1	13	0	6	4	9	10	0	1	0	2	1	0	0	1	1	1	25	13
7:45	1	14	0	6	15	0	5	3	1	8	1	3	1	3	5	1	1	0	10	2	30	20
8:00	0	14	0	5	14	2	4	2	7	8	0	6	0	4	6	0	2	1	6	3	31	22
8:15	0	24	0	0	24	0	5	3	11	8	0	6	0	5	6	0	1	1	9	2	40	25
Total	1	65	0	12	66	2	20	12	28	34	1	16	1	14	18	1	4	3	26	8	126	80
8:30	0	25	1	2	26	0	2	1	9	3	1	1	1	2	3	0	0	1	6	1	33	19
8:45	3	35	0	5	38	2	2	1	7	5	1	5	1	4	7	0	3	1	6	4	54	22
9:00	0	20	0	6	20	0	2	0	13	2	0	6	0	3	6	0	0	2	8	2	30	30
9:15	1	20	1	3	22	0	4	2	4	6	0	3	0	2	3	0	2	0	9	2	33	18
Total	4	100	2	16	106	2	10	4	33	16	2	15	2	11	19	0	5	4	29	9	150	89
16:00	1	4	0	7	5	1	0	0	13	1	2	11	0	9	13	0	0	0	15	0	19	44
16:15	3	5	0	1	8	1	4	1	3	6	2	12	1	2	15	2	3	1	6	6	35	12
16:30	0	8	0	2	8	0	3	3	2	6	3	11	0	8	14	0	1	1	12	2	30	24
16:45	0	4	0	3	4	0	3	6	10	9	0	15	0	3	15	0	1	0	10	1	29	26
Total	4	21	0	13	25	2	10	10	28	22	7	49	1	22	57	2	5	2	43	9	113	106
17:00	2	8	0	3	10	0	3	1	9	4	2	22	0	5	24	1	2	1	7	4	42	24
17:15	4	9	0	4	13	0	4	1	22	5	2	21	2	5	25	0	4	1	16	5	48	47
17:30	1	7	0	4	8	1	7	2	10	10	0	25	0	11	25	0	2	2	20	4	47	45
17:45	3	13	0	5	16	1	5	2	7	8	2	21	1	5	24	0	7	0	16	7	55	33
Total	10	37	0	16	47	2	19	6	48	27	6	89	3	26	98	1	15	4	59	20	192	149
Grand Total	19	223	2	57	244	8	59	32	137	99	16	169	7	73	192	4	29	13	157	46	581	424
Apprch %	7.8%	91.4%	0.8%			8.1%	59.6%	32.3%			8.3%	88.0%	3.6%			8.7%	63.0%	28.3%				
Total %	3.3%	38.4%	0.3%		42.0%	1.4%	10.2%	5.5%		17.0%	2.8%	29.1%	1.2%		33.0%	0.7%	5.0%	2.2%		7.9%	100.0%	

AM PEAK HOUR	Telegraph Ave Southbound					27th St Westbound					Telegraph Ave Northbound					27th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:30 to 09:30																					
Peak Hour For Entire Intersection Begins at 08:30																					
8:30	0	25	1	2	26	0	2	1	9	3	1	1	1	2	3	0	0	1	6	1	33
8:45	3	35	0	5	38	2	2	1	7	5	1	5	1	4	7	0	3	1	6	4	54
9:00	0	20	0	6	20	0	2	0	13	2	0	6	0	3	6	0	0	2	8	2	30
9:15	1	20	1	3	22	0	4	2	4	6	0	3	0	2	3	0	2	0	9	2	33
Total Volume	4	100	2	16	106	2	10	4	33	16	2	15	2	11	19	0	5	4	29	9	150
% App Total	3.8%	94.3%	1.9%			12.5%	62.5%	25.0%			10.5%	78.9%	10.5%			0.0%	55.6%	44.4%			
PHF	.333	.714	.500		.697	.250	.625	.500		.667	.500	.625	.500		.679	.000	.417	.500		.563	.694

PM PEAK HOUR	Telegraph Ave Southbound					27th St Westbound					Telegraph Ave Northbound					27th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	0	4	0	3	4	0	3	6	10	9	0	15	0	3	15	0	1	0	10	1	29
17:00	2	8	0	3	10	0	3	1	9	4	2	22	0	5	24	1	2	1	7	4	42
17:15	4	9	0	4	13	0	4	1	22	5	2	21	2	5	25	0	4	1	16	5	48
17:30	1	7	0	4	8	1	7	2	10	10	0	25	0	11	25	0	2	2	20	4	47
Total Volume	7	28	0	14	35	1	17	10	51	28	4	83	2	24	89	1	9	4	53	14	166
% App Total	20.0%	80.0%	0.0%			3.6%	60.7%	35.7%			4.5%	93.3%	2.2%			7.1%	64.3%	28.6%			
PHF	.438	.778	.000		.673	.250	.607	.417		.700	.500	.830	.250		.890	.250	.563	.500		.700	.865

National Data and Surveying Services

(323) 782-0090
info@ndsdata.com

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

File Name : 17-7003-001 Broadway & 27th S
Date : 1/25/2017

Unshifted Count = All Vehicles & Uturns

	Broadway Southbound					27th S Westbound					Broadway Northbound					27th S Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	4	48	11	0	63	4	15	22	0	41	4	45	4	0	53	12	18	13	1	44	201	1
7:15	6	47	8	0	61	4	20	23	0	47	6	49	4	0	59	15	9	26	1	51	218	1
7:30	16	76	10	0	102	9	37	34	0	80	7	55	1	1	64	22	19	30	1	72	318	2
7:45	9	106	11	2	128	10	38	43	1	92	8	104	3	1	116	28	27	35	3	93	429	7
Total	35	277	40	2	354	27	110	122	1	260	25	253	12	2	292	77	73	104	6	260	1166	11
8:00	24	109	23	0	156	8	49	35	0	92	18	109	10	2	139	31	40	33	7	111	498	9
8:15	25	99	27	0	151	16	67	68	0	151	12	87	6	0	105	30	42	51	5	128	535	5
8:30	21	116	23	1	161	20	54	58	0	132	21	141	7	1	170	22	34	55	4	115	578	6
8:45	22	145	27	0	194	10	62	54	0	126	19	105	6	1	131	31	55	48	13	147	598	14
Total	92	469	100	1	662	54	232	215	0	501	70	442	29	4	545	114	171	187	29	501	2209	34
16:00	38	119	28	1	186	8	51	64	1	124	26	148	6	0	180	29	59	34	3	125	615	5
16:15	32	140	39	1	212	9	62	46	1	118	27	148	7	0	182	33	53	37	6	129	641	8
16:30	39	162	41	0	242	8	62	49	0	119	40	145	4	0	189	27	60	34	8	129	679	8
16:45	37	154	36	1	228	6	61	48	0	115	24	131	5	1	161	39	61	33	3	136	640	5
Total	146	575	144	3	868	31	236	207	2	476	117	572	22	1	712	128	233	138	20	519	2575	26
17:00	47	158	34	0	239	11	71	43	3	128	25	153	5	0	183	41	73	39	6	159	709	9
17:15	32	152	34	0	218	12	53	62	0	127	40	156	8	2	206	44	80	36	3	163	714	5
17:30	35	123	19	0	177	10	64	46	1	121	39	168	7	2	216	51	78	49	4	182	696	7
17:45	35	147	22	0	204	11	48	54	1	114	25	159	6	1	191	26	84	29	3	142	651	5
Total	149	580	109	0	838	44	236	205	5	490	129	636	26	5	796	162	315	153	16	646	2770	26
Grand Total	422	1901	393	6	2722	156	814	749	8	1727	341	1903	89	12	2345	481	792	582	71	1926	8720	97
Apprch %	15.5%	69.8%	14.4%	0.2%		9.0%	47.1%	43.4%	0.5%		14.5%	81.2%	3.8%	0.5%		25.0%	41.1%	30.2%	3.7%			
Total %	4.8%	21.8%	4.5%	0.1%	31.2%	1.8%	9.3%	8.6%	0.1%	19.8%	3.9%	21.8%	1.0%	0.1%	26.9%	5.5%	9.1%	6.7%	0.8%	22.1%	100.0%	

AM PEAK HOUR	Broadway Southbound					27th S Westbound					Broadway Northbound					27th S Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	24	109	23	0	156	8	49	35	0	92	18	109	10	2	139	31	40	33	7	111	498
8:15	25	99	27	0	151	16	67	68	0	151	12	87	6	0	105	30	42	51	5	128	535
8:30	21	116	23	1	161	20	54	58	0	132	21	141	7	1	170	22	34	55	4	115	578
8:45	22	145	27	0	194	10	62	54	0	126	19	105	6	1	131	31	55	48	13	147	598
Total Volume	92	469	100	1	662	54	232	215	0	501	70	442	29	4	545	114	171	187	29	501	2209
% App Total	13.9%	70.8%	15.1%	0.2%		10.8%	46.3%	42.9%	0.0%		12.8%	81.1%	5.3%	0.7%		22.8%	34.1%	37.3%	5.8%		
PHF	.920	.809	.926	.250	.853	.675	.866	.790	.000	.829	.833	.784	.725	.500	.801	.919	.777	.850	.558	.852	.923

PM PEAK HOUR	Broadway Southbound					27th S Westbound					Broadway Northbound					27th S Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	47	158	34	0	239	11	71	43	3	128	25	153	5	0	183	41	73	39	6	159	709
17:15	32	152	34	0	218	12	53	62	0	127	40	156	8	2	206	44	80	36	3	163	714
17:30	35	123	19	0	177	10	64	46	1	121	39	168	7	2	216	51	78	49	4	182	696
17:45	35	147	22	0	204	11	48	54	1	114	25	159	6	1	191	26	84	29	3	142	651
Total Volume	149	580	109	0	838	44	236	205	5	490	129	636	26	5	796	162	315	153	16	646	2770
% App Total	17.8%	69.2%	13.0%	0.0%		9.0%	48.2%	41.8%	1.0%		16.2%	79.9%	3.3%	0.6%		25.1%	48.8%	23.7%	2.5%		
PHF	.793	.918	.801	.000	.877	.917	.831	.827	.417	.957	.806	.946	.813	.625	.921	.794	.938	.781	.667	.887	.970

National Data and Surveying Services

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City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

File Name : 17-7003-001 Broadway & 27th S
Date : 1/25/2017

Bank 2 Count = Bikes & Peds

	Broadway Southbound					27th S Westbound					Broadway Northbound					27th S Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	1	7	0	1	8	0	2	0	2	2	0	2	0	0	2	1	1	0	10	2	14	13
7:15	1	12	1	5	14	0	1	3	7	4	0	1	0	1	1	0	3	0	10	3	22	23
7:30	1	8	0	7	9	0	1	2	18	3	0	2	0	2	2	0	2	0	16	2	16	43
7:45	1	15	0	15	16	0	3	1	25	4	0	3	0	4	3	0	1	1	23	2	25	67
Total	4	42	1	28	47	0	7	6	52	13	0	8	0	7	8	1	7	1	59	9	77	146
8:00	1	24	0	21	25	1	8	2	16	11	0	3	0	2	3	1	2	0	25	3	42	64
8:15	2	22	0	11	24	0	2	1	20	3	0	3	0	0	3	0	1	1	18	2	32	49
8:30	1	24	0	7	25	0	5	1	21	6	0	1	1	1	2	0	3	0	17	3	36	46
8:45	0	29	0	11	29	0	2	2	24	4	0	4	0	2	4	0	6	1	26	7	44	63
Total	4	99	0	50	103	1	17	6	81	24	0	11	1	5	12	1	12	2	86	15	154	222
16:00	2	5	0	2	7	0	0	0	20	0	0	8	0	2	8	0	1	0	27	1	16	51
16:15	3	3	0	10	6	0	3	1	9	4	0	6	0	0	6	0	1	0	23	1	17	42
16:30	4	1	1	7	6	0	3	1	22	4	2	15	0	0	17	1	2	0	13	3	30	42
16:45	5	7	0	10	12	0	3	1	23	4	3	21	0	0	24	0	1	0	18	1	41	51
Total	14	16	1	29	31	0	9	3	74	12	5	50	0	2	55	1	5	0	81	6	104	186
17:00	4	8	1	9	13	0	0	0	24	0	1	23	0	2	24	0	1	0	24	1	38	59
17:15	3	7	0	5	10	0	4	1	17	5	0	26	0	0	26	0	3	0	17	3	44	39
17:30	1	4	1	10	6	1	0	3	19	4	1	24	0	2	25	1	4	0	17	5	40	48
17:45	1	10	0	4	11	0	1	4	18	5	1	20	1	0	22	1	1	0	16	2	40	38
Total	9	29	2	28	40	1	5	8	78	14	3	93	1	4	97	2	9	0	74	11	162	184
Grand Total	31	186	4	135	221	2	38	23	285	63	8	162	2	18	172	5	33	3	300	41	497	738
Apprch %	14.0%	84.2%	1.8%			3.2%	60.3%	36.5%			4.7%	94.2%	1.2%			12.2%	80.5%	7.3%				
Total %	6.2%	37.4%	0.8%		44.5%	0.4%	7.6%	4.6%		12.7%	1.6%	32.6%	0.4%		34.6%	1.0%	6.6%	0.6%		8.2%	100.0%	

AM PEAK HOUR	Broadway Southbound					27th S Westbound					Broadway Northbound					27th S Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	1	24	0	21	25	1	8	2	16	11	0	3	0	2	3	1	2	0	25	3	42
8:15	2	22	0	11	24	0	2	1	20	3	0	3	0	0	3	0	1	1	18	2	32
8:30	1	24	0	7	25	0	5	1	21	6	0	1	1	1	2	0	3	0	17	3	36
8:45	0	29	0	11	29	0	2	2	24	4	0	4	0	2	4	0	6	1	26	7	44
Total Volume	4	99	0	50	103	1	17	6	81	24	0	11	1	5	12	1	12	2	86	15	154
% App Total	3.9%	96.1%	0.0%			4.2%	70.8%	25.0%			0.0%	91.7%	8.3%			6.7%	80.0%	13.3%			
PHF	.500	.853	.000		.888	.250	.531	.750		.545	.000	.688	.250		.750	.250	.500	.500		.536	.875

PM PEAK HOUR	Broadway Southbound					27th S Westbound					Broadway Northbound					27th S Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	4	8	1	9	13	0	0	0	24	0	1	23	0	2	24	0	1	0	24	1	38
17:15	3	7	0	5	10	0	4	1	17	5	0	26	0	0	26	0	3	0	17	3	44
17:30	1	4	1	10	6	1	0	3	19	4	1	24	0	2	25	1	4	0	17	5	40
17:45	1	10	0	4	11	0	1	4	18	5	1	20	1	0	22	1	1	0	16	2	40
Total Volume	9	29	2	28	40	1	5	8	78	14	3	93	1	4	97	2	9	0	74	11	162
% App Total	22.5%	72.5%	5.0%			7.1%	35.7%	57.1%			3.1%	95.9%	1.0%			18.2%	81.8%	0.0%			
PHF	.563	.725	.500		.769	.250	.313	.500		.700	.750	.894	.250		.933	.500	.563	.000		.550	.920

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7683-004 Telegraph Ave & 26th St
Date : 9/29/2016

Unshifted Count = All Vehicles & Uturns

	Telegraph Ave Southbound					26th St Westbound					Telegraph Ave Northbound					26th St Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:30	0	47	0	0	47	2	0	5	0	7	0	58	7	0	65	0	0	0	0	0	119	0
7:45	6	63	0	0	69	1	0	7	0	8	0	78	2	1	81	0	0	0	0	0	158	1
8:00	7	84	0	0	91	3	0	3	0	6	0	81	3	0	84	0	0	0	0	0	181	0
8:15	4	59	0	0	63	4	0	2	0	6	0	81	11	0	92	0	0	0	0	0	161	0
Total	17	253	0	0	270	10	0	17	0	27	0	298	23	1	322	0	0	0	0	0	619	1
8:30	4	89	0	0	93	1	0	3	0	4	0	84	5	1	90	0	0	0	0	0	187	1
8:45	5	94	0	0	99	0	0	5	0	5	0	89	2	1	92	0	0	0	0	0	196	1
9:00	3	87	0	0	90	2	0	0	0	2	0	88	5	0	93	0	0	0	0	0	185	0
9:15	4	91	0	0	95	1	0	5	0	6	0	80	1	0	81	0	0	0	0	0	182	0
Total	16	361	0	0	377	4	0	13	0	17	0	341	13	2	356	0	0	0	0	0	750	2
16:00	7	109	0	2	118	1	0	9	0	10	0	109	2	2	113	0	0	0	0	0	241	4
16:15	6	112	0	0	118	1	0	8	0	9	0	114	4	1	119	0	0	0	0	0	246	1
16:30	6	120	0	0	126	1	0	5	0	6	0	124	8	0	132	0	0	0	0	0	264	0
16:45	4	110	0	0	114	3	0	8	0	11	0	104	7	1	112	0	0	0	0	0	237	1
Total	23	451	0	2	476	6	0	30	0	36	0	451	21	4	476	0	0	0	0	0	988	6
17:00	6	118	0	0	124	2	0	8	0	10	0	112	5	0	117	0	0	0	0	0	251	0
17:15	4	121	0	0	125	5	0	9	0	14	0	118	4	0	122	0	0	0	0	0	261	0
17:30	4	112	0	0	116	3	0	5	0	8	0	115	8	0	123	0	0	0	0	0	247	0
17:45	4	115	0	0	119	2	0	9	0	11	0	120	9	0	129	0	0	0	0	0	259	0
Total	18	466	0	0	484	12	0	31	0	43	0	465	26	0	491	0	0	0	0	0	1018	0
Grand Total	74	1531	0	2	1607	32	0	91	0	123	0	1555	83	7	1645	0	0	0	0	0	3375	9
Apprch %	4.6%	95.3%	0.0%	0.1%		26.0%	0.0%	74.0%	0.0%		0.0%	94.5%	5.0%	0.4%		0.0%	0.0%	0.0%	0.0%			
Total %	2.2%	45.4%	0.0%	0.1%	47.6%	0.9%	0.0%	2.7%	0.0%	3.6%	0.0%	46.1%	2.5%	0.2%	48.7%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	

AM PEAK HOUR	Telegraph Ave Southbound					26th St Westbound					Telegraph Ave Northbound					26th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:30 to 09:30																					
Peak Hour For Entire Intersection Begins at 08:30																					
8:30	4	89	0	0	93	1	0	3	0	4	0	84	5	1	90	0	0	0	0	0	187
8:45	5	94	0	0	99	0	0	5	0	5	0	89	2	1	92	0	0	0	0	0	196
9:00	3	87	0	0	90	2	0	0	0	2	0	88	5	0	93	0	0	0	0	0	185
9:15	4	91	0	0	95	1	0	5	0	6	0	80	1	0	81	0	0	0	0	0	182
Total Volume	16	361	0	0	377	4	0	13	0	17	0	341	13	2	356	0	0	0	0	0	750
% App Total	4.2%	95.8%	0.0%	0.0%		23.5%	0.0%	76.5%	0.0%		0.0%	95.8%	3.7%	0.6%		0.0%	0.0%	0.0%	0.0%		
PHF	.800	.960	.000	.000	.952	.500	.000	.650	.000	.708	.000	.958	.650	.500	.957	.000	.000	.000	.000	.000	.957

PM PEAK HOUR	Telegraph Ave Southbound					26th St Westbound					Telegraph Ave Northbound					26th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	6	118	0	0	124	2	0	8	0	10	0	112	5	0	117	0	0	0	0	0	251
17:15	4	121	0	0	125	5	0	9	0	14	0	118	4	0	122	0	0	0	0	0	261
17:30	4	112	0	0	116	3	0	5	0	8	0	115	8	0	123	0	0	0	0	0	247
17:45	4	115	0	0	119	2	0	9	0	11	0	120	9	0	129	0	0	0	0	0	259
Total Volume	18	466	0	0	484	12	0	31	0	43	0	465	26	0	491	0	0	0	0	0	1018
% App Total	3.7%	96.3%	0.0%	0.0%		27.9%	0.0%	72.1%	0.0%		0.0%	94.7%	5.3%	0.0%		0.0%	0.0%	0.0%	0.0%		
PHF	.750	.963	.000	.000	.968	.600	.000	.861	.000	.768	.000	.969	.722	.000	.952	.000	.000	.000	.000	.000	.975

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7683-004 Telegraph Ave & 26th St
Date : 9/29/2016

Bank 1 Count = Bikes & Peds

	Telegraph Ave Southbound					26th St Westbound					Telegraph Ave Northbound					26th St Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:30	0	15	0	0	15	2	0	0	8	2	0	1	0	0	1	0	0	0	0	0	18	8
7:45	0	13	0	2	13	0	0	0	6	0	0	4	0	5	4	0	0	0	0	0	17	13
8:00	0	16	0	0	16	0	0	0	10	0	0	5	0	5	5	0	0	0	0	0	21	15
8:15	2	21	0	3	23	0	0	0	11	0	0	3	0	1	3	0	0	0	0	0	26	15
Total	2	65	0	5	67	2	0	0	35	2	0	13	0	11	13	0	0	0	0	0	82	51
8:30	0	28	0	3	28	0	0	1	8	1	0	2	0	1	2	0	0	0	0	0	31	12
8:45	1	37	0	0	38	1	0	0	7	1	0	5	1	0	6	0	0	0	0	0	45	7
9:00	0	23	0	0	23	2	0	0	9	2	0	5	0	1	5	0	0	0	0	0	30	10
9:15	0	20	0	0	20	1	0	0	6	1	0	3	0	0	3	0	0	0	0	0	24	6
Total	1	108	0	3	109	4	0	1	30	5	0	15	1	2	16	0	0	0	0	0	130	35
16:00	0	19	0	4	19	0	0	0	16	0	0	9	0	6	9	0	0	0	0	0	28	26
16:15	0	2	0	3	2	1	0	1	8	2	0	15	1	3	16	0	0	0	0	0	20	14
16:30	0	8	0	4	8	1	0	1	10	2	0	13	1	9	14	0	0	0	0	0	24	23
16:45	1	5	0	1	6	0	0	0	20	0	0	18	0	3	18	0	0	0	0	0	24	24
Total	1	34	0	12	35	2	0	2	54	4	0	55	2	21	57	0	0	0	0	0	96	87
17:00	0	9	0	2	9	0	0	1	6	1	0	24	2	3	26	0	0	0	0	0	36	11
17:15	0	11	0	4	11	0	0	1	20	1	0	23	0	5	23	0	0	0	0	0	35	29
17:30	0	7	0	9	7	0	0	0	25	0	0	29	1	2	30	0	0	0	0	0	37	36
17:45	0	13	0	4	13	0	0	0	12	0	0	19	1	3	20	0	0	0	0	0	33	19
Total	0	40	0	19	40	0	0	2	63	2	0	95	4	13	99	0	0	0	0	0	141	95
Grand Total	4	247	0	39	251	8	0	5	182	13	0	178	7	47	185	0	0	0	0	0	449	268
Apprch %	1.6%	98.4%	0.0%			61.5%	0.0%	38.5%			0.0%	96.2%	3.8%			0.0%	0.0%	0.0%				
Total %	0.9%	55.0%	0.0%		55.9%	1.8%	0.0%	1.1%		2.9%	0.0%	39.6%	1.6%		41.2%	0.0%	0.0%	0.0%		0.0%	100.0%	

AM PEAK HOUR	Telegraph Ave Southbound					26th St Westbound					Telegraph Ave Northbound					26th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:30 to 09:30																					
Peak Hour For Entire Intersection Begins at 08:30																					
8:30	0	28	0	3	28	0	0	1	8	1	0	2	0	1	2	0	0	0	0	0	31
8:45	1	37	0	0	38	1	0	0	7	1	0	5	1	0	6	0	0	0	0	0	45
9:00	0	23	0	0	23	2	0	0	9	2	0	5	0	1	5	0	0	0	0	0	30
9:15	0	20	0	0	20	1	0	0	6	1	0	3	0	0	3	0	0	0	0	0	24
Total Volume	1	108	0	3	109	4	0	1	30	5	0	15	1	2	16	0	0	0	0	0	130
% App Total	0.9%	99.1%	0.0%			80.0%	0.0%	20.0%			0.0%	93.8%	6.3%			0.0%	0.0%	0.0%			
PHF	.250	.730	.000		.717	.500	.000	.250		.625	.000	.750	.250		.667	.000	.000	.000		.000	.722

PM PEAK HOUR	Telegraph Ave Southbound					26th St Westbound					Telegraph Ave Northbound					26th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	9	0	2	9	0	0	1	6	1	0	24	2	3	26	0	0	0	0	0	36
17:15	0	11	0	4	11	0	0	1	20	1	0	23	0	5	23	0	0	0	0	0	35
17:30	0	7	0	9	7	0	0	0	25	0	0	29	1	2	30	0	0	0	0	0	37
17:45	0	13	0	4	13	0	0	0	12	0	0	19	1	3	20	0	0	0	0	0	33
Total Volume	0	40	0	19	40	0	0	2	63	2	0	95	4	13	99	0	0	0	0	0	141
% App Total	0.0%	100.0%	0.0%			0.0%	0.0%	100.0%			0.0%	96.0%	4.0%			0.0%	0.0%	0.0%			
PHF	.000	.769	.000		.769	.000	.000	.500		.500	.000	.819	.500		.825	.000	.000	.000		.000	.953

National Data and Surveying Services

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7003-002 Broadway & 26th St
Date : 1/25/2017

Unshifted Count = All Vehicles & Uturns

	Broadway Southbound					26th St Westbound					Broadway Northbound					26th St Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	2	62	0	1	65	0	0	0	0	0	1	58	1	0	60	0	0	1	0	1	126	1
7:15	1	72	3	1	77	0	0	0	0	0	1	66	2	1	70	1	0	2	0	3	150	2
7:30	9	99	0	0	108	0	0	0	0	0	2	84	4	1	91	0	2	1	0	3	202	1
7:45	5	152	3	0	160	0	0	0	0	0	3	100	8	1	112	2	1	1	0	4	276	1
Total	17	385	6	2	410	0	0	0	0	0	7	308	15	3	333	3	3	5	0	11	754	5
8:00	7	136	5	0	148	0	0	0	0	0	1	128	3	2	134	0	1	1	0	2	284	2
8:15	3	164	3	0	170	0	0	0	0	0	6	114	7	0	127	0	1	2	0	3	300	0
8:30	2	180	6	0	188	0	0	0	0	0	2	149	7	3	161	0	0	4	0	4	353	3
8:45	7	199	3	0	209	0	0	0	0	0	2	130	6	0	138	1	0	3	0	4	351	0
Total	19	679	17	0	715	0	0	0	0	0	11	521	23	5	560	1	2	10	0	13	1288	5
16:00	5	160	2	0	167	0	0	0	0	0	5	178	8	4	195	0	2	6	0	8	370	4
16:15	4	173	3	1	181	0	0	0	0	0	1	183	5	3	192	1	1	2	0	4	377	4
16:30	4	196	6	1	207	0	0	0	0	0	2	188	5	0	195	4	2	5	0	11	413	1
16:45	5	168	8	1	182	0	0	0	0	0	2	151	1	1	155	4	4	5	0	13	350	2
Total	18	697	19	3	737	0	0	0	0	0	10	700	19	8	737	9	9	18	0	36	1510	11
17:00	3	205	9	1	218	0	0	0	0	0	3	188	1	5	197	0	0	6	0	6	421	6
17:15	10	188	4	0	202	0	0	0	0	0	3	199	7	3	212	4	1	6	0	11	425	3
17:30	12	160	7	0	179	0	0	0	0	0	5	217	6	4	232	1	5	5	0	11	422	4
17:45	4	184	4	0	192	0	0	0	0	0	6	182	6	4	198	1	4	4	0	9	399	4
Total	29	737	24	1	791	0	0	0	0	0	17	786	20	16	839	6	10	21	0	37	1667	17
Grand Total	83	2498	66	6	2653	0	0	0	0	0	45	2315	77	32	2469	19	24	54	0	97	5219	38
Apprch %	3.1%	94.2%	2.5%	0.2%		0.0%	0.0%	0.0%	0.0%		1.8%	93.8%	3.1%	1.3%		19.6%	24.7%	55.7%	0.0%			
Total %	1.6%	47.9%	1.3%	0.1%	50.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	44.4%	1.5%	0.6%	47.3%	0.4%	0.5%	1.0%	0.0%	1.9%	100.0%	

AM PEAK HOUR	Broadway Southbound					26th St Westbound					Broadway Northbound					26th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	7	136	5	0	148	0	0	0	0	0	1	128	3	2	134	0	1	1	0	2	284
8:15	3	164	3	0	170	0	0	0	0	0	6	114	7	0	127	0	1	2	0	3	300
8:30	2	180	6	0	188	0	0	0	0	0	2	149	7	3	161	0	0	4	0	4	353
8:45	7	199	3	0	209	0	0	0	0	0	2	130	6	0	138	1	0	3	0	4	351
Total Volume	19	679	17	0	715	0	0	0	0	0	11	521	23	5	560	1	2	10	0	13	1288
% App Total	2.7%	95.0%	2.4%	0.0%		0.0%	0.0%	0.0%	0.0%		2.0%	93.0%	4.1%	0.9%		7.7%	15.4%	76.9%	0.0%		
PHF	.679	.853	.708	.000	.855	.000	.000	.000	.000	.000	.458	.874	.821	.417	.870	.250	.500	.625	.000	.813	.912

PM PEAK HOUR	Broadway Southbound					26th St Westbound					Broadway Northbound					26th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	3	205	9	1	218	0	0	0	0	0	3	188	1	5	197	0	0	6	0	6	421
17:15	10	188	4	0	202	0	0	0	0	0	3	199	7	3	212	4	1	6	0	11	425
17:30	12	160	7	0	179	0	0	0	0	0	5	217	6	4	232	1	5	5	0	11	422
17:45	4	184	4	0	192	0	0	0	0	0	6	182	6	4	198	1	4	4	0	9	399
Total Volume	29	737	24	1	791	0	0	0	0	0	17	786	20	16	839	6	10	21	0	37	1667
% App Total	3.7%	93.2%	3.0%	0.1%		0.0%	0.0%	0.0%	0.0%		2.0%	93.7%	2.4%	1.9%		16.2%	27.0%	56.8%	0.0%		
PHF	.604	.899	.667	.250	.907	.000	.000	.000	.000	.000	.708	.906	.714	.800	.904	.375	.500	.875	.000	.841	.981

National Data and Surveying Services

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7003-002 Broadway & 26th St
Date : 1/25/2017

Bank 2 Count = Bikes & Peds

	Broadway Southbound					26th St Westbound					Broadway Northbound					26th St Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	6	0	0	6	0	0	0	2	0	0	2	0	5	2	0	0	1	8	1	9	15
7:15	0	12	0	1	12	0	0	0	8	0	0	1	0	4	1	0	0	1	12	1	14	25
7:30	0	7	0	0	7	0	0	0	13	0	0	2	0	6	2	0	0	0	15	0	9	34
7:45	0	17	0	1	17	0	0	0	22	0	0	4	0	10	4	0	0	0	26	0	21	59
Total	0	42	0	2	42	0	0	0	45	0	0	9	0	25	9	0	0	2	61	2	53	133
8:00	0	23	0	0	23	0	0	1	14	1	0	1	1	6	2	0	0	0	27	0	26	47
8:15	0	24	0	0	24	0	0	0	14	0	0	1	0	8	1	0	0	0	16	0	25	38
8:30	0	24	1	0	25	0	0	0	22	0	0	4	1	12	5	0	0	0	29	0	30	63
8:45	0	27	1	0	28	0	0	0	21	0	0	6	0	4	6	0	0	1	24	1	35	49
Total	0	98	2	0	100	0	0	1	71	1	0	12	2	30	14	0	0	1	96	1	116	197
16:00	0	5	0	2	5	0	0	0	22	0	1	7	0	6	8	0	2	0	21	2	15	51
16:15	0	3	0	0	3	0	0	0	10	0	1	8	0	8	9	0	0	0	17	0	12	35
16:30	0	4	0	4	4	0	0	0	28	0	0	15	0	4	15	1	1	0	12	2	21	48
16:45	0	6	0	2	6	0	0	0	22	0	2	25	0	10	27	0	0	0	13	0	33	47
Total	0	18	0	8	18	0	0	0	82	0	4	55	0	28	59	1	3	0	63	4	81	181
17:00	0	7	0	0	7	0	0	0	24	0	1	26	0	8	27	0	0	0	29	0	34	61
17:15	0	5	0	1	5	0	0	0	20	0	0	27	0	2	27	0	1	0	21	1	33	44
17:30	0	6	0	2	6	0	0	0	21	0	0	20	0	3	20	1	0	0	13	1	27	39
17:45	0	11	0	0	11	0	0	0	17	0	0	25	0	2	25	0	0	0	17	0	36	36
Total	0	29	0	3	29	0	0	0	82	0	1	98	0	15	99	1	1	0	80	2	130	180
Grand Total	0	187	2	13	189	0	0	1	280	1	5	174	2	98	181	2	4	3	300	9	380	691
Apprch %	0.0%	98.9%	1.1%			0.0%	0.0%	100.0%			2.8%	96.1%	1.1%			22.2%	44.4%	33.3%				
Total %	0.0%	49.2%	0.5%		49.7%	0.0%	0.0%	0.3%		0.3%	1.3%	45.8%	0.5%		47.6%	0.5%	1.1%	0.8%		2.4%	100.0%	

AM PEAK HOUR	Broadway Southbound					26th St Westbound					Broadway Northbound					26th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	23	0	0	23	0	0	1	14	1	0	1	1	6	2	0	0	0	27	0	26
8:15	0	24	0	0	24	0	0	0	14	0	0	1	0	8	1	0	0	0	16	0	25
8:30	0	24	1	0	25	0	0	0	22	0	0	4	1	12	5	0	0	0	29	0	30
8:45	0	27	1	0	28	0	0	0	21	0	0	6	0	4	6	0	0	1	24	1	35
Total Volume	0	98	2	0	100	0	0	1	71	1	0	12	2	30	14	0	0	1	96	1	116
% App Total	0.0%	98.0%	2.0%			0.0%	0.0%	100.0%			0.0%	85.7%	14.3%			0.0%	0.0%	100.0%			
PHF	.000	.907	.500		.893	.000	.000	.250		.250	.000	.500	.500		.583	.000	.000	.250		.250	.829

PM PEAK HOUR	Broadway Southbound					26th St Westbound					Broadway Northbound					26th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	7	0	0	7	0	0	0	24	0	1	26	0	8	27	0	0	0	29	0	34
17:15	0	5	0	1	5	0	0	0	20	0	0	27	0	2	27	0	1	0	21	1	33
17:30	0	6	0	2	6	0	0	0	21	0	0	20	0	3	20	1	0	0	13	1	27
17:45	0	11	0	0	11	0	0	0	17	0	0	25	0	2	25	0	0	0	17	0	36
Total Volume	0	29	0	3	29	0	0	0	82	0	1	98	0	15	99	1	1	0	80	2	130
% App Total	0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			1.0%	99.0%	0.0%			50.0%	50.0%	0.0%			
PHF	.000	.659	.000		.659	.000	.000	.000		.000	.250	.907	.000		.917	.250	.250	.000		.500	.903

National Data and Surveying Services

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7003-003 Broadway & 25th St
Date : 1/25/2017

Unshifted Count = All Vehicles & Uturns

	Broadway Southbound					25th St Westbound					Broadway Northbound					25th St Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	18	44	4	0	66	0	0	6	0	6	0	60	0	1	61	0	1	2	0	3	136	1
7:15	25	43	0	0	68	0	0	13	0	13	1	71	1	1	74	0	1	4	0	5	160	1
7:30	26	85	2	1	114	0	0	9	0	9	3	97	1	1	102	0	2	4	0	6	231	2
7:45	42	92	8	3	145	0	0	6	0	6	0	92	1	0	93	0	2	1	0	3	247	3
Total	111	264	14	4	393	0	0	34	0	34	4	320	3	3	330	0	6	11	0	17	774	7
8:00	59	88	3	2	152	0	0	16	0	16	2	102	2	0	106	0	2	2	0	4	278	2
8:15	57	98	4	1	160	0	0	8	0	8	3	121	1	1	126	0	4	7	0	11	305	2
8:30	64	120	6	1	191	0	0	19	0	19	1	122	1	2	126	0	2	6	0	8	344	3
8:45	64	121	3	0	188	0	0	10	0	10	2	128	1	0	131	0	1	8	0	9	338	0
Total	244	427	16	4	691	0	0	53	0	53	8	473	5	3	489	0	9	23	0	32	1265	7
16:00	59	116	2	2	179	0	0	38	0	38	1	142	2	1	146	0	3	3	0	6	369	3
16:15	53	114	4	1	172	0	0	19	0	19	3	178	5	2	188	0	1	5	0	6	385	3
16:30	59	138	10	2	209	0	0	21	0	21	3	164	5	1	173	0	4	11	0	15	418	3
16:45	49	117	5	2	173	0	0	28	0	28	3	135	5	1	144	0	1	7	0	8	353	3
Total	220	485	21	7	733	0	0	106	0	106	10	619	17	5	651	0	9	26	0	35	1525	12
17:00	57	161	4	0	222	0	0	37	0	37	5	148	4	1	158	1	6	2	0	9	426	1
17:15	59	127	5	1	192	0	0	38	0	38	3	182	2	1	188	2	4	7	0	13	431	2
17:30	63	102	6	5	176	0	0	33	0	33	5	183	5	0	193	0	4	5	0	9	411	5
17:45	49	123	12	1	185	0	0	43	0	43	5	162	6	1	174	1	3	7	0	11	413	2
Total	228	513	27	7	775	0	0	151	0	151	18	675	17	3	713	4	17	21	0	42	1681	10
Grand Total	803	1689	78	22	2592	0	0	344	0	344	40	2087	42	14	2183	4	41	81	0	126	5245	36
Apprch %	31.0%	65.2%	3.0%	0.8%		0.0%	0.0%	100.0%	0.0%		1.8%	95.6%	1.9%	0.6%		3.2%	32.5%	64.3%	0.0%			
Total %	15.3%	32.2%	1.5%	0.4%	49.4%	0.0%	0.0%	6.6%	0.0%	6.6%	0.8%	39.8%	0.8%	0.3%	41.6%	0.1%	0.8%	1.5%	0.0%	2.4%	100.0%	

AM PEAK HOUR	Broadway Southbound					25th St Westbound					Broadway Northbound					25th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	59	88	3	2	152	0	0	16	0	16	2	102	2	0	106	0	2	2	0	4	278
8:15	57	98	4	1	160	0	0	8	0	8	3	121	1	1	126	0	4	7	0	11	305
8:30	64	120	6	1	191	0	0	19	0	19	1	122	1	2	126	0	2	6	0	8	344
8:45	64	121	3	0	188	0	0	10	0	10	2	128	1	0	131	0	1	8	0	9	338
Total Volume	244	427	16	4	691	0	0	53	0	53	8	473	5	3	489	0	9	23	0	32	1265
% App Total	35.3%	61.8%	2.3%	0.6%		0.0%	0.0%	100.0%	0.0%		1.6%	96.7%	1.0%	0.6%		0.0%	28.1%	71.9%	0.0%		
PHF	.953	.882	.667	.500	.904	.000	.000	.697	.000	.697	.667	.924	.625	.375	.933	.000	.563	.719	.000	.727	.919

PM PEAK HOUR	Broadway Southbound					25th St Westbound					Broadway Northbound					25th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	57	161	4	0	222	0	0	37	0	37	5	148	4	1	158	1	6	2	0	9	426
17:15	59	127	5	1	192	0	0	38	0	38	3	182	2	1	188	2	4	7	0	13	431
17:30	63	102	6	5	176	0	0	33	0	33	5	183	5	0	193	0	4	5	0	9	411
17:45	49	123	12	1	185	0	0	43	0	43	5	162	6	1	174	1	3	7	0	11	413
Total Volume	228	513	27	7	775	0	0	151	0	151	18	675	17	3	713	4	17	21	0	42	1681
% App Total	29.4%	66.2%	3.5%	0.9%		0.0%	0.0%	100.0%	0.0%		2.5%	94.7%	2.4%	0.4%		9.5%	40.5%	50.0%	0.0%		
PHF	.905	.797	.563	.350	.873	.000	.000	.878	.000	.878	.900	.922	.708	.750	.924	.500	.708	.750	.000	.808	.975

National Data and Surveying Services

(323) 782-0090
info@ndsdata.com

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

File Name : 17-7003-003 Broadway & 25th St
Date : 1/25/2017

Bank 2 Count = Bikes & Peds

	Broadway Southbound					25th St Westbound					Broadway Northbound					25th St Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	5	4	0	1	9	0	0	0	10	0	0	0	0	1	0	0	0	2	11	2	11	23
7:15	4	9	0	0	13	0	0	1	10	1	0	2	0	4	2	0	0	0	16	0	16	30
7:30	2	8	0	0	10	0	0	0	15	0	0	1	0	1	1	0	0	0	7	0	11	23
7:45	4	10	0	0	14	0	0	0	21	0	0	6	0	4	6	0	1	0	17	1	21	42
Total	15	31	0	1	46	0	0	1	56	1	0	9	0	10	9	0	1	2	51	3	59	118
8:00	5	11	0	0	16	0	0	1	21	1	0	2	0	3	2	0	0	0	24	0	19	48
8:15	13	16	0	0	29	0	0	0	18	0	0	1	0	7	1	1	0	0	36	1	31	61
8:30	10	18	0	0	28	0	0	1	18	1	1	1	0	3	2	0	0	0	29	0	31	50
8:45	10	16	0	0	26	0	0	0	25	0	0	4	0	3	4	0	0	0	32	0	30	60
Total	38	61	0	0	99	0	0	2	82	2	1	8	0	16	9	1	0	0	121	1	111	219
16:00	1	8	1	0	10	0	0	3	14	3	0	9	0	1	9	0	0	0	18	0	22	33
16:15	1	5	0	0	6	0	0	4	12	4	0	10	0	5	10	0	0	0	26	0	20	43
16:30	2	5	0	1	7	0	0	4	12	4	0	16	0	8	16	0	0	0	19	0	27	40
16:45	0	1	0	0	1	0	0	2	21	2	0	16	0	7	16	0	1	0	27	1	20	55
Total	4	19	1	1	24	0	0	13	59	13	0	51	0	21	51	0	1	0	90	1	89	171
17:00	1	0	0	0	1	0	0	3	18	3	0	17	1	6	18	0	2	1	35	3	25	59
17:15	0	7	0	0	7	0	0	4	24	4	0	24	0	4	24	0	0	0	27	0	35	55
17:30	2	6	0	0	8	0	0	2	23	2	1	19	0	21	20	0	0	1	21	1	31	65
17:45	0	7	1	1	8	0	0	6	27	6	0	21	0	3	21	0	0	0	19	0	35	50
Total	3	20	1	1	24	0	0	15	92	15	1	81	1	34	83	0	2	2	102	4	126	229
Grand Total	60	131	2	3	193	0	0	31	289	31	2	149	1	81	152	1	4	4	364	9	385	737
Apprch %	31.1%	67.9%	1.0%			0.0%	0.0%	100.0%			1.3%	98.0%	0.7%			11.1%	44.4%	44.4%				
Total %	15.6%	34.0%	0.5%		50.1%	0.0%	0.0%	8.1%		8.1%	0.5%	38.7%	0.3%		39.5%	0.3%	1.0%	1.0%		2.3%	100.0%	

AM PEAK HOUR	Broadway Southbound					25th St Westbound					Broadway Northbound					25th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	5	11	0	0	16	0	0	1	21	1	0	2	0	3	2	0	0	0	24	0	19
8:15	13	16	0	0	29	0	0	0	18	0	0	1	0	7	1	1	0	0	36	1	31
8:30	10	18	0	0	28	0	0	1	18	1	1	1	0	3	2	0	0	0	29	0	31
8:45	10	16	0	0	26	0	0	0	25	0	0	4	0	3	4	0	0	0	32	0	30
Total Volume	38	61	0	0	99	0	0	2	82	2	1	8	0	16	9	1	0	0	121	1	111
% App Total	38.4%	61.6%	0.0%			0.0%	0.0%	100.0%			11.1%	88.9%	0.0%			100.0%	0.0%	0.0%			
PHF	.731	.847	.000		.853	.000	.000	.500		.500	.250	.500	.000		.563	.250	.000	.000		.250	.895

PM PEAK HOUR	Broadway Southbound					25th St Westbound					Broadway Northbound					25th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	1	0	0	0	1	0	0	3	18	3	0	17	1	6	18	0	2	1	35	3	25
17:15	0	7	0	0	7	0	0	4	24	4	0	24	0	4	24	0	0	0	27	0	35
17:30	2	6	0	0	8	0	0	2	23	2	1	19	0	21	20	0	0	1	21	1	31
17:45	0	7	1	1	8	0	0	6	27	6	0	21	0	3	21	0	0	0	19	0	35
Total Volume	3	20	1	1	24	0	0	15	92	15	1	81	1	34	83	0	2	2	102	4	126
% App Total	12.5%	83.3%	4.2%			0.0%	0.0%	100.0%			1.2%	97.6%	1.2%			0.0%	50.0%	50.0%			
PHF	.375	.714	.250		.750	.000	.000	.625		.625	.250	.844	.250		.865	.000	.250	.500		.333	.900

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7683-003 Telegraph Ave & 24th St
Date : 9/29/2016

Unshifted Count = All Vehicles & Uturns

	Telegraph Ave Southbound					24th St Westbound					Telegraph Ave Northbound					24th St Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:30	0	55	0	0	55	0	0	0	0	0	1	62	0	0	63	1	0	7	0	8	126	0
7:45	0	65	5	0	70	0	0	0	0	0	1	78	0	0	79	4	0	6	0	10	159	0
8:00	0	78	6	0	84	0	0	0	0	0	5	81	0	0	86	8	0	19	0	27	197	0
8:15	0	66	3	0	69	0	0	0	0	0	1	91	0	0	92	6	0	7	0	13	174	0
Total	0	264	14	0	278	0	0	0	0	0	8	312	0	0	320	19	0	39	0	58	656	0
8:30	0	78	5	0	83	0	0	0	0	0	4	90	0	0	94	5	0	18	0	23	200	0
8:45	0	88	10	0	98	0	0	0	0	0	8	86	0	0	94	3	0	18	0	21	213	0
9:00	0	75	5	0	80	0	0	0	0	0	2	83	0	0	85	6	0	8	0	14	179	0
9:15	0	86	10	0	96	0	0	0	0	0	6	78	0	0	84	2	0	9	0	11	191	0
Total	0	327	30	0	357	0	0	0	0	0	20	337	0	0	357	16	0	53	0	69	783	0
16:00	0	96	5	0	101	0	0	0	0	0	3	113	0	1	117	7	0	2	0	9	227	1
16:15	0	106	8	0	114	0	0	0	0	0	4	112	0	0	116	7	0	7	0	14	244	0
16:30	0	110	5	0	115	0	0	0	0	0	6	110	0	0	116	2	0	3	0	5	236	0
16:45	0	110	1	0	111	0	0	0	0	0	5	116	0	0	121	6	0	5	1	12	244	1
Total	0	422	19	0	441	0	0	0	0	0	18	451	0	1	470	22	0	17	1	40	951	2
17:00	0	101	2	0	103	0	0	0	0	0	9	117	0	0	126	1	0	6	0	7	236	0
17:15	0	113	5	0	118	0	0	0	0	0	5	119	0	0	124	4	0	3	0	7	249	0
17:30	0	101	3	0	104	0	0	0	0	0	3	116	0	0	119	2	0	6	0	8	231	0
17:45	0	111	2	0	113	0	0	0	0	0	5	117	0	0	122	9	0	7	0	16	251	0
Total	0	426	12	0	438	0	0	0	0	0	22	469	0	0	491	16	0	22	0	38	967	0
Grand Total	0	1439	75	0	1514	0	0	0	0	0	68	1569	0	1	1638	73	0	131	1	205	3357	2
Apprch %	0.0%	95.0%	5.0%	0.0%		0.0%	0.0%	0.0%	0.0%		4.2%	95.8%	0.0%	0.1%		35.6%	0.0%	63.9%	0.5%			
Total %	0.0%	42.9%	2.2%	0.0%	45.1%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	46.7%	0.0%	0.0%	48.8%	2.2%	0.0%	3.9%	0.0%	6.1%	100.0%	

AM PEAK HOUR	Telegraph Ave Southbound					24th St Westbound					Telegraph Ave Northbound					24th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:30 to 09:30																					
Peak Hour For Entire Intersection Begins at 08:30																					
8:30	0	78	5	0	83	0	0	0	0	0	4	90	0	0	94	5	0	18	0	23	200
8:45	0	88	10	0	98	0	0	0	0	0	8	86	0	0	94	3	0	18	0	21	213
9:00	0	75	5	0	80	0	0	0	0	0	2	83	0	0	85	6	0	8	0	14	179
9:15	0	86	10	0	96	0	0	0	0	0	6	78	0	0	84	2	0	9	0	11	191
Total Volume	0	327	30	0	357	0	0	0	0	0	20	337	0	0	357	16	0	53	0	69	783
% App Total	0.0%	91.6%	8.4%	0.0%		0.0%	0.0%	0.0%	0.0%		5.6%	94.4%	0.0%	0.0%		23.2%	0.0%	76.8%	0.0%		
PHF	.000	.929	.750	.000	.911	.000	.000	.000	.000	.000	.625	.936	.000	.000	.949	.667	.000	.736	.000	.750	.919

PM PEAK HOUR	Telegraph Ave Southbound					24th St Westbound					Telegraph Ave Northbound					24th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	101	2	0	103	0	0	0	0	0	9	117	0	0	126	1	0	6	0	7	236
17:15	0	113	5	0	118	0	0	0	0	0	5	119	0	0	124	4	0	3	0	7	249
17:30	0	101	3	0	104	0	0	0	0	0	3	116	0	0	119	2	0	6	0	8	231
17:45	0	111	2	0	113	0	0	0	0	0	5	117	0	0	122	9	0	7	0	16	251
Total Volume	0	426	12	0	438	0	0	0	0	0	22	469	0	0	491	16	0	22	0	38	967
% App Total	0.0%	97.3%	2.7%	0.0%		0.0%	0.0%	0.0%	0.0%		4.5%	95.5%	0.0%	0.0%		42.1%	0.0%	57.9%	0.0%		
PHF	.000	.942	.600	.000	.928	.000	.000	.000	.000	.000	.611	.985	.000	.000	.974	.444	.000	.786	.000	.594	.963

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

File Name : 16-7683-003 Telegraph Ave & 24th St
Date : 9/29/2016

Bank 1 Count = Bikes & Peds

	Telegraph Ave Southbound					24th St Westbound					Telegraph Ave Northbound					24th St Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:30	0	16	0	6	16	0	0	0	0	0	0	1	0	2	1	0	0	0	17	0	17	25
7:45	0	16	0	1	16	0	0	0	0	0	0	4	0	4	4	0	0	0	18	0	20	23
8:00	0	11	0	8	11	0	0	0	0	0	0	4	0	6	4	1	0	0	24	1	16	38
8:15	0	22	0	6	22	0	0	0	0	0	0	4	0	5	4	1	0	2	22	3	29	33
Total	0	65	0	21	65	0	0	0	0	0	0	13	0	17	13	2	0	2	81	4	82	119
8:30	0	25	0	0	25	0	0	0	0	0	0	3	0	4	3	0	0	1	13	1	29	17
8:45	0	32	0	14	32	0	0	0	0	0	0	8	0	7	8	0	0	0	22	0	40	43
9:00	0	26	0	6	26	0	0	0	0	0	0	4	0	5	4	0	0	1	27	1	31	38
9:15	0	21	0	9	21	0	0	0	0	0	0	4	0	2	4	0	0	0	25	0	25	36
Total	0	104	0	29	104	0	0	0	0	0	0	19	0	18	19	0	0	2	87	2	125	134
16:00	0	11	0	6	11	0	0	0	0	0	1	12	0	10	13	0	0	0	31	0	24	47
16:15	0	7	0	11	7	0	0	0	0	0	0	13	0	6	13	0	0	0	30	0	20	47
16:30	0	12	0	13	12	0	0	0	0	0	0	15	0	1	15	0	0	1	22	1	28	36
16:45	0	5	0	11	5	0	0	0	0	0	2	16	0	6	18	0	0	1	22	1	24	39
Total	0	35	0	41	35	0	0	0	0	0	3	56	0	23	59	0	0	2	105	2	96	169
17:00	0	13	1	26	14	0	0	0	0	0	0	22	0	8	22	0	0	0	30	0	36	64
17:15	0	8	0	6	8	0	0	0	0	0	1	24	0	9	25	1	0	2	28	3	36	43
17:30	0	11	0	11	11	0	0	0	0	0	0	33	0	11	33	0	0	0	29	0	44	51
17:45	0	7	1	18	8	0	0	0	0	0	0	25	0	11	25	0	0	0	37	0	33	66
Total	0	39	2	61	41	0	0	0	0	0	1	104	0	39	105	1	0	2	124	3	149	224
Grand Total	0	243	2	152	245	0	0	0	0	0	4	192	0	97	196	3	0	8	397	11	452	646
Apprch %	0.0%	99.2%	0.8%			0.0%	0.0%	0.0%			2.0%	98.0%	0.0%			27.3%	0.0%	72.7%				
Total %	0.0%	53.8%	0.4%		54.2%	0.0%	0.0%	0.0%		0.0%	0.9%	42.5%	0.0%		43.4%	0.7%	0.0%	1.8%		2.4%	100.0%	

AM PEAK HOUR	Telegraph Ave Southbound					24th St Westbound					Telegraph Ave Northbound					24th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:30 to 09:30																					
Peak Hour For Entire Intersection Begins at 08:30																					
8:30	0	25	0	0	25	0	0	0	0	0	0	3	0	4	3	0	0	1	13	1	29
8:45	0	32	0	14	32	0	0	0	0	0	0	8	0	7	8	0	0	0	22	0	40
9:00	0	26	0	6	26	0	0	0	0	0	0	4	0	5	4	0	0	1	27	1	31
9:15	0	21	0	9	21	0	0	0	0	0	0	4	0	2	4	0	0	0	25	0	25
Total Volume	0	104	0	29	104	0	0	0	0	0	0	19	0	18	19	0	0	2	87	2	125
% App Total	0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	100.0%			
PHF	.000	.813	.000		.813	.000	.000	.000		.000	.000	.594	.000		.594	.000	.000	.500		.500	.781

PM PEAK HOUR	Telegraph Ave Southbound					24th St Westbound					Telegraph Ave Northbound					24th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	13	1	26	14	0	0	0	0	0	0	22	0	8	22	0	0	0	30	0	36
17:15	0	8	0	6	8	0	0	0	0	0	1	24	0	9	25	1	0	2	28	3	36
17:30	0	11	0	11	11	0	0	0	0	0	0	33	0	11	33	0	0	0	29	0	44
17:45	0	7	1	18	8	0	0	0	0	0	0	25	0	11	25	0	0	0	37	0	33
Total Volume	0	39	2	61	41	0	0	0	0	0	1	104	0	39	105	1	0	2	124	3	149
% App Total	0.0%	95.1%	4.9%			0.0%	0.0%	0.0%			1.0%	99.0%	0.0%			33.3%	0.0%	66.7%			
PHF	.000	.750	.500		.732	.000	.000	.000		.000	.250	.788	.000		.795	.250	.000	.250		.250	.847

All Traffic Data

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles on Unshifted Tab
Peds & Bikes on Bank 1 Tab

File Name : 16-7038-004
Site Code : 00000000
Start Date : 1/21/2016
Page No : 1

Groups Printed- Unshifted

	Harrison Street Southbound					Bay Place Westbound						Harrison Street Northbound						24th Street Northeastbound					27th Street Eastbound								
Start Time	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	Uturn	App. Total	Hard Left	Left	Thru	Right	Uturn	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	Uturn	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	13	123	19	13	168	8	6	9	11	0	34	0	19	29	3	0	51	0	0	0	0	0	6	9	5	4	2	24	2	277	279
07:15	9	129	26	13	177	9	6	20	21	0	56	0	27	42	9	0	78	0	0	0	0	0	4	10	13	3	1	30	1	341	342
07:30	22	141	30	20	213	8	6	23	22	0	59	0	37	54	10	1	101	0	0	0	0	0	15	15	5	16	5	51	6	424	430
07:45	22	166	24	29	241	9	5	32	24	0	70	0	49	65	11	0	125	0	0	0	0	0	12	17	20	4	8	53	8	489	497
Total	66	559	99	75	799	34	23	84	78	0	219	0	132	190	33	1	355	0	0	0	0	0	37	51	43	27	16	158	17	1531	1548
08:00	22	187	17	38	264	11	3	45	34	0	93	0	64	75	15	0	154	0	0	0	0	0	17	38	21	4	12	80	12	591	603
08:15	25	206	26	36	293	14	2	51	54	0	121	0	71	105	16	0	192	0	0	0	0	0	6	24	31	8	15	69	15	675	690
08:30	27	225	20	27	299	14	7	42	43	0	106	0	61	65	18	0	144	0	0	0	0	0	5	26	24	7	6	62	6	611	617
08:45	17	233	29	24	303	14	8	51	32	0	105	0	66	62	11	1	139	0	0	0	0	0	9	24	10	5	2	48	3	595	598
Total	91	851	92	125	1159	53	20	189	163	0	425	0	262	307	60	1	629	0	0	0	0	0	37	112	86	24	35	259	36	2472	2508
16:00	38	71	9	20	138	18	0	35	49	1	102	0	68	132	18	0	218	0	0	0	0	0	41	70	23	8	2	142	3	600	603
16:15	38	92	13	16	159	9	3	33	53	0	98	0	52	130	17	0	199	0	0	0	0	0	29	58	15	5	1	107	1	563	564
16:30	30	69	7	21	127	11	3	41	55	0	110	0	63	174	26	0	263	0	0	0	0	0	41	78	23	4	2	146	2	646	648
16:45	44	69	20	13	146	12	4	41	52	0	109	0	57	167	25	0	249	0	0	0	0	0	41	80	17	4	4	142	4	646	650
Total	150	301	49	70	570	50	10	150	209	1	419	0	240	603	86	0	929	0	0	0	0	0	152	286	78	21	9	537	10	2455	2465
17:00	18	78	10	14	120	13	4	35	47	0	99	0	60	190	25	0	275	0	0	0	0	0	62	85	26	5	3	178	3	672	675
17:15	40	83	12	21	156	21	2	40	59	0	122	0	72	208	24	0	304	0	0	0	0	0	48	94	20	6	1	168	1	750	751
17:30	40	83	11	16	150	7	3	31	45	1	86	0	63	199	24	0	286	0	0	0	0	0	57	103	24	4	2	188	3	710	713
17:45	33	92	13	20	158	16	10	50	32	0	108	0	60	219	30	0	309	0	0	0	0	0	56	84	17	9	7	166	7	741	748
Total	131	336	46	71	584	57	19	156	183	1	415	0	255	816	103	0	1174	0	0	0	0	0	223	366	87	24	13	700	14	2873	2887
Grand Total	438	2047	286	341	3112	194	72	579	633	2	1478	0	889	1916	282	2	3087	0	0	0	0	0	449	815	294	96	73	1654	77	9331	9408
Apprch %	14.1	65.8	9.2	11		13.1	4.9	39.2	42.8			0	28.8	62.1	9.1			0	0	0	0		27.1	49.3	17.8	5.8					
Total %	4.7	21.9	3.1	3.7	33.4	2.1	0.8	6.2	6.8		15.8	0	9.5	20.5	3		33.1	0	0	0	0	0	4.8	8.7	3.2	1		17.7	0.8	99.2	

All Traffic Data

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles on Unshifted Tab
Peds & Bikes on Bank 1 Tab

File Name : 16-7038-004
Site Code : 00000000
Start Date : 1/21/2016

	Harrison Street Southbound					Bay Place Westbound					Harrison Street Northbound					24th Street Northeastbound					27th Street Eastbound					
Start Time	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 08:00																										
08:00	22	187	17	**38**	264	11	3	45	34	93	0	64	75	15	154	0	0	0	0	0	**17**	**38**	21	4	**80**	591
08:15	25	206	26	36	293	**14**	2	**51**	**54**	**121**	0	**71**	**105**	16	**192**	0	0	0	0	0	6	24	**31**	**8**	69	**675**
08:30	**27**	225	20	27	299	14	7	42	43	106	0	61	65	**18**	144	0	0	0	0	0	5	26	24	7	62	611
08:45	17	**233**	**29**	24	**303**	14	**8**	51	32	105	0	66	62	11	139	0	0	0	0	0	9	24	10	5	48	595
Total Volume	91	851	92	125	1159	53	20	189	163	425	0	262	307	60	629	0	0	0	0	0	37	112	86	24	259	2472
% App. Total	7.9	73.4	7.9	10.8		12.5	4.7	44.5	38.4		0	41.7	48.8	9.5		0	0	0	0		14.3	43.2	33.2	9.3		
PHF	.843	.913	.793	.822	.956	.946	.625	.926	.755	.878	.000	.923	.731	.833	.819	.000	.000	.000	.000	.000	.544	.737	.694	.750	.809	.916

All Traffic Data

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City of Oakland
All Vehicles on Unshifted Tab
Peds & Bikes on Bank 1 Tab

File Name : 16-7038-004
Site Code : 00000000
Start Date : 1/21/2016

Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 17:00

	Harrison Street Southbound					Bay Place Westbound					Harrison Street Northbound					24th Street Northeastbound					27th Street Eastbound					
Start Time	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Int. Total
17:00	18	78	10	14	120	13	4	35	47	99	0	60	190	25	275	0	0	0	0	0	**62**	85	**26**	5	178	672
17:15	**40**	83	12	**21**	156	**21**	2	40	**59**	**122**	0	**72**	208	24	304	0	0	0	0	0	48	94	20	6	168	**750**
17:30	40	83	11	16	150	7	3	31	45	86	0	63	199	24	286	0	0	0	0	0	57	**103**	24	4	**188**	710
17:45	33	**92**	**13**	20	**158**	16	**10**	**50**	32	108	0	60	**219**	**30**	**309**	0	0	0	0	0	56	84	17	**9**	166	741
Total Volume	131	336	46	71	584	57	19	156	183	415	0	255	816	103	1174	0	0	0	0	0	223	366	87	24	700	2873
% App. Total	22.4	57.5	7.9	12.2		13.7	4.6	37.6	44.1		0	21.7	69.5	8.8		0	0	0	0		31.9	52.3	12.4	3.4		
PHF	.819	.913	.885	.845	.924	.679	.475	.780	.775	.850	.000	.885	.932	.858	.950	.000	.000	.000	.000	.000	.899	.888	.837	.667	.931	.958

All Traffic Data

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City of Oakland
All Vehicles on Unshifted Tab
Peds & Bikes on Bank 1 Tab

File Name : 16-7038-004
Site Code : 00000000
Start Date : 1/21/2016
Page No : 1

Groups Printed- Bank 1

	Harrison Street Southbound						Bay Place Westbound						Harrison Street Northbound						24th Street Northeastbound						27th Street Eastbound								
Start Time	Left	Thru	Bear Right	Right	Peds	App. Total	Left	Bear Left	Thru	Right	Peds	App. Total	Hard Left	Left	Thru	Right	Peds	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	Peds	App. Total	Left	Thru	Right	Hard Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	0	9	1	0	14	10	0	1	4	0	3	5	0	0	0	0	2	0	0	1	0	0	6	1	0	2	0	0	16	2	41	18	59
07:15	0	2	1	0	11	3	0	0	4	0	7	4	0	0	0	0	1	0	0	0	0	0	7	0	0	3	0	0	11	3	37	10	47
07:30	0	8	0	1	11	9	0	0	3	0	24	3	0	0	0	0	4	0	0	0	0	0	6	0	0	2	0	0	17	2	62	14	76
07:45	1	6	1	0	24	8	2	0	5	1	35	8	0	2	1	0	12	3	0	1	0	0	16	1	2	1	0	0	20	3	107	23	130
Total	1	25	3	1	60	30	2	1	16	1	69	20	0	2	1	0	19	3	0	2	0	0	35	2	2	8	0	0	64	10	247	65	312
08:00	0	4	1	0	22	5	1	0	14	0	48	15	0	0	2	0	7	2	0	0	0	0	15	0	0	2	0	0	24	2	116	24	140
08:15	0	12	0	0	20	12	2	0	7	3	52	12	0	2	1	0	13	3	0	0	0	0	10	0	0	3	1	0	24	4	119	31	150
08:30	1	6	7	0	15	14	2	1	9	1	23	13	1	3	0	0	10	4	0	0	0	0	12	0	0	2	0	0	31	2	91	33	124
08:45	21	11	0	1	13	33	5	4	9	0	39	18	0	1	0	0	6	1	0	0	0	0	13	0	0	3	0	0	33	3	104	55	159
Total	22	33	8	1	70	64	10	5	39	4	162	58	1	6	3	0	36	10	0	0	0	0	50	0	0	10	1	0	112	11	430	143	573
16:00	3	2	0	0	20	5	0	1	6	0	27	7	0	0	4	1	11	5	0	0	0	1	5	1	0	2	1	0	9	3	72	21	93
16:15	0	0	1	0	23	1	0	0	4	2	23	6	0	6	3	0	6	9	0	1	1	0	7	2	1	2	1	0	18	4	77	22	99
16:30	1	3	0	0	28	4	0	0	3	1	30	4	1	1	2	0	14	4	0	0	0	0	19	0	0	3	0	0	25	3	116	15	131
16:45	1	3	1	0	26	5	1	1	5	0	43	7	1	1	5	1	19	8	0	0	0	0	3	0	1	7	0	0	15	8	106	28	134
Total	5	8	2	0	97	15	1	2	18	3	123	24	2	8	14	2	50	26	0	1	1	1	34	3	2	14	2	0	67	18	371	86	457
17:00	0	2	1	0	29	3	0	0	3	1	49	4	0	0	8	1	19	9	0	0	0	0	13	0	1	11	0	0	36	12	146	28	174
17:15	0	0	0	0	14	0	1	0	9	0	49	10	0	3	3	0	14	6	0	0	0	0	17	0	0	6	0	0	26	6	120	22	142
17:30	0	1	0	0	21	1	0	1	4	0	31	5	0	1	8	1	11	10	0	0	0	0	13	0	0	12	0	0	22	12	98	28	126
17:45	0	2	0	0	11	2	1	0	2	0	35	3	0	1	6	1	12	8	0	0	1	0	12	1	0	15	0	0	20	15	90	29	119
Total	0	5	1	0	75	6	2	1	18	1	164	22	0	5	25	3	56	33	0	0	1	0	55	1	1	44	0	0	104	45	454	107	561
Grand Total	28	71	14	2	302	115	15	9	91	9	518	124	3	21	43	5	161	72	0	3	2	1	174	6	5	76	3	0	347	84	1502	401	1903
Apprch %	24.3	61.7	12.2	1.7			12.1	7.3	73.4	7.3			4.2	29.2	59.7	6.9			0	50	33.3	16.7			6	90.5	3.6	0					
Total %	7	17.7	3.5	0.5		28.7	3.7	2.2	22.7	2.2		30.9	0.7	5.2	10.7	1.2		18	0	0.7	0.5	0.2		1.5	1.2	19	0.7	0		20.9	78.9	21.1	

	Harrison Street Southbound					Bay Place Westbound					Harrison Street Northbound					24th Street Northeastbound					27th Street Eastbound					
Start Time	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 08:00																										
08:00	0	4	1	0	5	1	0	**14**	0	15	0	0	**2**	0	2	0	0	0	0	0	0	2	0	0	2	24
08:15	0	**12**	0	0	12	2	0	7	**3**	12	0	2	1	0	3	0	0	0	0	0	0	**3**	**1**	0	**4**	31
08:30	1	6	**7**	0	14	2	1	9	1	13	**1**	**3**	0	0	**4**	0	0	0	0	0	0	2	0	0	2	33
08:45	**21**	11	0	**1**	**33**	**5**	**4**	9	0	**18**	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	**55**
Total Volume	22	33	8	1	64	10	5	39	4	58	1	6	3	0	10	0	0	0	0	0	0	10	1	0	11	143
% App. Total	34.4	51.6	12.5	1.6		17.2	8.6	67.2	6.9		10	60	30	0		0	0	0	0		0	90.9	9.1	0		
PHF	.262	.688	.286	.250	.485	.500	.313	.696	.333	.806	.250	.500	.375	.000	.625	.000	.000	.000	.000	.000	.000	.833	.250	.000	.688	.650

All Traffic Data

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles on Unshifted Tab
Peds & Bikes on Bank 1 Tab

File Name : 16-7038-004
Site Code : 00000000
Start Date : 1/21/2016
Page No : 3

	Harrison Street Southbound					Bay Place Westbound					Harrison Street Northbound					24th Street Northeastbound					27th Street Eastbound					
Start Time	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 17:00																										
17:00	0	**2**	**1**	0	**3**	0	0	3	**1**	4	0	0	**8**	**1**	9	0	0	0	0	0	**1**	11	0	0	12	28
17:15	0	0	0	0	0	**1**	0	**9**	0	**10**	0	**3**	3	0	6	0	0	0	0	0	0	6	0	0	6	22
17:30	0	1	0	0	1	0	**1**	4	0	5	0	1	8	1	**10**	0	0	0	0	0	0	12	0	0	12	28
17:45	0	2	0	0	2	1	0	2	0	3	0	1	6	1	8	0	0	**1**	0	**1**	0	**15**	0	0	**15**	**29**
Total Volume	0	5	1	0	6	2	1	18	1	22	0	5	25	3	33	0	0	1	0	1	1	44	0	0	45	107
% App. Total	0	83.3	16.7	0		9.1	4.5	81.8	4.5		0	15.2	75.8	9.1		0	0	100	0		2.2	97.8	0	0		
PHF	.000	.625	.250	.000	.500	.500	.250	.500	.250	.550	.000	.417	.781	.750	.825	.000	.000	.250	.000	.250	.250	.733	.000	.000	.750	.922

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7038-006 Northgate Avenue & Grand Avenue
Date : 1/0/1900

Unshifted Count = All Vehicles & Uturns

	Northgate Avenue Southbound					Grand Avenue Westbound					Northgate Avenue Northbound					Grand Avenue Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	100	0	48	1	149	0	66	16	0	82	1	1	0	0	2	16	86	0	2	104	337	3
7:15	86	0	58	1	145	0	83	23	0	106	0	0	1	0	1	27	74	0	0	101	353	1
7:30	94	0	38	0	132	1	91	25	0	117	0	0	0	0	0	25	79	0	1	105	354	1
7:45	135	0	49	0	184	0	91	31	0	122	0	0	0	0	0	32	94	0	0	126	432	0
Total	415	0	193	2	610	1	331	95	0	427	1	1	1	0	3	100	333	0	3	436	1476	5
8:00	154	0	42	0	196	0	100	32	0	132	1	1	0	0	2	39	133	1	1	174	504	1
8:15	155	1	41	0	197	0	133	30	0	163	1	0	0	0	1	36	116	1	0	153	514	0
8:30	144	0	54	1	199	0	93	34	2	129	0	1	0	0	1	32	99	2	2	135	464	5
8:45	164	0	41	1	206	0	121	19	0	140	0	0	0	0	0	33	112	0	0	145	491	1
Total	617	1	178	2	798	0	447	115	2	564	2	2	0	0	4	140	460	4	3	607	1973	7
16:00	39	0	31	0	70	0	126	95	0	221	0	0	0	0	0	49	131	0	3	183	474	3
16:15	44	0	37	0	81	1	129	91	4	225	0	0	0	0	0	51	141	0	0	192	498	4
16:30	46	0	21	0	67	0	132	78	2	212	0	1	0	0	1	44	137	0	0	181	461	2
16:45	64	1	20	3	88	0	142	65	4	211	0	0	0	0	0	45	170	0	0	215	514	7
Total	193	1	109	3	306	1	529	329	10	869	0	1	0	0	1	189	579	0	3	771	1947	16
17:00	52	0	22	0	74	0	153	92	1	246	0	0	0	0	0	58	204	0	1	263	583	2
17:15	44	0	25	0	69	0	155	77	3	235	0	0	0	0	0	33	175	0	0	208	512	3
17:30	48	0	26	0	74	0	134	76	1	211	0	0	0	0	0	46	179	0	1	226	511	2
17:45	60	0	22	0	82	0	140	71	2	213	0	0	0	0	0	36	175	0	0	211	506	2
Total	204	0	95	0	299	0	582	316	7	905	0	0	0	0	0	173	733	0	2	908	2112	9
Grand Total	1429	2	575	7	2013	2	1889	855	19	2765	3	4	1	0	8	602	2105	4	11	2722	7508	37
Apprch %	71.0%	0.1%	28.6%	0.3%		0.1%	68.3%	30.9%	0.7%		37.5%	50.0%	12.5%	0.0%		22.1%	77.3%	0.1%	0.4%			
Total %	19.0%	0.0%	7.7%	0.1%	26.8%	0.0%	25.2%	11.4%	0.3%	36.8%	0.0%	0.1%	0.0%	0.0%	0.1%	8.0%	28.0%	0.1%	0.1%	36.3%	100.0%	

AM PEAK HOUR	Northgate Avenue Southbound					Grand Avenue Westbound					Northgate Avenue Northbound					Grand Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	154	0	42	0	196	0	100	32	0	132	1	1	0	0	2	39	133	1	1	174	504
8:15	155	1	41	0	197	0	133	30	0	163	1	0	0	0	1	36	116	1	0	153	514
8:30	144	0	54	1	199	0	93	34	2	129	0	1	0	0	1	32	99	2	2	135	464
8:45	164	0	41	1	206	0	121	19	0	140	0	0	0	0	0	33	112	0	0	145	491
Total Volume	617	1	178	2	798	0	447	115	2	564	2	2	0	0	4	140	460	4	3	607	1973
% App Total	77.3%	0.1%	22.3%	0.3%		0.0%	79.3%	20.4%	0.4%		50.0%	50.0%	0.0%	0.0%		23.1%	75.8%	0.7%	0.5%		
PHF	.941	.250	.824	.500	.968	.000	.840	.846	.250	.865	.500	.500	.000	.000	.500	.897	.865	.500	.375	.872	.960

PM PEAK HOUR	Northgate Avenue Southbound					Grand Avenue Westbound					Northgate Avenue Northbound					Grand Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	64	1	20	3	88	0	142	65	4	211	0	0	0	0	0	45	170	0	0	215	514
17:00	52	0	22	0	74	0	153	92	1	246	0	0	0	0	0	58	204	0	1	263	583
17:15	44	0	25	0	69	0	155	77	3	235	0	0	0	0	0	33	175	0	0	208	512
17:30	48	0	26	0	74	0	134	76	1	211	0	0	0	0	0	46	179	0	1	226	511
Total Volume	208	1	93	3	305	0	584	310	9	903	0	0	0	0	0	182	728	0	2	912	2120
% App Total	68.2%	0.3%	30.5%	1.0%		0.0%	64.7%	34.3%	1.0%		0.0%	0.0%	0.0%	0.0%		20.0%	79.8%	0.0%	0.2%		
PHF	.813	.250	.894	.250	.866	.000	.942	.842	.563	.918	.000	.000	.000	.000	.000	.784	.892	.000	.500	.867	.909

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7038-006 Northgate Avenue & Grand Avenue
Date : 1/0/1900

Bank 1 Count = Bikes & Peds

	Northgate Avenue					Grand Avenue					Northgate Avenue					Grand Avenue						
	Southbound					Westbound					Northbound					Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	1	0	0	0	1	0	2	0	0	2	0	0	0	4	0	0	4	0	2	4	7	6
7:15	0	0	0	0	0	0	2	0	0	2	0	0	0	6	0	1	3	0	0	4	6	6
7:30	0	0	0	0	0	0	1	1	0	2	0	0	0	6	0	0	2	0	3	2	4	9
7:45	0	0	0	8	0	0	5	0	2	5	0	0	0	13	0	0	6	0	4	6	11	27
Total	1	0	0	8	1	0	10	1	2	11	0	0	0	29	0	1	15	0	9	16	28	48
8:00	0	0	0	7	0	0	2	0	0	2	0	0	0	19	0	0	5	0	3	5	7	29
8:15	1	0	0	6	1	0	5	0	0	5	0	0	0	11	0	0	3	0	3	3	9	20
8:30	0	0	1	6	1	0	2	1	0	3	0	0	0	7	0	0	6	0	5	6	10	18
8:45	0	0	0	5	0	0	6	0	0	6	0	0	0	12	0	0	10	0	3	10	16	20
Total	1	0	1	24	2	0	15	1	0	16	0	0	0	49	0	0	24	0	14	24	42	87
16:00	0	0	0	6	0	0	8	0	2	8	0	0	0	6	0	0	4	0	2	4	12	16
16:15	0	0	0	6	0	0	2	2	3	4	0	0	0	8	0	0	9	0	3	9	13	20
16:30	0	0	1	6	1	0	4	2	2	6	0	0	0	14	0	0	3	0	1	3	10	23
16:45	0	0	0	12	0	0	9	0	2	9	0	0	0	15	0	0	7	0	5	7	16	34
Total	0	0	1	30	1	0	23	4	9	27	0	0	0	43	0	0	23	0	11	23	51	93
17:00	0	0	0	12	0	0	10	0	1	10	0	0	0	23	0	0	6	0	4	6	16	40
17:15	0	0	0	12	0	0	5	1	4	6	0	0	0	14	0	0	6	0	4	6	12	34
17:30	0	0	1	6	1	0	7	0	4	7	0	0	0	10	0	0	6	0	5	6	14	25
17:45	0	0	0	13	0	0	6	0	5	6	0	0	0	14	0	0	11	0	6	11	17	38
Total	0	0	1	43	1	0	28	1	14	29	0	0	0	61	0	0	29	0	19	29	59	137
Grand Total	2	0	3	105	5	0	76	7	25	83	0	0	0	182	0	1	91	0	53	92	180	365
Apprch %	40.0%	0.0%	60.0%			0.0%	91.6%	8.4%			0.0%	0.0%	0.0%			1.1%	98.9%	0.0%				
Total %	1.1%	0.0%	1.7%		2.8%	0.0%	42.2%	3.9%		46.1%	0.0%	0.0%	0.0%		0.0%	0.6%	50.6%	0.0%		51.1%	100.0%	

AM PEAK HOUR	Northgate Avenue					Grand Avenue					Northgate Avenue					Grand Avenue					
	Southbound					Westbound					Northbound					Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	0	0	7	0	0	2	0	0	2	0	0	0	19	0	0	5	0	3	5	7
8:15	1	0	0	6	1	0	5	0	0	5	0	0	0	11	0	0	3	0	3	3	9
8:30	0	0	1	6	1	0	2	1	0	3	0	0	0	7	0	0	6	0	5	6	10
8:45	0	0	0	5	0	0	6	0	0	6	0	0	0	12	0	0	10	0	3	10	16
Total Volume	1	0	1	24	2	0	15	1	0	16	0	0	0	49	0	0	24	0	14	24	42
% App Total	50.0%	0.0%	50.0%			0.0%	93.8%	6.3%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.250	.000	.250		.500	.000	.625	.250		.667	.000	.000	.000		.000	.000	.600	.000		.600	.656

PM PEAK HOUR	Northgate Avenue					Grand Avenue					Northgate Avenue					Grand Avenue					
	Southbound					Westbound					Northbound					Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	0	0	0	12	0	0	9	0	2	9	0	0	0	15	0	0	7	0	5	7	16
17:00	0	0	0	12	0	0	10	0	1	10	0	0	0	23	0	0	6	0	4	6	16
17:15	0	0	0	12	0	0	5	1	4	6	0	0	0	14	0	0	6	0	4	6	12
17:30	0	0	1	6	1	0	7	0	4	7	0	0	0	10	0	0	6	0	5	6	14
Total Volume	0	0	1	42	1	0	31	1	11	32	0	0	0	62	0	0	25	0	18	25	58
% App Total	0.0%	0.0%	100.0%			0.0%	96.9%	3.1%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.000	.000	.250		.250	.000	.775	.250		.800	.000	.000	.000		.000	.000	.893	.000		.893	.906

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

File Name : 16-7683-002 Telegraph Ave & W Grand Ave
Date : 9/29/2016

Unshifted Count = All Vehicles & Uturns

	Telegraph Ave Southbound					W Grand Ave Westbound					Telegraph Ave Northbound					W Grand Ave Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:30	13	42	11	0	66	10	82	9	1	102	29	38	9	0	76	15	108	60	0	183	427	1
7:45	9	57	19	0	85	13	85	11	0	109	39	46	13	0	98	31	112	57	1	201	493	1
8:00	10	69	20	0	99	13	94	9	0	116	43	44	18	0	105	20	153	85	3	261	581	3
8:15	9	60	16	0	85	12	101	7	0	120	37	57	7	0	101	27	147	64	2	240	546	2
Total	41	228	66	0	335	48	362	36	1	447	148	185	47	0	380	93	520	266	6	885	2047	7
8:30	14	75	14	0	103	8	92	14	2	116	25	53	7	0	85	18	155	68	4	245	549	6
8:45	17	91	20	0	128	15	74	9	1	99	24	60	11	0	95	25	181	109	3	318	640	4
9:00	17	64	17	0	98	13	92	9	1	115	39	47	9	0	95	22	160	53	1	236	544	2
9:15	17	74	17	0	108	17	76	8	2	103	35	49	9	0	93	24	133	55	2	214	518	4
Total	65	304	68	0	437	53	334	40	6	433	123	209	36	0	368	89	629	285	10	1013	2251	16
16:00	18	62	23	0	103	13	110	10	2	135	70	79	36	0	185	26	144	33	6	209	632	8
16:15	22	67	33	0	122	6	109	13	3	131	73	77	16	0	166	23	121	26	9	179	598	12
16:30	23	68	25	0	116	13	103	12	3	131	84	84	14	0	182	23	164	41	1	229	658	4
16:45	26	76	25	0	127	9	126	17	3	155	76	75	29	0	180	24	183	29	4	240	702	7
Total	89	273	106	0	468	41	448	52	11	552	303	315	95	0	713	96	612	129	20	857	2590	31
17:00	17	72	22	0	111	11	139	15	3	168	88	84	29	0	201	25	175	29	8	237	717	11
17:15	31	77	19	0	127	11	125	11	2	149	57	82	30	0	169	28	201	36	5	270	715	7
17:30	21	73	27	0	121	8	106	15	2	131	77	91	29	0	197	20	173	46	5	244	693	7
17:45	18	69	22	0	109	14	107	21	2	144	68	79	31	0	178	20	214	49	6	289	720	8
Total	87	291	90	0	468	44	477	62	9	592	290	336	119	0	745	93	763	160	24	1040	2845	33
Grand Total	282	1096	330	0	1708	186	1621	190	27	2024	864	1045	297	0	2206	371	2524	840	60	3795	9733	87
Apprch %	16.5%	64.2%	19.3%	0.0%		9.2%	80.1%	9.4%	1.3%		39.2%	47.4%	13.5%	0.0%		9.8%	66.5%	22.1%	1.6%			
Total %	2.9%	11.3%	3.4%	0.0%	17.5%	1.9%	16.7%	2.0%	0.3%	20.8%	8.9%	10.7%	3.1%	0.0%	22.7%	3.8%	25.9%	8.6%	0.6%	39.0%	100.0%	

AM PEAK HOUR	Telegraph Ave Southbound					W Grand Ave Westbound					Telegraph Ave Northbound					W Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	10	69	20	0	99	13	94	9	0	116	43	44	18	0	105	20	153	85	3	261	581
8:15	9	60	16	0	85	12	101	7	0	120	37	57	7	0	101	27	147	64	2	240	546
8:30	14	75	14	0	103	8	92	14	2	116	25	53	7	0	85	18	155	68	4	245	549
8:45	17	91	20	0	128	15	74	9	1	99	24	60	11	0	95	25	181	109	3	318	640
Total Volume	50	295	70	0	415	48	361	39	3	451	129	214	43	0	386	90	636	326	12	1064	2316
% App Total	12.0%	71.1%	16.9%	0.0%		10.6%	80.0%	8.6%	0.7%		33.4%	55.4%	11.1%	0.0%		8.5%	59.8%	30.6%	1.1%		
PHF	.735	.810	.875	.000	.811	.800	.894	.696	.375	.940	.750	.892	.597	.000	.919	.833	.878	.748	.750	.836	.905

PM PEAK HOUR	Telegraph Ave Southbound					W Grand Ave Westbound					Telegraph Ave Northbound					W Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	17	72	22	0	111	11	139	15	3	168	88	84	29	0	201	25	175	29	8	237	717
17:15	31	77	19	0	127	11	125	11	2	149	57	82	30	0	169	28	201	36	5	270	715
17:30	21	73	27	0	121	8	106	15	2	131	77	91	29	0	197	20	173	46	5	244	693
17:45	18	69	22	0	109	14	107	21	2	144	68	79	31	0	178	20	214	49	6	289	720
Total Volume	87	291	90	0	468	44	477	62	9	592	290	336	119	0	745	93	763	160	24	1040	2845
% App Total	18.6%	62.2%	19.2%	0.0%		7.4%	80.6%	10.5%	1.5%		38.9%	45.1%	16.0%	0.0%		8.9%	73.4%	15.4%	2.3%		
PHF	.702	.945	.833	.000	.921	.786	.858	.738	.750	.881	.824	.923	.960	.000	.927	.830	.891	.816	.750	.900	.988

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7683-002 Telegraph Ave & W Grand Ave
Date : 9/29/2016

Bank 1 Count = Bikes & Peds

	Telegraph Ave Southbound					W Grand Ave Westbound					Telegraph Ave Northbound					W Grand Ave Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:30	0	15	0	10	15	2	1	1	9	4	0	0	0	1	0	0	2	0	11	2	21	31
7:45	0	15	1	15	16	0	2	1	15	3	2	2	1	8	5	0	6	1	8	7	31	46
8:00	0	12	0	6	12	0	3	0	9	3	0	3	0	12	3	1	5	1	15	7	25	42
8:15	3	21	0	5	24	3	4	1	18	8	2	1	1	9	4	0	7	2	13	9	45	45
Total	3	63	1	36	67	5	10	3	51	18	4	6	2	30	12	1	20	4	47	25	122	164
8:30	3	21	0	2	24	0	9	0	6	9	0	1	0	8	1	3	10	3	8	16	50	24
8:45	1	32	1	8	34	1	4	0	12	5	0	4	0	3	4	3	8	0	9	11	54	32
9:00	2	19	2	5	23	1	4	0	14	5	0	4	0	8	4	0	3	3	23	6	38	50
9:15	1	21	0	5	22	1	2	0	12	3	1	2	0	6	3	0	5	2	26	7	35	49
Total	7	93	3	20	103	3	19	0	44	22	1	11	0	25	12	6	26	8	66	40	177	155
16:00	1	7	1	13	9	2	2	1	11	5	0	8	1	11	9	2	3	1	21	6	29	56
16:15	4	2	0	5	6	2	4	2	13	8	1	11	0	8	12	1	7	0	19	8	34	45
16:30	3	10	0	8	13	0	4	1	23	5	0	12	0	7	12	1	3	0	18	4	34	56
16:45	1	5	0	15	6	0	3	7	35	10	1	15	0	10	16	0	9	2	30	11	43	90
Total	9	24	1	41	34	4	13	11	82	28	2	46	1	36	49	4	22	3	88	29	140	247
17:00	0	9	1	14	10	2	5	4	35	11	0	26	0	8	26	1	3	1	19	5	52	76
17:15	1	7	2	21	10	0	4	5	26	9	1	18	4	8	23	0	6	0	15	6	48	70
17:30	0	8	0	14	8	0	2	3	32	5	3	27	0	11	30	1	5	2	30	8	51	87
17:45	1	3	0	11	4	1	4	4	33	9	0	21	0	12	21	1	4	1	25	6	40	81
Total	2	27	3	60	32	3	15	16	126	34	4	92	4	39	100	3	18	4	89	25	191	314
Grand Total	21	207	8	157	236	15	57	30	303	102	11	155	7	130	173	14	86	19	290	119	630	880
Apprch %	8.9%	87.7%	3.4%			14.7%	55.9%	29.4%			6.4%	89.6%	4.0%			11.8%	72.3%	16.0%				
Total %	3.3%	32.9%	1.3%		37.5%	2.4%	9.0%	4.8%		16.2%	1.7%	24.6%	1.1%		27.5%	2.2%	13.7%	3.0%		18.9%	100.0%	

AM PEAK HOUR	Telegraph Ave Southbound					W Grand Ave Westbound					Telegraph Ave Northbound					W Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	12	0	6	12	0	3	0	9	3	0	3	0	12	3	1	5	1	15	7	25
8:15	3	21	0	5	24	3	4	1	18	8	2	1	1	9	4	0	7	2	13	9	45
8:30	3	21	0	2	24	0	9	0	6	9	0	1	0	8	1	3	10	3	8	16	50
8:45	1	32	1	8	34	1	4	0	12	5	0	4	0	3	4	3	8	0	9	11	54
Total Volume	7	86	1	21	94	4	20	1	45	25	2	9	1	32	12	7	30	6	45	43	174
% App Total	7.4%	91.5%	1.1%			16.0%	80.0%	4.0%			16.7%	75.0%	8.3%			16.3%	69.8%	14.0%			
PHF	.583	.672	.250		.691	.333	.556	.250		.694	.250	.563	.250		.750	.583	.750	.500		.672	.806

PM PEAK HOUR	Telegraph Ave Southbound					W Grand Ave Westbound					Telegraph Ave Northbound					W Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	9	1	14	10	2	5	4	35	11	0	26	0	8	26	1	3	1	19	5	52
17:15	1	7	2	21	10	0	4	5	26	9	1	18	4	8	23	0	6	0	15	6	48
17:30	0	8	0	14	8	0	2	3	32	5	3	27	0	11	30	1	5	2	30	8	51
17:45	1	3	0	11	4	1	4	4	33	9	0	21	0	12	21	1	4	1	25	6	40
Total Volume	2	27	3	60	32	3	15	16	126	34	4	92	4	39	100	3	18	4	89	25	191
% App Total	6.3%	84.4%	9.4%			8.8%	44.1%	47.1%			4.0%	92.0%	4.0%			12.0%	72.0%	16.0%			
PHF	.500	.750	.375		.800	.375	.750	.800		.773	.333	.852	.250		.833	.750	.750	.500		.781	.918

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7388-004 Valley St & Grand Ave
Date : 5/26/2016

Unshifted Count = All Vehicles & Uturns

	Valley St Southbound					Grand Ave Westbound					Valley St Northbound					Grand Ave Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	1	0	5	0	6	4	71	2	2	79	0	0	0	0	0	0	87	0	0	87	172	2
7:15	0	0	4	0	4	4	90	2	2	98	1	0	0	0	1	8	117	6	2	133	236	4
7:30	1	1	5	0	7	1	94	2	2	99	0	2	0	0	2	2	123	3	2	130	238	4
7:45	1	0	3	0	4	6	116	2	2	126	0	0	0	0	0	5	114	2	2	123	253	4
Total	3	1	17	0	21	15	371	8	8	402	1	2	0	0	3	15	441	11	6	473	899	14
8:00	1	0	5	0	6	3	120	3	1	127	1	0	3	0	4	6	169	3	3	181	318	4
8:15	0	2	6	0	8	3	102	2	0	107	0	1	1	0	2	3	148	3	5	159	276	5
8:30	0	1	4	0	5	4	125	4	3	136	0	3	0	0	3	3	175	5	1	184	328	4
8:45	2	1	5	0	8	3	105	0	3	111	1	0	4	0	5	5	164	4	1	174	298	4
Total	3	4	20	0	27	13	452	9	7	481	2	4	8	0	14	17	656	15	10	698	1220	17
16:00	2	1	9	0	12	3	132	7	2	144	1	0	8	0	9	9	147	9	2	167	332	4
16:15	1	1	12	0	14	4	122	7	2	135	1	0	4	0	5	6	149	3	1	159	313	3
16:30	3	0	3	0	6	3	129	4	4	140	0	2	6	0	8	9	171	5	3	188	342	7
16:45	2	1	9	0	12	4	105	2	2	113	0	1	0	0	1	5	185	2	4	196	322	6
Total	8	3	33	0	44	14	488	20	10	532	2	3	18	0	23	29	652	19	10	710	1309	20
17:00	7	1	11	0	19	5	134	4	1	144	1	0	8	0	9	4	214	7	3	228	400	4
17:15	4	0	7	0	11	3	145	9	1	158	4	1	3	0	8	7	215	5	1	228	405	2
17:30	0	0	11	0	11	3	124	7	0	134	1	1	5	0	7	10	226	8	3	247	399	3
17:45	4	0	6	0	10	3	142	9	1	155	4	1	3	0	8	11	214	5	0	230	403	1
Total	15	1	35	0	51	14	545	29	3	591	10	3	19	0	32	32	869	25	7	933	1607	10
Grand Total	29	9	105	0	143	56	1856	66	28	2006	15	12	45	0	72	93	2618	70	33	2814	5035	61
Apprch %	20.3%	6.3%	73.4%	0.0%		2.8%	92.5%	3.3%	1.4%		20.8%	16.7%	62.5%	0.0%		3.3%	93.0%	2.5%	1.2%			
Total %	0.6%	0.2%	2.1%	0.0%	2.8%	1.1%	36.9%	1.3%	0.6%	39.8%	0.3%	0.2%	0.9%	0.0%	1.4%	1.8%	52.0%	1.4%	0.7%	55.9%	100.0%	

AM PEAK HOUR	Valley St Southbound					Grand Ave Westbound					Valley St Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	1	0	5	0	6	3	120	3	1	127	1	0	3	0	4	6	169	3	3	181	318
8:15	0	2	6	0	8	3	102	2	0	107	0	1	1	0	2	3	148	3	5	159	276
8:30	0	1	4	0	5	4	125	4	3	136	0	3	0	0	3	3	175	5	1	184	328
8:45	2	1	5	0	8	3	105	0	3	111	1	0	4	0	5	5	164	4	1	174	298
Total Volume	3	4	20	0	27	13	452	9	7	481	2	4	8	0	14	17	656	15	10	698	1220
% App Total	11.1%	14.8%	74.1%	0.0%		2.7%	94.0%	1.9%	1.5%		14.3%	28.6%	57.1%	0.0%		2.4%	94.0%	2.1%	1.4%		
PHF	.375	.500	.833	.000	.844	.813	.904	.563	.583	.884	.500	.333	.500	.000	.700	.708	.937	.750	.500	.948	.930

PM PEAK HOUR	Valley St Southbound					Grand Ave Westbound					Valley St Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	7	1	11	0	19	5	134	4	1	144	1	0	8	0	9	4	214	7	3	228	400
17:15	4	0	7	0	11	3	145	9	1	158	4	1	3	0	8	7	215	5	1	228	405
17:30	0	0	11	0	11	3	124	7	0	134	1	1	5	0	7	10	226	8	3	247	399
17:45	4	0	6	0	10	3	142	9	1	155	4	1	3	0	8	11	214	5	0	230	403
Total Volume	15	1	35	0	51	14	545	29	3	591	10	3	19	0	32	32	869	25	7	933	1607
% App Total	29.4%	2.0%	68.6%	0.0%		2.4%	92.2%	4.9%	0.5%		31.3%	9.4%	59.4%	0.0%		3.4%	93.1%	2.7%	0.8%		
PHF	.536	.250	.795	.000	.671	.700	.940	.806	.750	.935	.625	.750	.594	.000	.889	.727	.961	.781	.583	.944	.992

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7388-004 Valley St & Grand Ave
Date : 5/26/2016

Bank 1 Count = Bikes & Peds

	Valley St Southbound					Grand Ave Westbound					Valley St Northbound					Grand Ave Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	1	0	5	1	0	1	0	1	1	0	0	0	0	0	1	1	0	2	2	4	8
7:15	1	0	0	6	1	0	1	0	10	1	0	0	0	7	0	1	6	0	6	7	9	29
7:30	0	1	0	7	1	0	1	0	7	1	0	0	0	12	0	0	2	0	5	2	4	31
7:45	0	0	0	6	0	1	7	0	13	8	0	0	0	10	0	0	7	0	3	7	15	32
Total	1	2	0	24	3	1	10	0	31	11	0	0	0	29	0	2	16	0	16	18	32	100
8:00	1	0	0	4	1	0	1	0	12	1	0	0	0	7	0	0	3	0	8	3	5	31
8:15	0	0	0	4	0	0	10	1	8	11	0	0	0	9	0	0	11	0	4	11	22	25
8:30	0	0	0	8	0	1	1	1	7	3	0	0	0	8	0	0	8	2	9	10	13	32
8:45	2	0	0	4	2	0	2	0	8	2	0	0	0	12	0	0	3	1	1	4	8	25
Total	3	0	0	20	3	1	14	2	35	17	0	0	0	36	0	0	25	3	22	28	48	113
16:00	0	0	0	15	0	0	4	0	3	4	0	0	0	13	0	1	4	0	7	5	9	38
16:15	0	0	0	13	0	0	9	0	7	9	0	0	0	9	0	0	5	0	5	5	14	34
16:30	0	0	0	11	0	0	5	1	10	6	1	2	0	17	3	0	7	0	4	7	16	42
16:45	0	0	0	20	0	2	7	0	7	9	0	0	0	12	0	0	15	0	5	15	24	44
Total	0	0	0	59	0	2	25	1	27	28	1	2	0	51	3	1	31	0	21	32	63	158
17:00	0	1	0	19	1	0	6	0	9	6	1	0	0	12	1	0	14	0	10	14	22	50
17:15	0	0	0	12	0	1	8	0	4	9	0	0	0	12	0	0	6	0	4	6	15	32
17:30	1	1	0	11	2	0	12	1	13	13	0	1	0	18	1	0	11	0	12	11	27	54
17:45	0	0	0	12	0	1	9	0	4	10	0	0	0	15	0	0	4	0	4	4	14	35
Total	1	2	0	54	3	2	35	1	30	38	1	1	0	57	2	0	35	0	30	35	78	171
Grand Total	5	4	0	157	9	6	84	4	123	94	2	3	0	173	5	3	107	3	89	113	221	542
Apprch %	55.6%	44.4%	0.0%			6.4%	89.4%	4.3%			40.0%	60.0%	0.0%			2.7%	94.7%	2.7%				
Total %	2.3%	1.8%	0.0%		4.1%	2.7%	38.0%	1.8%		42.5%	0.9%	1.4%	0.0%		2.3%	1.4%	48.4%	1.4%		51.1%	100.0%	

AM PEAK HOUR	Valley St Southbound					Grand Ave Westbound					Valley St Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	1	0	0	4	1	0	1	0	12	1	0	0	0	7	0	0	3	0	8	3	5
8:15	0	0	0	4	0	0	10	1	8	11	0	0	0	9	0	0	11	0	4	11	22
8:30	0	0	0	8	0	1	1	1	7	3	0	0	0	8	0	0	8	2	9	10	13
8:45	2	0	0	4	2	0	2	0	8	2	0	0	0	12	0	0	3	1	1	4	8
Total Volume	3	0	0	20	3	1	14	2	35	17	0	0	0	36	0	0	25	3	22	28	48
% App Total	100.0%	0.0%	0.0%			5.9%	82.4%	11.8%			0.0%	0.0%	0.0%			0.0%	89.3%	10.7%			
PHF	.375	.000	.000		.375	.250	.350	.500		.386	.000	.000	.000		.000	.000	.568	.375		.636	.545

PM PEAK HOUR	Valley St Southbound					Grand Ave Westbound					Valley St Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	1	0	19	1	0	6	0	9	6	1	0	0	12	1	0	14	0	10	14	22
17:15	0	0	0	12	0	1	8	0	4	9	0	0	0	12	0	0	6	0	4	6	15
17:30	1	1	0	11	2	0	12	1	13	13	0	1	0	18	1	0	11	0	12	11	27
17:45	0	0	0	12	0	1	9	0	4	10	0	0	0	15	0	0	4	0	4	4	14
Total Volume	1	2	0	54	3	2	35	1	30	38	1	1	0	57	2	0	35	0	30	35	78
% App Total	33.3%	66.7%	0.0%			5.3%	92.1%	2.6%			50.0%	50.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.250	.500	.000		.375	.500	.729	.250		.731	.250	.250	.000		.500	.000	.625	.000		.625	.722

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

File Name : 16-7038-008 Broadway & Grand Avenue
Date : 1/21/2016

Unshifted Count = All Vehicles & Uturns

	Broadway Southbound					Grand Avenue Westbound					Broadway Northbound					Grand Avenue Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	3	29	18	0	50	13	42	3	0	58	10	43	17	0	70	6	68	9	1	84	262	1
7:15	8	39	18	0	65	13	65	8	0	86	18	51	24	1	94	5	100	11	2	118	363	3
7:30	7	42	12	0	61	12	86	2	0	100	16	50	26	1	93	6	103	9	4	122	376	5
7:45	3	59	9	0	71	31	73	4	0	108	20	74	36	0	130	10	114	12	3	139	448	3
Total	21	169	57	0	247	69	266	17	0	352	64	218	103	2	387	27	385	41	10	463	1449	12
8:00	6	58	15	0	79	31	87	2	0	120	25	101	22	0	148	11	133	17	3	164	511	3
8:15	8	89	11	0	108	21	79	7	0	107	18	82	38	0	138	10	124	22	2	158	511	2
8:30	12	79	13	0	104	25	103	9	0	137	24	90	37	0	151	18	142	22	1	183	575	1
8:45	24	81	16	0	121	24	75	7	0	106	32	80	27	0	139	11	130	14	1	156	522	1
Total	50	307	55	0	412	101	344	25	0	470	99	353	124	0	576	50	529	75	7	661	2119	7
16:00	18	80	32	0	130	14	67	9	0	90	50	140	37	0	227	22	100	16	1	139	586	1
16:15	23	76	23	0	122	10	75	10	0	95	49	143	41	0	233	15	127	23	0	165	615	0
16:30	10	93	20	0	123	18	86	6	0	110	48	155	36	0	239	18	145	14	2	179	651	2
16:45	15	84	20	0	119	9	62	11	0	82	61	141	47	0	249	23	150	16	0	189	639	0
Total	66	333	95	0	494	51	290	36	0	377	208	579	161	0	948	78	522	69	3	672	2491	3
17:00	22	90	30	0	142	18	89	10	0	117	43	173	43	0	259	40	186	23	2	251	769	2
17:15	19	72	34	0	125	14	83	17	0	114	52	180	46	0	278	24	169	15	0	208	725	0
17:30	29	79	29	0	137	16	83	10	0	109	53	150	49	0	252	32	161	30	1	224	722	1
17:45	19	96	47	1	163	15	92	16	0	123	44	147	54	0	245	26	182	28	1	237	768	2
Total	89	337	140	1	567	63	347	53	0	463	192	650	192	0	1034	122	698	96	4	920	2984	5
Grand Total	226	1146	347	1	1720	284	1247	131	0	1662	563	1800	580	2	2945	277	2134	281	24	2716	9043	27
Apprch %	13.1%	66.6%	20.2%	0.1%		17.1%	75.0%	7.9%	0.0%		19.1%	61.1%	19.7%	0.1%		10.2%	78.6%	10.3%	0.9%			
Total %	2.5%	12.7%	3.8%	0.0%	19.0%	3.1%	13.8%	1.4%	0.0%	18.4%	6.2%	19.9%	6.4%	0.0%	32.6%	3.1%	23.6%	3.1%	0.3%	30.0%	100.0%	

AM PEAK HOUR	Broadway Southbound					Grand Avenue Westbound					Broadway Northbound					Grand Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	6	58	15	0	79	31	87	2	0	120	25	101	22	0	148	11	133	17	3	164	511
8:15	8	89	11	0	108	21	79	7	0	107	18	82	38	0	138	10	124	22	2	158	511
8:30	12	79	13	0	104	25	103	9	0	137	24	90	37	0	151	18	142	22	1	183	575
8:45	24	81	16	0	121	24	75	7	0	106	32	80	27	0	139	11	130	14	1	156	522
Total Volume	50	307	55	0	412	101	344	25	0	470	99	353	124	0	576	50	529	75	7	661	2119
% App Total	12.1%	74.5%	13.3%	0.0%		21.5%	73.2%	5.3%	0.0%		17.2%	61.3%	21.5%	0.0%		7.6%	80.0%	11.3%	1.1%		
PHF	.521	.862	.859	.000	.851	.815	.835	.694	.000	.858	.773	.874	.816	.000	.954	.694	.931	.852	.583	.903	.921

PM PEAK HOUR	Broadway Southbound					Grand Avenue Westbound					Broadway Northbound					Grand Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	22	90	30	0	142	18	89	10	0	117	43	173	43	0	259	40	186	23	2	251	769
17:15	19	72	34	0	125	14	83	17	0	114	52	180	46	0	278	24	169	15	0	208	725
17:30	29	79	29	0	137	16	83	10	0	109	53	150	49	0	252	32	161	30	1	224	722
17:45	19	96	47	1	163	15	92	16	0	123	44	147	54	0	245	26	182	28	1	237	768
Total Volume	89	337	140	1	567	63	347	53	0	463	192	650	192	0	1034	122	698	96	4	920	2984
% App Total	15.7%	59.4%	24.7%	0.2%		13.6%	74.9%	11.4%	0.0%		18.6%	62.9%	18.6%	0.0%		13.3%	75.9%	10.4%	0.4%		
PHF	.767	.878	.745	.250	.870	.875	.943	.779	.000	.941	.906	.903	.889	.000	.930	.763	.938	.800	.500	.916	.970

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

File Name : 16-7038-008 Broadway & Grand Avenue
Date : 1/21/2016

Bank 1 Count = Bikes & Peds

	Broadway Southbound					Grand Avenue Westbound					Broadway Northbound					Grand Avenue Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	3	0	13	3	0	0	1	19	1	1	1	0	14	2	1	3	0	18	4	10	64
7:15	0	8	0	5	8	3	1	3	15	7	1	0	0	8	1	0	1	0	25	1	17	53
7:30	1	8	0	10	9	1	1	1	26	3	2	4	0	7	6	0	1	0	23	1	19	66
7:45	1	12	0	20	13	1	4	0	25	5	1	1	0	18	2	0	4	1	41	5	25	104
Total	2	31	0	48	33	5	6	5	85	16	5	6	0	47	11	1	9	1	107	11	71	287
8:00	0	14	1	15	15	3	2	3	34	8	0	0	0	13	0	1	3	1	48	5	28	110
8:15	2	10	0	11	12	7	7	5	49	19	1	4	0	14	5	1	4	0	55	5	41	129
8:30	0	13	0	10	13	2	2	3	33	7	0	5	0	16	5	2	1	0	44	3	28	103
8:45	1	18	0	17	19	4	4	9	43	17	2	1	0	23	3	1	4	1	54	6	45	137
Total	3	55	1	53	59	16	15	20	159	51	3	10	0	66	13	5	12	2	201	19	142	479
16:00	0	2	0	16	2	1	5	0	48	6	1	10	2	43	13	1	4	0	63	5	26	170
16:15	1	6	0	16	7	2	1	0	35	3	0	10	0	26	10	1	4	0	38	5	25	115
16:30	0	4	0	22	4	0	8	1	40	9	0	15	2	33	17	0	4	1	48	5	35	143
16:45	1	9	0	14	10	0	5	0	44	5	3	24	3	36	30	0	7	0	54	7	52	148
Total	2	21	0	68	23	3	19	1	167	23	4	59	7	138	70	2	19	1	203	22	138	576
17:00	0	4	1	19	5	1	5	1	54	7	1	24	0	38	25	1	6	0	64	7	44	175
17:15	0	4	0	24	4	0	4	0	43	4	3	34	1	40	38	2	8	0	53	10	56	160
17:30	0	2	0	29	2	0	6	0	54	6	0	26	1	28	27	1	5	0	73	6	41	184
17:45	1	2	0	46	3	0	5	0	53	5	0	27	2	38	29	1	8	0	61	9	46	198
Total	1	12	1	118	14	1	20	1	204	22	4	111	4	144	119	5	27	0	251	32	187	717
Grand Total	8	119	2	287	129	25	60	27	615	112	16	186	11	395	213	13	67	4	762	84	538	2059
Apprch %	6.2%	92.2%	1.6%			22.3%	53.6%	24.1%			7.5%	87.3%	5.2%			15.5%	79.8%	4.8%				
Total %	1.5%	22.1%	0.4%		24.0%	4.6%	11.2%	5.0%		20.8%	3.0%	34.6%	2.0%		39.6%	2.4%	12.5%	0.7%		15.6%	100.0%	

AM PEAK HOUR	Broadway Southbound					Grand Avenue Westbound					Broadway Northbound					Grand Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	14	1	15	15	3	2	3	34	8	0	0	0	13	0	1	3	1	48	5	28
8:15	2	10	0	11	12	7	7	5	49	19	1	4	0	14	5	1	4	0	55	5	41
8:30	0	13	0	10	13	2	2	3	33	7	0	5	0	16	5	2	1	0	44	3	28
8:45	1	18	0	17	19	4	4	9	43	17	2	1	0	23	3	1	4	1	54	6	45
Total Volume	3	55	1	53	59	16	15	20	159	51	3	10	0	66	13	5	12	2	201	19	142
% App Total	5.1%	93.2%	1.7%			31.4%	29.4%	39.2%			23.1%	76.9%	0.0%			26.3%	63.2%	10.5%			
PHF	.375	.764	.250		.776	.571	.536	.556		.671	.375	.500	.000		.650	.625	.750	.500		.792	.789

PM PEAK HOUR	Broadway Southbound					Grand Avenue Westbound					Broadway Northbound					Grand Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	4	1	19	5	1	5	1	54	7	1	24	0	38	25	1	6	0	64	7	44
17:15	0	4	0	24	4	0	4	0	43	4	3	34	1	40	38	2	8	0	53	10	56
17:30	0	2	0	29	2	0	6	0	54	6	0	26	1	28	27	1	5	0	73	6	41
17:45	1	2	0	46	3	0	5	0	53	5	0	27	2	38	29	1	8	0	61	9	46
Total Volume	1	12	1	118	14	1	20	1	204	22	4	111	4	144	119	5	27	0	251	32	187
% App Total	7.1%	85.7%	7.1%			4.5%	90.9%	4.5%			3.4%	93.3%	3.4%			15.6%	84.4%	0.0%			
PHF	.250	.750	.250		.700	.250	.833	.250		.786	.333	.816	.500		.783	.625	.844	.000		.800	.835

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

File Name : 16-7038-009 Webster Street & Grand Avenue
Date : 1/21/2016

Unshifted Count = All Vehicles & Uturns

	Webster Street Southbound					Grand Avenue Westbound					Webster Street Northbound					Grand Avenue Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	4	13	4	0	21	12	55	7	2	76	0	0	0	0	0	11	37	37	0	85	182	2
7:15	4	23	6	0	33	13	74	3	0	90	0	0	0	0	0	7	68	52	0	127	250	0
7:30	7	34	6	0	47	28	96	6	0	130	0	0	0	0	0	16	64	48	0	128	305	0
7:45	4	35	4	0	43	23	114	4	0	141	0	0	0	0	0	10	82	69	0	161	345	0
Total	19	105	20	0	144	76	339	20	2	437	0	0	0	0	0	44	251	206	0	501	1082	2
8:00	8	29	7	0	44	24	112	9	0	145	0	0	0	0	0	17	90	51	1	159	348	1
8:15	9	45	2	0	56	32	106	11	0	149	0	0	0	0	0	14	79	63	0	156	361	0
8:30	10	54	6	0	70	34	131	11	1	177	0	0	0	0	0	15	98	92	0	205	452	1
8:45	6	59	6	0	71	28	108	17	2	155	0	0	0	0	0	12	81	77	0	170	396	2
Total	33	187	21	0	241	118	457	48	3	626	0	0	0	0	0	58	348	283	1	690	1557	4
16:00	12	39	15	0	66	22	74	3	2	101	0	0	0	0	0	10	110	43	0	163	330	2
16:15	8	41	19	0	68	23	84	5	1	113	0	0	0	0	0	10	123	49	0	182	363	1
16:30	12	49	15	0	76	18	90	5	0	113	0	0	0	0	0	4	145	37	0	186	375	0
16:45	20	51	23	0	94	28	63	4	0	95	0	0	0	0	0	8	164	48	0	220	409	0
Total	52	180	72	0	304	91	311	17	3	422	0	0	0	0	0	32	542	177	0	751	1477	3
17:00	16	52	26	0	94	29	93	6	0	128	0	0	0	0	0	8	171	55	1	235	457	1
17:15	16	50	12	0	78	36	98	4	1	139	0	0	0	0	0	11	192	37	0	240	457	1
17:30	22	52	25	0	99	23	89	11	0	123	0	0	0	0	0	7	179	38	0	224	446	0
17:45	19	49	17	0	85	17	99	10	0	126	0	0	0	0	0	8	204	51	0	263	474	0
Total	73	203	80	0	356	105	379	31	1	516	0	0	0	0	0	34	746	181	1	962	1834	2
Grand Total	177	675	193	0	1045	390	1486	116	9	2001	0	0	0	0	0	168	1887	847	2	2904	5950	11
Apprch %	16.9%	64.6%	18.5%	0.0%		19.5%	74.3%	5.8%	0.4%		0.0%	0.0%	0.0%	0.0%		5.8%	65.0%	29.2%	0.1%			
Total %	3.0%	11.3%	3.2%	0.0%	17.6%	6.6%	25.0%	1.9%	0.2%	33.6%	0.0%	0.0%	0.0%	0.0%	0.0%	2.8%	31.7%	14.2%	0.0%	48.8%	100.0%	

AM PEAK HOUR	Webster Street Southbound					Grand Avenue Westbound					Webster Street Northbound					Grand Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	8	29	7	0	44	24	112	9	0	145	0	0	0	0	0	17	90	51	1	159	348
8:15	9	45	2	0	56	32	106	11	0	149	0	0	0	0	0	14	79	63	0	156	361
8:30	10	54	6	0	70	34	131	11	1	177	0	0	0	0	0	15	98	92	0	205	452
8:45	6	59	6	0	71	28	108	17	2	155	0	0	0	0	0	12	81	77	0	170	396
Total Volume	33	187	21	0	241	118	457	48	3	626	0	0	0	0	0	58	348	283	1	690	1557
% App Total	13.7%	77.6%	8.7%	0.0%		18.8%	73.0%	7.7%	0.5%		0.0%	0.0%	0.0%	0.0%		8.4%	50.4%	41.0%	0.1%		
PHF	.825	.792	.750	.000	.849	.868	.872	.706	.375	.884	.000	.000	.000	.000	.000	.853	.888	.769	.250	.841	.861

PM PEAK HOUR	Webster Street Southbound					Grand Avenue Westbound					Webster Street Northbound					Grand Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	16	52	26	0	94	29	93	6	0	128	0	0	0	0	0	8	171	55	1	235	457
17:15	16	50	12	0	78	36	98	4	1	139	0	0	0	0	0	11	192	37	0	240	457
17:30	22	52	25	0	99	23	89	11	0	123	0	0	0	0	0	7	179	38	0	224	446
17:45	19	49	17	0	85	17	99	10	0	126	0	0	0	0	0	8	204	51	0	263	474
Total Volume	73	203	80	0	356	105	379	31	1	516	0	0	0	0	0	34	746	181	1	962	1834
% App Total	20.5%	57.0%	22.5%	0.0%		20.3%	73.4%	6.0%	0.2%		0.0%	0.0%	0.0%	0.0%		3.5%	77.5%	18.8%	0.1%		
PHF	.830	.976	.769	.000	.899	.729	.957	.705	.250	.928	.000	.000	.000	.000	.000	.773	.914	.823	.250	.914	.967

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

File Name : 16-7038-009 Webster Street & Grand Avenue
Date : 1/21/2016

Bank 1 Count = Bikes & Peds

	Webster Street Southbound					Grand Avenue Westbound					Webster Street Northbound					Grand Avenue Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	4	0	16	4	2	2	0	20	4	0	0	0	15	0	1	0	2	27	3	11	78
7:15	0	2	1	10	3	5	6	1	18	12	0	2	0	27	2	0	0	1	28	1	18	83
7:30	0	3	0	15	3	6	4	0	27	10	0	0	0	33	0	0	2	0	36	2	15	111
7:45	1	11	2	23	14	8	5	0	30	13	0	0	0	39	0	2	2	1	45	5	32	137
Total	1	20	3	64	24	21	17	1	95	39	0	2	0	114	2	3	4	4	136	11	76	409
8:00	0	6	0	26	6	7	7	2	27	16	0	1	0	35	1	1	3	1	52	5	28	140
8:15	0	17	0	22	17	12	17	1	36	30	0	0	0	37	0	0	3	2	54	5	52	149
8:30	0	17	1	18	18	4	11	0	27	15	0	0	0	40	0	0	0	3	49	3	36	134
8:45	0	24	0	21	24	13	15	1	43	29	0	0	0	51	0	0	5	0	60	5	58	175
Total	0	64	1	87	65	36	50	4	133	90	0	1	0	163	1	1	11	6	215	18	174	598
16:00	0	1	0	8	1	0	7	2	24	9	0	1	2	35	3	0	4	2	35	6	19	102
16:15	0	3	0	23	3	1	2	0	33	3	0	0	0	44	0	0	6	0	43	6	12	143
16:30	0	1	0	22	1	0	8	0	21	8	1	3	0	30	4	0	4	1	58	5	18	131
16:45	0	5	0	13	5	1	6	0	24	7	0	1	1	33	2	0	10	2	30	12	26	100
Total	0	10	0	66	10	2	23	2	102	27	1	5	3	142	9	0	24	5	166	29	75	476
17:00	0	2	0	27	2	1	5	1	33	7	0	1	0	57	1	0	6	1	66	7	17	183
17:15	1	2	1	25	4	0	4	1	23	5	0	2	2	44	4	0	7	1	53	8	21	145
17:30	0	3	0	35	3	2	4	1	29	7	1	1	1	32	3	0	4	1	67	5	18	163
17:45	0	2	2	26	4	0	4	0	29	4	0	1	1	56	2	0	9	3	67	12	22	178
Total	1	9	3	113	13	3	17	3	114	23	1	5	4	189	10	0	26	6	253	32	78	669
Grand Total	2	103	7	330	112	62	107	10	444	179	2	13	7	608	22	4	65	21	770	90	403	2152
Apprch %	1.8%	92.0%	6.3%			34.6%	59.8%	5.6%			9.1%	59.1%	31.8%			4.4%	72.2%	23.3%				
Total %	0.5%	25.6%	1.7%		27.8%	15.4%	26.6%	2.5%		44.4%	0.5%	3.2%	1.7%		5.5%	1.0%	16.1%	5.2%		22.3%	100.0%	

AM PEAK HOUR	Webster Street Southbound					Grand Avenue Westbound					Webster Street Northbound					Grand Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	6	0	26	6	7	7	2	27	16	0	1	0	35	1	1	3	1	52	5	28
8:15	0	17	0	22	17	12	17	1	36	30	0	0	0	37	0	0	3	2	54	5	52
8:30	0	17	1	18	18	4	11	0	27	15	0	0	0	40	0	0	0	3	49	3	36
8:45	0	24	0	21	24	13	15	1	43	29	0	0	0	51	0	0	5	0	60	5	58
Total Volume	0	64	1	87	65	36	50	4	133	90	0	1	0	163	1	1	11	6	215	18	174
% App Total	0.0%	98.5%	1.5%			40.0%	55.6%	4.4%			0.0%	100.0%	0.0%			5.6%	61.1%	33.3%			
PHF	.000	.667	.250		.677	.692	.735	.500		.750	.000	.250	.000		.250	.250	.550	.500		.900	.750

PM PEAK HOUR	Webster Street Southbound					Grand Avenue Westbound					Webster Street Northbound					Grand Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	2	0	27	2	1	5	1	33	7	0	1	0	57	1	0	6	1	66	7	17
17:15	1	2	1	25	4	0	4	1	23	5	0	2	2	44	4	0	7	1	53	8	21
17:30	0	3	0	35	3	2	4	1	29	7	1	1	1	32	3	0	4	1	67	5	18
17:45	0	2	2	26	4	0	4	0	29	4	0	1	1	56	2	0	9	3	67	12	22
Total Volume	1	9	3	113	13	3	17	3	114	23	1	5	4	189	10	0	26	6	253	32	78
% App Total	7.7%	69.2%	23.1%			13.0%	73.9%	13.0%			10.0%	50.0%	40.0%			0.0%	81.3%	18.8%			
PHF	.250	.750	.375		.813	.375	.850	.750		.821	.250	.625	.500		.625	.000	.722	.500		.667	.886

National Data and Surveying Services

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7003-004 Valdez St & Grand Ave
Date : 1/25/2017

Unshifted Count = All Vehicles & Uturns

	Valdez St Southbound					Grand Ave Westbound					Valdez St Northbound					Grand Ave Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	4	0	10	0	14	1	67	2	0	70	1	0	1	0	2	8	45	0	1	54	140	1
7:15	2	0	2	0	4	1	99	3	1	104	2	0	1	0	3	5	45	1	0	51	162	1
7:30	4	0	5	0	9	5	95	6	1	107	1	0	2	0	3	5	59	1	1	66	185	2
7:45	2	0	5	0	7	1	144	6	1	152	3	0	0	0	3	7	65	0	1	73	235	2
Total	12	0	22	0	34	8	405	17	3	433	7	0	4	0	11	25	214	2	3	244	722	6
8:00	3	0	8	0	11	0	145	6	0	151	0	0	0	0	0	4	89	0	0	93	255	0
8:15	2	0	9	0	11	4	183	9	1	197	2	1	0	0	3	7	77	0	2	86	297	3
8:30	4	0	8	0	12	5	197	6	0	208	4	0	3	0	7	11	72	0	1	84	311	1
8:45	4	0	13	0	17	1	155	4	0	160	1	0	0	0	1	15	86	0	1	102	280	1
Total	13	0	38	0	51	10	680	25	1	716	7	1	3	0	11	37	324	0	4	365	1143	5
16:00	10	0	13	0	23	0	89	4	0	93	0	0	1	0	1	6	132	1	0	139	256	0
16:15	12	0	10	0	22	0	82	4	0	86	0	0	1	0	1	4	145	1	0	150	259	0
16:30	14	1	8	0	23	0	95	5	1	101	0	0	1	0	1	3	150	0	2	155	280	3
16:45	8	0	9	0	17	0	84	3	0	87	0	0	1	0	1	5	151	1	1	158	263	1
Total	44	1	40	0	85	0	350	16	1	367	0	0	4	0	4	18	578	3	3	602	1058	4
17:00	21	0	17	0	38	1	107	6	1	115	1	0	2	0	3	10	197	2	0	209	365	1
17:15	21	0	20	0	41	1	114	4	1	120	0	1	0	0	1	5	217	0	2	224	386	3
17:30	16	0	12	0	28	0	94	4	0	98	1	0	1	0	2	8	188	2	0	198	326	0
17:45	20	0	10	0	30	1	127	9	0	137	1	1	1	0	3	7	205	1	1	214	384	1
Total	78	0	59	0	137	3	442	23	2	470	3	2	4	0	9	30	807	5	3	845	1461	5
Grand Total	147	1	159	0	307	21	1877	81	7	1986	17	3	15	0	35	110	1923	10	13	2056	4384	20
Apprch %	47.9%	0.3%	51.8%	0.0%		1.1%	94.5%	4.1%	0.4%		48.6%	8.6%	42.9%	0.0%		5.4%	93.5%	0.5%	0.6%			
Total %	3.4%	0.0%	3.6%	0.0%	7.0%	0.5%	42.8%	1.8%	0.2%	45.3%	0.4%	0.1%	0.3%	0.0%	0.8%	2.5%	43.9%	0.2%	0.3%	46.9%	100.0%	

AM PEAK HOUR	Valdez St Southbound					Grand Ave Westbound					Valdez St Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	3	0	8	0	11	0	145	6	0	151	0	0	0	0	0	4	89	0	0	93	255
8:15	2	0	9	0	11	4	183	9	1	197	2	1	0	0	3	7	77	0	2	86	297
8:30	4	0	8	0	12	5	197	6	0	208	4	0	3	0	7	11	72	0	1	84	311
8:45	4	0	13	0	17	1	155	4	0	160	1	0	0	0	1	15	86	0	1	102	280
Total Volume	13	0	38	0	51	10	680	25	1	716	7	1	3	0	11	37	324	0	4	365	1143
% App Total	25.5%	0.0%	74.5%	0.0%		1.4%	95.0%	3.5%	0.1%		63.6%	9.1%	27.3%	0.0%		10.1%	88.8%	0.0%	1.1%		
PHF	.813	.000	.731	.000	.750	.500	.863	.694	.250	.861	.438	.250	.250	.000	.393	.617	.910	.000	.500	.895	.919

PM PEAK HOUR	Valdez St Southbound					Grand Ave Westbound					Valdez St Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	21	0	17	0	38	1	107	6	1	115	1	0	2	0	3	10	197	2	0	209	365
17:15	21	0	20	0	41	1	114	4	1	120	0	1	0	0	1	5	217	0	2	224	386
17:30	16	0	12	0	28	0	94	4	0	98	1	0	1	0	2	8	188	2	0	198	326
17:45	20	0	10	0	30	1	127	9	0	137	1	1	1	0	3	7	205	1	1	214	384
Total Volume	78	0	59	0	137	3	442	23	2	470	3	2	4	0	9	30	807	5	3	845	1461
% App Total	56.9%	0.0%	43.1%	0.0%		0.6%	94.0%	4.9%	0.4%		33.3%	22.2%	44.4%	0.0%		3.6%	95.5%	0.6%	0.4%		
PHF	.929	.000	.738	.000	.835	.750	.870	.639	.500	.858	.750	.500	.500	.000	.750	.750	.930	.625	.375	.943	.946

National Data and Surveying Services

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7003-004 Valdez St & Grand Ave
Date : 1/25/2017

Bank 2 Count = Bikes & Peds

	Valdez St Southbound					Grand Ave Westbound					Valdez St Northbound					Grand Ave Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	7	0	0	4	1	15	5	0	0	0	2	0	0	1	0	6	1	6	30
7:15	0	1	1	21	2	0	4	0	14	4	0	0	0	5	0	0	0	1	13	1	7	53
7:30	0	0	0	9	0	0	7	0	14	7	0	0	0	2	0	0	2	0	18	2	9	43
7:45	1	1	0	18	2	1	9	0	27	10	0	0	0	3	0	0	1	0	16	1	13	64
Total	1	2	1	55	4	1	24	1	70	26	0	0	0	12	0	0	4	1	53	5	35	190
8:00	1	1	0	24	2	3	15	1	31	19	0	0	0	7	0	0	1	0	20	1	22	82
8:15	1	0	0	36	1	0	29	1	31	30	0	0	0	5	0	0	0	0	30	0	31	102
8:30	1	0	1	35	2	0	25	2	29	27	0	0	0	1	0	0	0	0	25	0	29	90
8:45	0	1	0	27	1	1	11	1	34	13	0	0	0	8	0	1	1	0	28	2	16	97
Total	3	2	1	122	6	4	80	5	125	89	0	0	0	21	0	1	2	0	103	3	98	371
16:00	2	0	0	18	2	0	4	0	25	4	1	1	0	8	2	0	6	0	21	6	14	72
16:15	0	0	1	21	1	0	2	1	18	3	2	2	0	0	4	1	8	0	27	9	17	66
16:30	0	0	0	41	0	0	1	0	23	1	1	2	2	4	5	0	6	0	27	6	12	95
16:45	0	0	1	33	1	0	4	1	20	5	0	2	0	4	2	0	4	0	23	4	12	80
Total	2	0	2	113	4	0	11	2	86	13	4	7	2	16	13	1	24	0	98	25	55	313
17:00	3	1	0	27	4	0	2	0	24	2	2	1	0	4	3	0	6	0	39	6	15	94
17:15	0	1	0	32	1	0	5	2	13	7	0	1	0	1	1	0	13	0	28	13	22	74
17:30	1	1	0	36	2	0	11	2	23	13	1	0	0	5	1	0	7	0	27	7	23	91
17:45	1	0	0	38	1	0	2	0	10	2	0	1	1	4	2	0	18	0	28	18	23	80
Total	5	3	0	133	8	0	20	4	70	24	3	3	1	14	7	0	44	0	122	44	83	339
Grand Total	11	7	4	423	22	5	135	12	351	152	7	10	3	63	20	2	74	1	376	77	271	1213
Apprch %	50.0%	31.8%	18.2%			3.3%	88.8%	7.9%			35.0%	50.0%	15.0%			2.6%	96.1%	1.3%				
Total %	4.1%	2.6%	1.5%		8.1%	1.8%	49.8%	4.4%		56.1%	2.6%	3.7%	1.1%		7.4%	0.7%	27.3%	0.4%		28.4%	100.0%	

AM PEAK HOUR	Valdez St Southbound					Grand Ave Westbound					Valdez St Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	1	1	0	24	2	3	15	1	31	19	0	0	0	7	0	0	1	0	20	1	22
8:15	1	0	0	36	1	0	29	1	31	30	0	0	0	5	0	0	0	0	30	0	31
8:30	1	0	1	35	2	0	25	2	29	27	0	0	0	1	0	0	0	0	25	0	29
8:45	0	1	0	27	1	1	11	1	34	13	0	0	0	8	0	1	1	0	28	2	16
Total Volume	3	2	1	122	6	4	80	5	125	89	0	0	0	21	0	1	2	0	103	3	98
% App Total	50.0%	33.3%	16.7%			4.5%	89.9%	5.6%			0.0%	0.0%	0.0%			33.3%	66.7%	0.0%			
PHF	.750	.500	.250		.750	.333	.690	.625		.742	.000	.000	.000		.000	.250	.500	.000		.375	.790

PM PEAK HOUR	Valdez St Southbound					Grand Ave Westbound					Valdez St Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	3	1	0	27	4	0	2	0	24	2	2	1	0	4	3	0	6	0	39	6	15
17:15	0	1	0	32	1	0	5	2	13	7	0	1	0	1	1	0	13	0	28	13	22
17:30	1	1	0	36	2	0	11	2	23	13	1	0	0	5	1	0	7	0	27	7	23
17:45	1	0	0	38	1	0	2	0	10	2	0	1	1	4	2	0	18	0	28	18	23
Total Volume	5	3	0	133	8	0	20	4	70	24	3	3	1	14	7	0	44	0	122	44	83
% App Total	62.5%	37.5%	0.0%			0.0%	83.3%	16.7%			42.9%	42.9%	14.3%			0.0%	100.0%	0.0%			
PHF	.417	.750	.000		.500	.000	.455	.500		.462	.375	.750	.250		.583	.000	.611	.000		.611	.902

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7038-010 Harrison Street & Grand Avenue
Date : 1/21/2016

Unshifted Count = All Vehicles & Uturns

	Harrison Street Southbound					Grand Avenue Westbound					Harrison Street Northbound					Grand Avenue Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	0	105	13	0	118	52	55	1	0	108	12	52	36	0	100	8	19	8	0	35	361	0
7:15	1	116	16	0	133	71	76	2	0	149	12	74	34	0	120	12	31	14	0	57	459	0
7:30	0	116	12	0	128	66	118	7	0	191	9	89	41	0	139	13	35	9	0	57	515	0
7:45	4	158	25	0	187	100	117	7	0	224	15	141	50	0	206	13	42	22	0	77	694	0
Total	5	495	66	0	566	289	366	17	0	672	48	356	161	0	565	46	127	53	0	226	2029	0
8:00	7	175	20	0	202	110	125	24	0	259	10	163	63	0	236	20	42	28	0	90	787	0
8:15	1	193	18	0	212	128	156	75	1	360	17	143	69	0	229	12	38	22	0	72	873	1
8:30	1	209	20	0	230	106	135	11	1	253	16	155	72	0	243	11	56	29	0	96	822	1
8:45	0	214	22	0	236	105	132	10	2	249	10	136	49	0	195	13	32	30	0	75	755	2
Total	9	791	80	0	880	449	548	120	4	1121	53	597	253	0	903	56	168	109	0	333	3237	4
16:00	0	89	19	0	108	44	74	11	0	129	3	196	137	0	336	18	84	36	0	138	711	0
16:15	1	91	17	0	109	62	81	10	0	153	1	172	142	0	315	21	93	30	0	144	721	0
16:30	2	86	13	0	101	55	62	7	0	124	3	245	169	0	417	23	116	27	0	166	808	0
16:45	0	88	14	0	102	51	70	5	1	127	4	248	173	0	425	17	152	35	0	204	858	1
Total	3	354	63	0	420	212	287	33	1	533	11	861	621	0	1493	79	445	128	0	652	3098	1
17:00	1	109	17	0	127	60	89	5	0	154	2	276	191	0	469	29	153	34	0	216	966	0
17:15	0	98	26	0	124	63	90	6	0	159	2	258	192	1	453	31	161	33	0	225	961	1
17:30	0	90	24	0	114	63	90	8	2	163	3	259	163	0	425	25	146	37	0	208	910	2
17:45	1	97	30	0	128	44	74	3	0	121	6	245	148	0	399	41	176	25	0	242	890	0
Total	2	394	97	0	493	230	343	22	2	597	13	1038	694	1	1746	126	636	129	0	891	3727	3
Grand Total	19	2034	306	0	2359	1180	1544	192	7	2923	125	2852	1729	1	4707	307	1376	419	0	2102	12091	8
Apprch %	0.8%	86.2%	13.0%	0.0%		40.4%	52.8%	6.6%	0.2%		2.7%	60.6%	36.7%	0.0%		14.6%	65.5%	19.9%	0.0%			
Total %	0.2%	16.8%	2.5%	0.0%	19.5%	9.8%	12.8%	1.6%	0.1%	24.2%	1.0%	23.6%	14.3%	0.0%	38.9%	2.5%	11.4%	3.5%	0.0%	17.4%	100.0%	

AM PEAK HOUR	Harrison Street Southbound					Grand Avenue Westbound					Harrison Street Northbound					Grand Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	7	175	20	0	202	110	125	24	0	259	10	163	63	0	236	20	42	28	0	90	787
8:15	1	193	18	0	212	128	156	75	1	360	17	143	69	0	229	12	38	22	0	72	873
8:30	1	209	20	0	230	106	135	11	1	253	16	155	72	0	243	11	56	29	0	96	822
8:45	0	214	22	0	236	105	132	10	2	249	10	136	49	0	195	13	32	30	0	75	755
Total Volume	9	791	80	0	880	449	548	120	4	1121	53	597	253	0	903	56	168	109	0	333	3237
% App Total	1.0%	89.9%	9.1%	0.0%		40.1%	48.9%	10.7%	0.4%		5.9%	66.1%	28.0%	0.0%		16.8%	50.5%	32.7%	0.0%		
PHF	.321	.924	.909	.000	.932	.877	.878	.400	.500	.778	.779	.916	.878	.000	.929	.700	.750	.908	.000	.867	.927

PM PEAK HOUR	Harrison Street Southbound					Grand Avenue Westbound					Harrison Street Northbound					Grand Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	1	109	17	0	127	60	89	5	0	154	2	276	191	0	469	29	153	34	0	216	966
17:15	0	98	26	0	124	63	90	6	0	159	2	258	192	1	453	31	161	33	0	225	961
17:30	0	90	24	0	114	63	90	8	2	163	3	259	163	0	425	25	146	37	0	208	910
17:45	1	97	30	0	128	44	74	3	0	121	6	245	148	0	399	41	176	25	0	242	890
Total Volume	2	394	97	0	493	230	343	22	2	597	13	1038	694	1	1746	126	636	129	0	891	3727
% App Total	0.4%	79.9%	19.7%	0.0%		38.5%	57.5%	3.7%	0.3%		0.7%	59.5%	39.7%	0.1%		14.1%	71.4%	14.5%	0.0%		
PHF	.500	.904	.808	.000	.963	.913	.953	.688	.250	.916	.542	.940	.904	.250	.931	.768	.903	.872	.000	.920	.965

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7038-010 Harrison Street & Grand Avenue
Date : 1/21/2016

Bank 1 Count = Bikes & Peds

	Harrison Street Southbound					Grand Avenue Westbound					Harrison Street Northbound					Grand Avenue Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	1	6	2	11	9	6	3	0	9	9	0	1	0	15	1	0	1	0	17	1	20	52
7:15	0	3	1	22	4	4	10	2	18	16	0	0	0	26	0	0	1	0	26	1	21	92
7:30	0	6	1	37	7	6	10	0	11	16	1	0	0	18	1	0	1	0	40	1	25	106
7:45	0	2	3	54	5	19	9	0	43	28	1	1	1	55	3	1	2	0	74	3	39	226
Total	1	17	7	124	25	35	32	2	81	69	2	2	1	114	5	1	5	0	157	6	105	476
8:00	0	5	1	48	6	13	16	1	31	30	0	1	2	30	3	0	2	1	48	3	42	157
8:15	0	12	2	69	14	14	25	0	41	39	1	3	2	60	6	0	3	0	64	3	62	234
8:30	1	7	1	45	9	19	19	0	49	38	0	4	2	52	6	0	2	0	50	2	55	196
8:45	0	12	3	42	15	9	22	0	36	31	0	0	3	36	3	0	1	0	56	1	50	170
Total	1	36	7	204	44	55	82	1	157	138	1	8	9	178	18	0	8	1	218	9	209	757
16:00	0	4	0	18	4	0	3	0	16	3	0	6	11	24	17	0	8	1	22	9	33	80
16:15	1	2	0	28	3	2	2	0	27	4	0	6	10	44	16	0	7	0	31	7	30	130
16:30	1	2	1	19	4	4	11	0	28	15	0	2	11	39	13	0	3	2	42	5	37	128
16:45	0	4	0	25	4	2	5	0	42	7	0	2	16	42	18	3	9	0	24	12	41	133
Total	2	12	1	90	15	8	21	0	113	29	0	16	48	149	64	3	27	3	119	33	141	471
17:00	0	2	2	41	4	1	9	2	33	12	1	5	21	39	27	1	10	0	48	11	54	161
17:15	0	1	1	54	2	3	3	4	30	10	0	6	22	46	28	2	12	1	43	15	55	173
17:30	0	0	0	46	0	3	7	0	23	10	1	4	20	56	25	1	5	0	54	6	41	179
17:45	2	2	1	45	5	2	5	1	35	8	1	4	22	57	27	1	12	0	35	13	53	172
Total	2	5	4	186	11	9	24	7	121	40	3	19	85	198	107	5	39	1	180	45	203	685
Grand Total	6	70	19	604	95	107	159	10	472	276	6	45	143	639	194	9	79	5	674	93	658	2389
Apprch %	6.3%	73.7%	20.0%			38.8%	57.6%	3.6%			3.1%	23.2%	73.7%			9.7%	84.9%	5.4%				
Total %	0.9%	10.6%	2.9%		14.4%	16.3%	24.2%	1.5%		41.9%	0.9%	6.8%	21.7%		29.5%	1.4%	12.0%	0.8%		14.1%	100.0%	

AM PEAK HOUR	Harrison Street Southbound					Grand Avenue Westbound					Harrison Street Northbound					Grand Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	5	1	48	6	13	16	1	31	30	0	1	2	30	3	0	2	1	48	3	42
8:15	0	12	2	69	14	14	25	0	41	39	1	3	2	60	6	0	3	0	64	3	62
8:30	1	7	1	45	9	19	19	0	49	38	0	4	2	52	6	0	2	0	50	2	55
8:45	0	12	3	42	15	9	22	0	36	31	0	0	3	36	3	0	1	0	56	1	50
Total Volume	1	36	7	204	44	55	82	1	157	138	1	8	9	178	18	0	8	1	218	9	209
% App Total	2.3%	81.8%	15.9%			39.9%	59.4%	0.7%			5.6%	44.4%	50.0%			0.0%	88.9%	11.1%			
PHF	.250	.750	.583		.733	.724	.820	.250		.885	.250	.500	.750		.750	.000	.667	.250		.750	.843

PM PEAK HOUR	Harrison Street Southbound					Grand Avenue Westbound					Harrison Street Northbound					Grand Avenue Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	2	2	41	4	1	9	2	33	12	1	5	21	39	27	1	10	0	48	11	54
17:15	0	1	1	54	2	3	3	4	30	10	0	6	22	46	28	2	12	1	43	15	55
17:30	0	0	0	46	0	3	7	0	23	10	1	4	20	56	25	1	5	0	54	6	41
17:45	2	2	1	45	5	2	5	1	35	8	1	4	22	57	27	1	12	0	35	13	53
Total Volume	2	5	4	186	11	9	24	7	121	40	3	19	85	198	107	5	39	1	180	45	203
% App Total	18.2%	45.5%	36.4%			22.5%	60.0%	17.5%			2.8%	17.8%	79.4%			11.1%	86.7%	2.2%			
PHF	.250	.625	.500		.550	.750	.667	.438		.833	.750	.792	.966		.955	.625	.813	.250		.750	.923

National Data and Surveying Services

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7003-005 Bay Pl & Grand Ave
Date : 1/25/2017

Unshifted Count = All Vehicles & Uturns

	Bay Pl Southbound					Grand Ave Westbound					Bay Pl Northbound					Grand Ave Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	12	0	8	0	20	0	115	22	1	138	0	0	0	0	0	9	63	0	0	72	230	1
7:15	9	0	9	0	18	0	145	24	0	169	0	0	0	0	0	5	66	0	0	71	258	0
7:30	12	0	18	0	30	0	146	46	0	192	0	0	0	0	0	8	73	0	0	81	303	0
7:45	11	0	19	0	30	0	187	43	0	230	0	0	0	0	0	15	70	0	0	85	345	0
Total	44	0	54	0	98	0	593	135	1	729	0	0	0	0	0	37	272	0	0	309	1136	1
8:00	21	0	17	0	38	0	232	53	0	285	0	0	0	0	0	13	125	0	0	138	461	0
8:15	29	0	26	0	55	0	234	79	0	313	0	0	0	0	0	14	103	0	1	118	486	1
8:30	24	0	21	0	45	0	263	74	0	337	0	0	0	0	0	13	91	0	0	104	486	0
8:45	29	0	21	1	51	0	198	61	0	259	0	0	0	0	0	15	95	0	0	110	420	1
Total	103	0	85	1	189	0	927	267	0	1194	0	0	0	0	0	55	414	0	1	470	1853	2
16:00	58	0	16	0	74	0	101	40	0	141	0	0	0	0	0	14	216	0	0	230	445	0
16:15	65	0	16	0	81	0	100	42	0	142	0	0	0	0	0	23	232	0	0	255	478	0
16:30	60	0	18	0	78	0	102	44	0	146	0	0	0	0	0	20	244	0	0	264	488	0
16:45	48	0	22	0	70	0	91	56	0	147	0	0	0	0	0	26	233	0	1	260	477	1
Total	231	0	72	0	303	0	394	182	0	576	0	0	0	0	0	83	925	0	1	1009	1888	1
17:00	78	0	21	0	99	0	114	49	0	163	0	0	0	0	0	31	303	0	0	334	596	0
17:15	86	0	18	0	104	0	129	65	0	194	0	0	0	0	0	46	321	0	0	367	665	0
17:30	65	0	19	0	84	0	125	60	0	185	0	0	0	0	0	46	308	0	0	354	623	0
17:45	65	0	27	0	92	0	95	55	0	150	0	0	0	0	0	39	327	0	0	366	608	0
Total	294	0	85	0	379	0	463	229	0	692	0	0	0	0	0	162	1259	0	0	1421	2492	0
Grand Total	672	0	296	1	969	0	2377	813	1	3191	0	0	0	0	0	337	2870	0	2	3209	7369	4
Apprch %	69.3%	0.0%	30.5%	0.1%		0.0%	74.5%	25.5%	0.0%		0.0%	0.0%	0.0%	0.0%		10.5%	89.4%	0.0%	0.1%			
Total %	9.1%	0.0%	4.0%	0.0%	13.1%	0.0%	32.3%	11.0%	0.0%	43.3%	0.0%	0.0%	0.0%	0.0%	0.0%	4.6%	38.9%	0.0%	0.0%	43.5%	100.0%	

AM PEAK HOUR	Bay Pl Southbound					Grand Ave Westbound					Bay Pl Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	21	0	17	0	38	0	232	53	0	285	0	0	0	0	0	13	125	0	0	138	461
8:15	29	0	26	0	55	0	234	79	0	313	0	0	0	0	0	14	103	0	1	118	486
8:30	24	0	21	0	45	0	263	74	0	337	0	0	0	0	0	13	91	0	0	104	486
8:45	29	0	21	1	51	0	198	61	0	259	0	0	0	0	0	15	95	0	0	110	420
Total Volume	103	0	85	1	189	0	927	267	0	1194	0	0	0	0	0	55	414	0	1	470	1853
% App Total	54.5%	0.0%	45.0%	0.5%		0.0%	77.6%	22.4%	0.0%		0.0%	0.0%	0.0%	0.0%		11.7%	88.1%	0.0%	0.2%		
PHF	.888	.000	.817	.250	.859	.000	.881	.845	.000	.886	.000	.000	.000	.000	.000	.917	.828	.000	.250	.851	.953

PM PEAK HOUR	Bay Pl Southbound					Grand Ave Westbound					Bay Pl Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	78	0	21	0	99	0	114	49	0	163	0	0	0	0	0	31	303	0	0	334	596
17:15	86	0	18	0	104	0	129	65	0	194	0	0	0	0	0	46	321	0	0	367	665
17:30	65	0	19	0	84	0	125	60	0	185	0	0	0	0	0	46	308	0	0	354	623
17:45	65	0	27	0	92	0	95	55	0	150	0	0	0	0	0	39	327	0	0	366	608
Total Volume	294	0	85	0	379	0	463	229	0	692	0	0	0	0	0	162	1259	0	0	1421	2492
% App Total	77.6%	0.0%	22.4%	0.0%		0.0%	66.9%	33.1%	0.0%		0.0%	0.0%	0.0%	0.0%		11.4%	88.6%	0.0%	0.0%		
PHF	.855	.000	.787	.000	.911	.000	.897	.881	.000	.892	.000	.000	.000	.000	.000	.880	.963	.000	.000	.968	.937

National Data and Surveying Services

(323) 782-0090
info@ndsdata.com

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

File Name : 17-7003-005 Bay Pl & Grand Ave
Date : 1/25/2017

Bank 2 Count = Bikes & Peds

	Bay Pl Southbound					Grand Ave Westbound					Bay Pl Northbound					Grand Ave Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	4	0	1	9	5	0	9	1	0	10	0	0	0	0	0	0	2	0	4	2	17	13
7:15	1	0	1	6	2	0	5	6	0	11	0	0	0	0	0	0	2	0	4	2	15	10
7:30	3	0	0	21	3	0	13	2	0	15	0	0	0	0	0	0	4	0	8	4	22	29
7:45	3	0	3	12	6	0	19	1	0	20	0	0	0	0	0	0	4	0	11	4	30	23
Total	11	0	5	48	16	0	46	10	0	56	0	0	0	0	0	0	12	0	27	12	84	75
8:00	0	0	3	17	3	0	21	8	0	29	0	0	0	0	0	1	6	0	4	7	39	21
8:15	2	0	1	25	3	0	27	4	0	31	0	0	0	0	0	0	2	0	13	2	36	38
8:30	2	0	2	32	4	0	29	3	0	32	0	0	0	0	0	0	3	0	20	3	39	52
8:45	3	0	0	19	3	0	19	7	0	26	0	0	0	0	0	1	3	0	60	4	33	79
Total	7	0	6	93	13	0	96	22	0	118	0	0	0	0	0	2	14	0	97	16	147	190
16:00	4	0	2	10	6	0	4	2	0	6	0	0	0	0	0	0	18	0	23	18	30	33
16:15	2	0	0	6	2	0	3	4	0	7	0	0	0	0	0	0	17	0	14	17	26	20
16:30	6	0	1	20	7	0	4	3	1	7	0	0	0	0	0	5	16	0	14	21	35	35
16:45	4	0	0	26	4	0	2	1	0	3	0	0	0	0	0	1	21	0	19	22	29	45
Total	16	0	3	62	19	0	13	10	1	23	0	0	0	0	0	6	72	0	70	78	120	133
17:00	3	0	0	28	3	0	7	0	0	7	0	0	0	0	0	1	25	0	20	26	36	48
17:15	9	0	1	16	10	0	2	3	0	5	0	0	0	0	0	1	32	0	18	33	48	34
17:30	4	0	0	28	4	0	6	0	0	6	0	0	0	0	0	2	26	0	19	28	38	47
17:45	3	0	0	37	3	0	3	1	0	4	0	0	0	0	0	3	38	0	11	41	48	48
Total	19	0	1	109	20	0	18	4	0	22	0	0	0	0	0	7	121	0	68	128	170	177
Grand Total	53	0	15	312	68	0	173	46	1	219	0	0	0	0	0	15	219	0	262	234	521	575
Apprch %	77.9%	0.0%	22.1%			0.0%	79.0%	21.0%			0.0%	0.0%	0.0%			6.4%	93.6%	0.0%				
Total %	10.2%	0.0%	2.9%		13.1%	0.0%	33.2%	8.8%		42.0%	0.0%	0.0%	0.0%		0.0%	2.9%	42.0%	0.0%		44.9%	100.0%	

AM PEAK HOUR	Bay Pl Southbound					Grand Ave Westbound					Bay Pl Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	0	3	17	3	0	21	8	0	29	0	0	0	0	0	1	6	0	4	7	39
8:15	2	0	1	25	3	0	27	4	0	31	0	0	0	0	0	0	2	0	13	2	36
8:30	2	0	2	32	4	0	29	3	0	32	0	0	0	0	0	0	3	0	20	3	39
8:45	3	0	0	19	3	0	19	7	0	26	0	0	0	0	0	1	3	0	60	4	33
Total Volume	7	0	6	93	13	0	96	22	0	118	0	0	0	0	0	2	14	0	97	16	147
% App Total	53.8%	0.0%	46.2%			0.0%	81.4%	18.6%			0.0%	0.0%	0.0%			12.5%	87.5%	0.0%			
PHF	.583	.000	.500		.813	.000	.828	.688		.922	.000	.000	.000		.000	.500	.583	.000		.571	.942

PM PEAK HOUR	Bay Pl Southbound					Grand Ave Westbound					Bay Pl Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	3	0	0	28	3	0	7	0	0	7	0	0	0	0	0	1	25	0	20	26	36
17:15	9	0	1	16	10	0	2	3	0	5	0	0	0	0	0	1	32	0	18	33	48
17:30	4	0	0	28	4	0	6	0	0	6	0	0	0	0	0	2	26	0	19	28	38
17:45	3	0	0	37	3	0	3	1	0	4	0	0	0	0	0	3	38	0	11	41	48
Total Volume	19	0	1	109	20	0	18	4	0	22	0	0	0	0	0	7	121	0	68	128	170
% App Total	95.0%	0.0%	5.0%			0.0%	81.8%	18.2%			0.0%	0.0%	0.0%			5.5%	94.5%	0.0%			
PHF	.528	.000	.250		.500	.000	.643	.333		.786	.000	.000	.000		.000	.583	.796	.000		.780	.885

National Data and Surveying Services

(323) 782-0090
info@ndsdata.com

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

File Name : 17-7003-006 Park View Terrace & Grand Ave
Date : 1/25/2017

Unshifted Count = All Vehicles & Uturns

	Park View Terrace Southbound					Grand Ave Westbound					Park View Terrace Northbound					Grand Ave Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	3	0	2	0	5	1	140	2	0	143	0	0	0	0	0	4	65	4	0	73	221	0
7:15	0	0	5	0	5	4	165	2	0	171	0	0	0	0	0	2	69	4	0	75	251	0
7:30	4	0	6	0	10	3	190	2	3	198	0	0	0	0	0	1	81	0	0	82	290	3
7:45	0	0	11	0	11	6	237	5	0	248	0	0	0	0	0	4	79	3	1	87	346	1
Total	7	0	24	0	31	14	732	11	3	760	0	0	0	0	0	11	294	11	1	317	1108	4
8:00	4	2	4	0	10	26	263	2	0	291	0	0	0	0	0	3	121	17	0	141	442	0
8:15	3	0	12	0	15	4	313	5	0	322	0	0	0	0	0	1	128	4	0	133	470	0
8:30	9	0	20	0	29	3	294	2	1	300	0	0	0	0	0	7	100	3	3	113	442	4
8:45	4	0	13	0	17	8	247	4	0	259	0	0	0	0	0	5	112	6	0	123	399	0
Total	20	2	49	0	71	41	1117	13	1	1172	0	0	0	0	0	16	461	30	3	510	1753	4
16:00	9	0	7	0	16	3	128	6	1	138	0	0	0	0	0	6	270	4	0	280	434	1
16:15	3	0	7	0	10	2	136	6	1	145	0	0	0	0	0	1	291	8	1	301	456	2
16:30	5	0	3	0	8	0	139	3	0	142	0	0	0	0	0	1	289	10	1	301	451	1
16:45	8	0	7	0	15	6	143	4	2	155	0	0	0	0	0	3	272	4	3	282	452	5
Total	25	0	24	0	49	11	546	19	4	580	0	0	0	0	0	11	1122	26	5	1164	1793	9
17:00	7	0	8	0	15	3	152	3	2	160	0	0	0	0	0	6	348	7	0	361	536	2
17:15	6	0	9	0	15	4	190	12	2	208	0	0	0	0	0	14	395	11	3	423	646	5
17:30	8	0	6	0	14	7	175	4	0	186	0	0	0	0	0	12	341	18	2	373	573	2
17:45	8	0	6	0	14	4	139	1	1	145	0	0	0	0	0	9	353	16	3	381	540	4
Total	29	0	29	0	58	18	656	20	5	699	0	0	0	0	0	41	1437	52	8	1538	2295	13
Grand Total	81	2	126	0	209	84	3051	63	13	3211	0	0	0	0	0	79	3314	119	17	3529	6949	30
Apprch %	38.8%	1.0%	60.3%	0.0%		2.6%	95.0%	2.0%	0.4%		0.0%	0.0%	0.0%	0.0%		2.2%	93.9%	3.4%	0.5%			
Total %	1.2%	0.0%	1.8%	0.0%	3.0%	1.2%	43.9%	0.9%	0.2%	46.2%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	47.7%	1.7%	0.2%	50.8%	100.0%	

AM PEAK HOUR	Park View Terrace Southbound					Grand Ave Westbound					Park View Terrace Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	4	2	4	0	10	26	263	2	0	291	0	0	0	0	0	3	121	17	0	141	442
8:15	3	0	12	0	15	4	313	5	0	322	0	0	0	0	0	1	128	4	0	133	470
8:30	9	0	20	0	29	3	294	2	1	300	0	0	0	0	0	7	100	3	3	113	442
8:45	4	0	13	0	17	8	247	4	0	259	0	0	0	0	0	5	112	6	0	123	399
Total Volume	20	2	49	0	71	41	1117	13	1	1172	0	0	0	0	0	16	461	30	3	510	1753
% App Total	28.2%	2.8%	69.0%	0.0%		3.5%	95.3%	1.1%	0.1%		0.0%	0.0%	0.0%	0.0%		3.1%	90.4%	5.9%	0.6%		
PHF	.556	.250	.613	.000	.612	.394	.892	.650	.250	.910	.000	.000	.000	.000	.000	.571	.900	.441	.250	.904	.932

PM PEAK HOUR	Park View Terrace Southbound					Grand Ave Westbound					Park View Terrace Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	7	0	8	0	15	3	152	3	2	160	0	0	0	0	0	6	348	7	0	361	536
17:15	6	0	9	0	15	4	190	12	2	208	0	0	0	0	0	14	395	11	3	423	646
17:30	8	0	6	0	14	7	175	4	0	186	0	0	0	0	0	12	341	18	2	373	573
17:45	8	0	6	0	14	4	139	1	1	145	0	0	0	0	0	9	353	16	3	381	540
Total Volume	29	0	29	0	58	18	656	20	5	699	0	0	0	0	0	41	1437	52	8	1538	2295
% App Total	50.0%	0.0%	50.0%	0.0%		2.6%	93.8%	2.9%	0.7%		0.0%	0.0%	0.0%	0.0%		2.7%	93.4%	3.4%	0.5%		
PHF	.906	.000	.806	.000	.967	.643	.863	.417	.625	.840	.000	.000	.000	.000	.000	.732	.909	.722	.667	.909	.888

National Data and Surveying Services

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7003-006 Park View Terrace & Grand Ave
Date : 1/25/2017

Bank 2 Count = Bikes & Peds

	Park View Terrace Southbound					Grand Ave Westbound					Park View Terrace Northbound					Grand Ave Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	14	0	0	10	0	1	10	0	0	0	17	0	0	6	0	9	6	16	41
7:15	0	0	0	20	0	0	7	0	0	7	0	0	0	17	0	0	3	0	9	3	10	46
7:30	0	0	0	16	0	0	10	0	0	10	0	0	0	36	0	0	7	0	5	7	17	57
7:45	0	0	1	35	1	0	26	0	0	26	0	0	0	26	0	0	7	0	21	7	34	82
Total	0	0	1	85	1	0	53	0	1	53	0	0	0	96	0	0	23	0	44	23	77	226
8:00	0	0	1	40	1	0	15	0	0	15	1	0	0	39	1	0	6	0	30	6	23	109
8:15	0	0	0	69	0	0	22	0	0	22	0	0	0	54	0	0	3	0	100	3	25	223
8:30	0	0	0	46	0	0	26	0	0	26	0	0	0	62	0	1	4	0	39	5	31	147
8:45	0	0	0	57	0	0	20	0	0	20	0	0	0	44	0	0	4	0	17	4	24	118
Total	0	0	1	212	1	0	83	0	0	83	1	0	0	199	1	1	17	0	186	18	103	597
16:00	0	0	0	26	0	0	4	1	0	5	0	0	0	50	0	0	26	1	12	27	32	88
16:15	0	0	0	18	0	0	6	0	0	6	0	0	0	37	0	0	18	1	21	19	25	76
16:30	0	0	0	38	0	0	7	0	0	7	0	0	0	39	0	0	21	0	12	21	28	89
16:45	1	0	0	46	1	0	3	0	0	3	0	0	0	48	0	0	21	3	25	24	28	119
Total	1	0	0	128	1	0	20	1	0	21	0	0	0	174	0	0	86	5	70	91	113	372
17:00	0	0	0	53	0	0	7	0	0	7	0	0	0	35	0	0	29	0	11	29	36	99
17:15	2	0	0	33	2	0	6	0	0	6	0	0	1	76	1	0	34	1	12	35	44	121
17:30	0	0	0	28	0	0	1	0	0	1	0	0	0	61	0	0	28	2	10	30	31	99
17:45	1	0	0	36	1	0	2	0	0	2	0	0	0	106	0	0	31	2	25	33	36	167
Total	3	0	0	150	3	0	16	0	0	16	0	0	1	278	1	0	122	5	58	127	147	486
Grand Total	4	0	2	575	6	0	172	1	1	173	1	0	1	747	2	1	248	10	358	259	440	1681
Apprch %	66.7%	0.0%	33.3%			0.0%	99.4%	0.6%			50.0%	0.0%	50.0%			0.4%	95.8%	3.9%				
Total %	0.9%	0.0%	0.5%		1.4%	0.0%	39.1%	0.2%		39.3%	0.2%	0.0%	0.2%		0.5%	0.2%	56.4%	2.3%		58.9%	100.0%	

AM PEAK HOUR	Park View Terrace Southbound					Grand Ave Westbound					Park View Terrace Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	0	1	40	1	0	15	0	0	15	1	0	0	39	1	0	6	0	30	6	23
8:15	0	0	0	69	0	0	22	0	0	22	0	0	0	54	0	0	3	0	100	3	25
8:30	0	0	0	46	0	0	26	0	0	26	0	0	0	62	0	1	4	0	39	5	31
8:45	0	0	0	57	0	0	20	0	0	20	0	0	0	44	0	0	4	0	17	4	24
Total Volume	0	0	1	212	1	0	83	0	0	83	1	0	0	199	1	1	17	0	186	18	103
% App Total	0.0%	0.0%	100.0%			0.0%	100.0%	0.0%			100.0%	0.0%	0.0%			5.6%	94.4%	0.0%			
PHF	.000	.000	.250		.250	.000	.798	.000		.798	.250	.000	.000		.250	.250	.708	.000		.750	.831

PM PEAK HOUR	Park View Terrace Southbound					Grand Ave Westbound					Park View Terrace Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	0	0	53	0	0	7	0	0	7	0	0	0	35	0	0	29	0	11	29	36
17:15	2	0	0	33	2	0	6	0	0	6	0	0	1	76	1	0	34	1	12	35	44
17:30	0	0	0	28	0	0	1	0	0	1	0	0	0	61	0	0	28	2	10	30	31
17:45	1	0	0	36	1	0	2	0	0	2	0	0	0	106	0	0	31	2	25	33	36
Total Volume	3	0	0	150	3	0	16	0	0	16	0	0	1	278	1	0	122	5	58	127	147
% App Total	100.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	100.0%			0.0%	96.1%	3.9%			
PHF	.375	.000	.000		.375	.000	.571	.000		.571	.000	.000	.250		.250	.000	.897	.625		.907	.835

National Data and Surveying Services

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City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

File Name : 17-7003-009 Perkins St & Grand Ave
Date : 1/25/2017

Unshifted Count = All Vehicles & Uturns

	Perkins St Southbound					Grand Ave Westbound					Perkins St Northbound					Grand Ave Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	1	0	23	0	24	4	132	6	0	142	3	0	1	0	4	6	59	2	0	67	237	0
7:15	6	1	23	0	30	3	135	5	0	143	4	0	2	0	6	4	59	0	0	63	242	0
7:30	13	2	22	0	37	5	155	3	0	163	2	0	1	0	3	12	67	1	0	80	283	0
7:45	12	1	25	0	38	7	227	6	1	241	3	0	2	0	5	9	66	6	0	81	365	1
Total	32	4	93	0	129	19	649	20	1	689	12	0	6	0	18	31	251	9	0	291	1127	1
8:00	13	1	32	0	46	4	241	5	0	250	20	5	4	0	29	11	110	8	0	129	454	0
8:15	10	3	31	0	44	6	258	6	1	271	16	3	3	0	22	6	106	2	0	114	451	1
8:30	11	2	31	0	44	11	242	8	0	261	2	1	1	0	4	8	86	7	0	101	410	0
8:45	13	1	14	0	28	8	253	9	1	271	2	1	0	0	3	8	94	10	0	112	414	1
Total	47	7	108	0	162	29	994	28	2	1053	40	10	8	0	58	33	396	27	0	456	1729	2
16:00	14	1	13	0	28	5	115	17	0	137	4	0	4	0	8	15	262	11	1	289	462	1
16:15	18	1	10	0	29	7	128	13	0	148	4	0	2	0	6	12	257	5	1	275	458	1
16:30	20	1	16	0	37	8	134	11	0	153	1	2	8	0	11	17	291	7	1	316	517	1
16:45	23	1	15	0	39	10	129	22	0	161	3	0	6	0	9	15	254	9	0	278	487	0
Total	75	4	54	0	133	30	506	63	0	599	12	2	20	0	34	59	1064	32	3	1158	1924	3
17:00	25	3	19	0	47	12	132	9	2	155	8	3	8	0	19	14	331	8	0	353	574	2
17:15	20	4	22	0	46	2	157	17	0	176	11	1	10	0	22	15	329	7	1	352	596	1
17:30	25	4	16	0	45	5	157	13	0	175	7	1	6	0	14	23	322	8	0	353	587	0
17:45	24	2	10	0	36	10	125	17	3	155	11	0	12	0	23	21	301	10	1	333	547	4
Total	94	13	67	0	174	29	571	56	5	661	37	5	36	0	78	73	1283	33	2	1391	2304	7
Grand Total	248	28	322	0	598	107	2720	167	8	3002	101	17	70	0	188	196	2994	101	5	3296	7084	13
Apprch %	41.5%	4.7%	53.8%	0.0%		3.6%	90.6%	5.6%	0.3%		53.7%	9.0%	37.2%	0.0%		5.9%	90.8%	3.1%	0.2%			
Total %	3.5%	0.4%	4.5%	0.0%	8.4%	1.5%	38.4%	2.4%	0.1%	42.4%	1.4%	0.2%	1.0%	0.0%	2.7%	2.8%	42.3%	1.4%	0.1%	46.5%	100.0%	

AM PEAK HOUR	Perkins St Southbound					Grand Ave Westbound					Perkins St Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	13	1	32	0	46	4	241	5	0	250	20	5	4	0	29	11	110	8	0	129	454
8:15	10	3	31	0	44	6	258	6	1	271	16	3	3	0	22	6	106	2	0	114	451
8:30	11	2	31	0	44	11	242	8	0	261	2	1	1	0	4	8	86	7	0	101	410
8:45	13	1	14	0	28	8	253	9	1	271	2	1	0	0	3	8	94	10	0	112	414
Total Volume	47	7	108	0	162	29	994	28	2	1053	40	10	8	0	58	33	396	27	0	456	1729
% App Total	29.0%	4.3%	66.7%	0.0%		2.8%	94.4%	2.7%	0.2%		69.0%	17.2%	13.8%	0.0%		7.2%	86.8%	5.9%	0.0%		
PHF	.904	.583	.844	.000	.880	.659	.963	.778	.500	.971	.500	.500	.500	.000	.500	.750	.900	.675	.000	.884	.952

PM PEAK HOUR	Perkins St Southbound					Grand Ave Westbound					Perkins St Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	25	3	19	0	47	12	132	9	2	155	8	3	8	0	19	14	331	8	0	353	574
17:15	20	4	22	0	46	2	157	17	0	176	11	1	10	0	22	15	329	7	1	352	596
17:30	25	4	16	0	45	5	157	13	0	175	7	1	6	0	14	23	322	8	0	353	587
17:45	24	2	10	0	36	10	125	17	3	155	11	0	12	0	23	21	301	10	1	333	547
Total Volume	94	13	67	0	174	29	571	56	5	661	37	5	36	0	78	73	1283	33	2	1391	2304
% App Total	54.0%	7.5%	38.5%	0.0%		4.4%	86.4%	8.5%	0.8%		47.4%	6.4%	46.2%	0.0%		5.2%	92.2%	2.4%	0.1%		
PHF	.940	.813	.761	.000	.926	.604	.909	.824	.417	.939	.841	.417	.750	.000	.848	.793	.969	.825	.500	.985	.966

National Data and Surveying Services

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7003-009 Perkins St & Grand Ave
Date : 1/25/2017

Bank 2 Count = Bikes & Peds

	Perkins St Southbound					Grand Ave Westbound					Perkins St Northbound					Grand Ave Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	1	6	1	0	5	0	2	5	0	0	0	12	0	0	6	0	3	6	12	23
7:15	0	0	0	6	0	0	5	0	4	5	0	0	0	16	0	0	3	0	1	3	8	27
7:30	0	0	1	9	1	0	9	0	5	9	0	0	0	21	0	0	7	0	12	7	17	47
7:45	0	0	1	8	1	0	17	0	12	17	0	0	0	22	0	0	5	0	10	5	23	52
Total	0	0	3	29	3	0	36	0	23	36	0	0	0	71	0	0	21	0	26	21	60	149
8:00	0	0	2	32	2	0	28	0	11	28	0	0	0	26	0	0	6	1	7	7	37	76
8:15	0	0	2	26	2	0	20	0	6	20	0	0	2	39	2	0	6	0	8	6	30	79
8:30	0	1	0	28	1	0	17	0	11	17	0	0	0	37	0	0	4	0	13	4	22	89
8:45	0	0	0	26	0	1	22	0	9	23	0	0	0	31	0	0	6	0	8	6	29	74
Total	0	1	4	112	5	1	87	0	37	88	0	0	2	133	2	0	22	1	36	23	118	318
16:00	1	0	0	12	1	0	5	0	13	5	0	1	0	31	1	1	18	0	9	19	26	65
16:15	0	0	0	15	0	0	1	0	13	1	0	0	0	43	0	2	17	0	20	19	20	91
16:30	0	0	1	12	1	0	2	0	6	2	0	0	0	39	0	0	16	0	12	16	19	69
16:45	0	0	0	26	0	0	2	0	16	2	0	0	0	57	0	1	22	0	25	23	25	124
Total	1	0	1	65	2	0	10	0	48	10	0	1	0	170	1	4	73	0	66	77	90	349
17:00	0	0	0	31	0	0	6	0	5	6	1	0	1	49	2	1	22	0	14	23	31	99
17:15	0	0	0	28	0	0	5	0	11	5	0	2	0	60	2	0	32	0	20	32	39	119
17:30	0	0	0	34	0	0	8	0	11	8	0	0	0	51	0	2	21	0	23	23	31	119
17:45	0	0	0	18	0	0	5	0	17	5	1	1	0	92	2	2	29	0	13	31	38	140
Total	0	0	0	111	0	0	24	0	44	24	2	3	1	252	6	5	104	0	70	109	139	477
Grand Total	1	1	8	317	10	1	157	0	152	158	2	4	3	626	9	9	220	1	198	230	407	1293
Apprch %	10.0%	10.0%	80.0%			0.6%	99.4%	0.0%			22.2%	44.4%	33.3%			3.9%	95.7%	0.4%				
Total %	0.2%	0.2%	2.0%		2.5%	0.2%	38.6%	0.0%		38.8%	0.5%	1.0%	0.7%		2.2%	2.2%	54.1%	0.2%		56.5%	100.0%	

AM PEAK HOUR	Perkins St Southbound					Grand Ave Westbound					Perkins St Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	0	2	32	2	0	28	0	11	28	0	0	0	26	0	0	6	1	7	7	37
8:15	0	0	2	26	2	0	20	0	6	20	0	0	2	39	2	0	6	0	8	6	30
8:30	0	1	0	28	1	0	17	0	11	17	0	0	0	37	0	0	4	0	13	4	22
8:45	0	0	0	26	0	1	22	0	9	23	0	0	0	31	0	0	6	0	8	6	29
Total Volume	0	1	4	112	5	1	87	0	37	88	0	0	2	133	2	0	22	1	36	23	118
% App Total	0.0%	20.0%	80.0%			1.1%	98.9%	0.0%			0.0%	0.0%	100.0%			0.0%	95.7%	4.3%			
PHF	.000	.250	.500		.625	.250	.777	.000		.786	.000	.000	.250		.250	.000	.917	.250		.821	.797

PM PEAK HOUR	Perkins St Southbound					Grand Ave Westbound					Perkins St Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	0	0	31	0	0	6	0	5	6	1	0	1	49	2	1	22	0	14	23	31
17:15	0	0	0	28	0	0	5	0	11	5	0	2	0	60	2	0	32	0	20	32	39
17:30	0	0	0	34	0	0	8	0	11	8	0	0	0	51	0	2	21	0	23	23	31
17:45	0	0	0	18	0	0	5	0	17	5	1	1	0	92	2	2	29	0	13	31	38
Total Volume	0	0	0	111	0	0	24	0	44	24	2	3	1	252	6	5	104	0	70	109	139
% App Total	0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			33.3%	50.0%	16.7%			4.6%	95.4%	0.0%			
PHF	.000	.000	.000		.000	.000	.750	.000		.750	.500	.375	.250		.750	.625	.813	.000		.852	.891

National Data and Surveying Services

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7003-007 Stalen Ave & Grand Ave
Date : 1/25/2017

Unshifted Count = All Vehicles & Uturns

	Stalen Ave Southbound					Grand Ave Westbound					Stalen Ave Northbound					Grand Ave Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	4	0	4	0	8	2	126	2	0	130	1	0	2	0	3	1	61	0	0	62	203	0
7:15	6	0	6	0	12	2	136	2	0	140	1	0	2	0	3	2	65	0	0	67	222	0
7:30	6	0	4	0	10	2	165	6	0	173	1	0	3	0	4	5	77	0	0	82	269	0
7:45	6	0	7	0	13	8	234	7	0	249	2	0	8	0	10	2	81	3	0	86	358	0
Total	22	0	21	0	43	14	661	17	0	692	5	0	15	0	20	10	284	3	0	297	1052	0
8:00	2	1	3	0	6	3	241	6	0	250	2	1	1	0	4	4	113	3	0	120	380	0
8:15	7	0	6	0	13	8	275	7	0	290	5	0	6	0	11	4	109	1	0	114	428	0
8:30	5	0	3	0	8	9	269	9	1	288	1	1	6	0	8	1	111	0	0	112	416	1
8:45	8	0	9	0	17	8	265	10	0	283	3	0	3	0	6	3	103	4	0	110	416	0
Total	22	1	21	0	44	28	1050	32	1	1111	11	2	16	0	29	12	436	8	0	456	1640	1
16:00	5	2	9	0	16	6	129	9	0	144	5	0	4	0	9	7	270	3	0	280	449	0
16:15	8	0	6	0	14	4	146	9	0	159	3	0	10	0	13	7	280	2	1	290	476	1
16:30	9	2	3	0	14	5	154	8	1	168	6	0	6	0	12	5	315	3	0	323	517	1
16:45	5	2	8	0	15	6	171	9	1	187	2	1	5	0	8	3	283	2	0	288	498	1
Total	27	6	26	0	59	21	600	35	2	658	16	1	25	0	42	22	1148	10	1	1181	1940	3
17:00	3	2	5	0	10	9	159	17	0	185	4	1	10	0	15	7	336	4	0	347	557	0
17:15	12	2	7	0	21	10	158	14	0	182	10	1	11	0	22	8	320	3	1	332	557	1
17:30	3	1	13	0	17	3	155	7	0	165	5	1	8	0	14	12	331	0	1	344	540	1
17:45	6	2	8	0	16	3	148	11	1	163	5	1	7	0	13	7	323	4	0	334	526	1
Total	24	7	33	0	64	25	620	49	1	695	24	4	36	0	64	34	1310	11	2	1357	2180	3
Grand Total	95	14	101	0	210	88	2931	133	4	3156	56	7	92	0	155	78	3178	32	3	3291	6812	7
Apprch %	45.2%	6.7%	48.1%	0.0%		2.8%	92.9%	4.2%	0.1%		36.1%	4.5%	59.4%	0.0%		2.4%	96.6%	1.0%	0.1%			
Total %	1.4%	0.2%	1.5%	0.0%	3.1%	1.3%	43.0%	2.0%	0.1%	46.3%	0.8%	0.1%	1.4%	0.0%	2.3%	1.1%	46.7%	0.5%	0.0%	48.3%	100.0%	

AM PEAK HOUR	Stalen Ave Southbound					Grand Ave Westbound					Stalen Ave Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	2	1	3	0	6	3	241	6	0	250	2	1	1	0	4	4	113	3	0	120	380
8:15	7	0	6	0	13	8	275	7	0	290	5	0	6	0	11	4	109	1	0	114	428
8:30	5	0	3	0	8	9	269	9	1	288	1	1	6	0	8	1	111	0	0	112	416
8:45	8	0	9	0	17	8	265	10	0	283	3	0	3	0	6	3	103	4	0	110	416
Total Volume	22	1	21	0	44	28	1050	32	1	1111	11	2	16	0	29	12	436	8	0	456	1640
% App Total	50.0%	2.3%	47.7%	0.0%		2.5%	94.5%	2.9%	0.1%		37.9%	6.9%	55.2%	0.0%		2.6%	95.6%	1.8%	0.0%		
PHF	.688	.250	.583	.000	.647	.778	.955	.800	.250	.958	.550	.500	.667	.000	.659	.750	.965	.500	.000	.950	.958

PM PEAK HOUR	Stalen Ave Southbound					Grand Ave Westbound					Stalen Ave Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	3	2	5	0	10	9	159	17	0	185	4	1	10	0	15	7	336	4	0	347	557
17:15	12	2	7	0	21	10	158	14	0	182	10	1	11	0	22	8	320	3	1	332	557
17:30	3	1	13	0	17	3	155	7	0	165	5	1	8	0	14	12	331	0	1	344	540
17:45	6	2	8	0	16	3	148	11	1	163	5	1	7	0	13	7	323	4	0	334	526
Total Volume	24	7	33	0	64	25	620	49	1	695	24	4	36	0	64	34	1310	11	2	1357	2180
% App Total	37.5%	10.9%	51.6%	0.0%		3.6%	89.2%	7.1%	0.1%		37.5%	6.3%	56.3%	0.0%		2.5%	96.5%	0.8%	0.1%		
PHF	.500	.875	.635	.000	.762	.625	.975	.721	.250	.939	.600	1.000	.818	.000	.727	.708	.975	.688	.500	.978	.978

National Data and Surveying Services

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7003-007 Stalen Ave & Grand Ave
Date : 1/25/2017

Bank 2 Count = Bikes & Peds

	Stalen Ave Southbound					Grand Ave Westbound					Stalen Ave Northbound					Grand Ave Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	7	0	0	7	0	1	7	0	0	0	11	0	0	8	0	4	8	15	23
7:15	0	0	0	5	0	0	7	0	1	7	0	1	0	15	1	0	3	0	1	3	11	22
7:30	0	0	2	5	2	0	9	0	4	9	0	0	0	21	0	0	6	0	4	6	17	34
7:45	1	0	0	15	1	0	28	0	2	28	0	0	0	21	0	0	6	0	8	6	35	46
Total	1	0	2	32	3	0	51	0	8	51	0	1	0	68	1	0	23	0	17	23	78	125
8:00	0	0	2	27	2	0	30	0	6	30	0	0	0	28	0	0	6	0	1	6	38	62
8:15	0	0	1	32	1	0	25	0	7	25	0	0	0	32	0	0	5	0	12	5	31	83
8:30	0	0	1	18	1	0	28	0	4	28	0	0	0	25	0	0	4	0	1	4	33	48
8:45	1	0	3	25	4	0	28	0	7	28	0	0	0	27	0	0	7	0	11	7	39	70
Total	1	0	7	102	8	0	111	0	24	111	0	0	0	112	0	0	22	0	25	22	141	263
16:00	0	0	0	24	0	0	1	0	5	1	0	0	0	24	0	0	23	0	1	23	24	54
16:15	0	0	0	19	0	0	6	0	4	6	0	0	0	46	0	0	15	0	14	15	21	83
16:30	0	0	0	31	0	0	5	1	16	6	0	0	0	42	0	0	18	0	10	18	24	99
16:45	0	0	0	40	0	0	4	0	4	4	0	1	0	48	1	0	22	0	23	22	27	115
Total	0	0	0	114	0	0	16	1	29	17	0	1	0	160	1	0	78	0	48	78	96	351
17:00	0	0	0	53	0	0	5	1	21	6	1	0	0	48	1	0	18	0	18	18	25	140
17:15	0	0	0	30	0	1	6	0	14	7	0	0	0	50	0	1	26	0	11	27	34	105
17:30	1	0	0	45	1	0	8	0	7	8	0	0	0	63	0	0	20	0	5	20	29	120
17:45	0	0	0	42	0	0	4	0	10	4	0	0	0	59	0	0	28	0	3	28	32	114
Total	1	0	0	170	1	1	23	1	52	25	1	0	0	220	1	1	92	0	37	93	120	479
Grand Total	3	0	9	418	12	1	201	2	113	204	1	2	0	560	3	1	215	0	127	216	435	1218
Apprch %	25.0%	0.0%	75.0%			0.5%	98.5%	1.0%			33.3%	66.7%	0.0%			0.5%	99.5%	0.0%				
Total %	0.7%	0.0%	2.1%		2.8%	0.2%	46.2%	0.5%		46.9%	0.2%	0.5%	0.0%		0.7%	0.2%	49.4%	0.0%		49.7%	100.0%	

AM PEAK HOUR	Stalen Ave Southbound					Grand Ave Westbound					Stalen Ave Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	0	2	27	2	0	30	0	6	30	0	0	0	28	0	0	6	0	1	6	38
8:15	0	0	1	32	1	0	25	0	7	25	0	0	0	32	0	0	5	0	12	5	31
8:30	0	0	1	18	1	0	28	0	4	28	0	0	0	25	0	0	4	0	1	4	33
8:45	1	0	3	25	4	0	28	0	7	28	0	0	0	27	0	0	7	0	11	7	39
Total Volume	1	0	7	102	8	0	111	0	24	111	0	0	0	112	0	0	22	0	25	22	141
% App Total	12.5%	0.0%	87.5%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.250	.000	.583		.500	.000	.925	.000		.925	.000	.000	.000		.000	.000	.786	.000		.786	.904

PM PEAK HOUR	Stalen Ave Southbound					Grand Ave Westbound					Stalen Ave Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	0	0	53	0	0	5	1	21	6	1	0	0	48	1	0	18	0	18	18	25
17:15	0	0	0	30	0	1	6	0	14	7	0	0	0	50	0	1	26	0	11	27	34
17:30	1	0	0	45	1	0	8	0	7	8	0	0	0	63	0	0	20	0	5	20	29
17:45	0	0	0	42	0	0	4	0	10	4	0	0	0	59	0	0	28	0	3	28	32
Total Volume	1	0	0	170	1	1	23	1	52	25	1	0	0	220	1	1	92	0	37	93	120
% App Total	100.0%	0.0%	0.0%			4.0%	92.0%	4.0%			100.0%	0.0%	0.0%			1.1%	98.9%	0.0%			
PHF	.250	.000	.000		.250	.250	.719	.250		.781	.250	.000	.000		.250	.250	.821	.000		.830	.882

National Data and Surveying Services

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7003-008 Euclid Ave & Grand Ave
Date : 1/25/2017

Unshifted Count = All Vehicles & Uturns

	Euclid Ave Southbound					Grand Ave Westbound					Euclid Ave Northbound					Grand Ave Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	6	0	3	0	9	0	123	10	1	134	0	0	0	0	0	0	75	0	0	75	218	1
7:15	4	0	4	0	8	0	152	14	0	166	0	0	0	0	0	0	80	0	0	80	254	0
7:30	6	0	7	0	13	0	164	16	0	180	0	0	0	0	0	2	100	0	0	102	295	0
7:45	7	0	7	0	14	0	248	15	0	263	0	0	0	0	0	3	103	0	1	107	384	1
Total	23	0	21	0	44	0	687	55	1	743	0	0	0	0	0	5	358	0	1	364	1151	2
8:00	4	0	7	0	11	0	242	20	0	262	0	0	0	0	0	4	123	0	0	127	400	0
8:15	10	0	7	0	17	0	288	23	0	311	0	0	0	0	0	8	127	0	0	135	463	0
8:30	5	0	12	0	17	0	277	26	0	303	0	0	0	0	0	7	113	0	0	120	440	0
8:45	12	0	2	0	14	0	288	35	1	324	0	0	0	0	0	5	121	0	0	126	464	1
Total	31	0	28	0	59	0	1095	104	1	1200	0	0	0	0	0	24	484	0	0	508	1767	1
16:00	8	0	8	0	16	0	145	24	0	169	0	0	0	0	0	8	278	0	1	287	472	1
16:15	6	0	7	0	13	0	157	21	0	178	0	0	0	0	0	10	302	0	0	312	503	0
16:30	8	0	7	0	15	0	166	34	2	202	0	0	0	0	0	11	333	0	0	344	561	2
16:45	9	0	5	0	14	0	176	28	0	204	0	0	0	0	0	10	301	0	1	312	530	1
Total	31	0	27	0	58	0	644	107	2	753	0	0	0	0	0	39	1214	0	2	1255	2066	4
17:00	16	0	6	0	22	0	193	31	0	224	0	0	0	0	0	8	359	0	0	367	613	0
17:15	20	0	13	0	33	0	172	34	0	206	0	0	0	0	0	6	352	0	0	358	597	0
17:30	29	0	8	0	37	0	158	33	1	192	0	0	0	0	0	8	354	0	0	362	591	1
17:45	18	0	9	0	27	0	158	43	2	203	0	0	0	0	0	10	331	0	0	341	571	2
Total	83	0	36	0	119	0	681	141	3	825	0	0	0	0	0	32	1396	0	0	1428	2372	3
Grand Total	168	0	112	0	280	0	3107	407	7	3521	0	0	0	0	0	100	3452	0	3	3555	7356	10
Apprch %	60.0%	0.0%	40.0%	0.0%		0.0%	88.2%	11.6%	0.2%		0.0%	0.0%	0.0%	0.0%		2.8%	97.1%	0.0%	0.1%			
Total %	2.3%	0.0%	1.5%	0.0%	3.8%	0.0%	42.2%	5.5%	0.1%	47.9%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	46.9%	0.0%	0.0%	48.3%	100.0%	

AM PEAK HOUR	Euclid Ave Southbound					Grand Ave Westbound					Euclid Ave Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	4	0	7	0	11	0	242	20	0	262	0	0	0	0	0	4	123	0	0	127	400
8:15	10	0	7	0	17	0	288	23	0	311	0	0	0	0	0	8	127	0	0	135	463
8:30	5	0	12	0	17	0	277	26	0	303	0	0	0	0	0	7	113	0	0	120	440
8:45	12	0	2	0	14	0	288	35	1	324	0	0	0	0	0	5	121	0	0	126	464
Total Volume	31	0	28	0	59	0	1095	104	1	1200	0	0	0	0	0	24	484	0	0	508	1767
% App Total	52.5%	0.0%	47.5%	0.0%		0.0%	91.3%	8.7%	0.1%		0.0%	0.0%	0.0%	0.0%		4.7%	95.3%	0.0%	0.0%		
PHF	.646	.000	.583	.000	.868	.000	.951	.743	.250	.926	.000	.000	.000	.000	.000	.750	.953	.000	.000	.941	.952

PM PEAK HOUR	Euclid Ave Southbound					Grand Ave Westbound					Euclid Ave Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	16	0	6	0	22	0	193	31	0	224	0	0	0	0	0	8	359	0	0	367	613
17:15	20	0	13	0	33	0	172	34	0	206	0	0	0	0	0	6	352	0	0	358	597
17:30	29	0	8	0	37	0	158	33	1	192	0	0	0	0	0	8	354	0	0	362	591
17:45	18	0	9	0	27	0	158	43	2	203	0	0	0	0	0	10	331	0	0	341	571
Total Volume	83	0	36	0	119	0	681	141	3	825	0	0	0	0	0	32	1396	0	0	1428	2372
% App Total	69.7%	0.0%	30.3%	0.0%		0.0%	82.5%	17.1%	0.4%		0.0%	0.0%	0.0%	0.0%		2.2%	97.8%	0.0%	0.0%		
PHF	.716	.000	.692	.000	.804	.000	.882	.820	.375	.921	.000	.000	.000	.000	.000	.800	.972	.000	.000	.973	.967

National Data and Surveying Services

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7003-008 Euclid Ave & Grand Ave
Date : 1/25/2017

Bank 2 Count = Bikes & Peds

	Euclid Ave Southbound					Grand Ave Westbound					Euclid Ave Northbound					Grand Ave Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	1	0	0	8	1	0	7	0	4	7	0	0	0	0	0	0	6	0	2	6	14	14
7:15	1	0	0	5	1	0	7	0	1	7	0	0	0	0	0	0	3	0	2	3	11	8
7:30	1	0	1	8	2	0	8	0	7	8	0	0	0	0	0	1	6	0	2	7	17	17
7:45	1	0	2	11	3	0	21	0	2	21	2	0	0	0	2	1	5	0	3	6	32	16
Total	4	0	3	32	7	0	43	0	14	43	2	0	0	0	2	2	20	0	9	22	74	55
8:00	0	0	1	23	1	0	22	0	4	22	0	0	0	0	0	0	6	0	4	6	29	31
8:15	0	0	0	13	0	0	25	0	5	25	0	0	0	0	0	0	5	0	3	5	30	21
8:30	1	0	3	14	4	0	22	0	4	22	0	0	0	0	0	0	3	0	3	3	29	21
8:45	1	0	1	13	2	0	23	1	2	24	0	0	0	0	0	1	6	0	3	7	33	18
Total	2	0	5	63	7	0	92	1	15	93	0	0	0	0	0	1	20	0	13	21	121	91
16:00	0	0	0	18	0	0	2	0	5	2	0	0	0	0	0	0	21	0	4	21	23	27
16:15	0	0	0	18	0	0	6	1	7	7	0	0	0	0	0	0	13	0	7	13	20	32
16:30	0	0	0	24	0	0	6	0	11	6	0	0	0	0	0	1	18	0	2	19	25	37
16:45	0	0	0	26	0	0	3	0	12	3	0	0	0	0	0	1	22	0	6	23	26	44
Total	0	0	0	86	0	0	17	1	35	18	0	0	0	0	0	2	74	0	19	76	94	140
17:00	2	0	0	32	2	0	6	1	11	7	0	1	0	0	1	1	15	1	5	17	27	48
17:15	0	0	0	21	0	0	5	0	18	5	0	0	0	0	0	0	23	0	4	23	28	43
17:30	1	0	1	36	2	0	9	1	11	10	0	0	1	0	1	1	25	0	3	26	39	50
17:45	0	0	0	37	0	0	5	1	20	6	0	0	0	0	0	1	26	0	8	27	33	65
Total	3	0	1	126	4	0	25	3	60	28	0	1	1	0	2	3	89	1	20	93	127	206
Grand Total	9	0	9	307	18	0	177	5	124	182	2	1	1	0	4	8	203	1	61	212	416	492
Apprch %	50.0%	0.0%	50.0%			0.0%	97.3%	2.7%			50.0%	25.0%	25.0%			3.8%	95.8%	0.5%				
Total %	2.2%	0.0%	2.2%		4.3%	0.0%	42.5%	1.2%		43.8%	0.5%	0.2%	0.2%		1.0%	1.9%	48.8%	0.2%		51.0%	100.0%	

AM PEAK HOUR	Euclid Ave Southbound					Grand Ave Westbound					Euclid Ave Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	0	1	23	1	0	22	0	4	22	0	0	0	0	0	0	6	0	4	6	29
8:15	0	0	0	13	0	0	25	0	5	25	0	0	0	0	0	0	5	0	3	5	30
8:30	1	0	3	14	4	0	22	0	4	22	0	0	0	0	0	0	3	0	3	3	29
8:45	1	0	1	13	2	0	23	1	2	24	0	0	0	0	0	1	6	0	3	7	33
Total Volume	2	0	5	63	7	0	92	1	15	93	0	0	0	0	0	1	20	0	13	21	121
% App Total	28.6%	0.0%	71.4%			0.0%	98.9%	1.1%			0.0%	0.0%	0.0%			4.8%	95.2%	0.0%			
PHF	.500	.000	.417		.438	.000	.920	.250		.930	.000	.000	.000		.000	.250	.833	.000		.750	.917

PM PEAK HOUR	Euclid Ave Southbound					Grand Ave Westbound					Euclid Ave Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	2	0	0	32	2	0	6	1	11	7	0	1	0	0	1	1	15	1	5	17	27
17:15	0	0	0	21	0	0	5	0	18	5	0	0	0	0	0	0	23	0	4	23	28
17:30	1	0	1	36	2	0	9	1	11	10	0	0	1	0	1	1	25	0	3	26	39
17:45	0	0	0	37	0	0	5	1	20	6	0	0	0	0	0	1	26	0	8	27	33
Total Volume	3	0	1	126	4	0	25	3	60	28	0	1	1	0	2	3	89	1	20	93	127
% App Total	75.0%	0.0%	25.0%			0.0%	89.3%	10.7%			0.0%	50.0%	50.0%			3.2%	95.7%	1.1%			
PHF	.375	.000	.250		.500	.000	.694	.750		.700	.000	.250	.250		.500	.750	.856	.250		.861	.814

National Data and Surveying Services

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7003-010 El Embarcadero & Grand Ave
Date : 1/25/2017

Unshifted Count = All Vehicles & Uturns

	El Embarcadero Southbound					Grand Ave Westbound					El Embarcadero Northbound					Grand Ave Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	0	0	0	0	0	6	109	0	0	115	23	0	31	0	54	0	55	31	0	86	255	0
7:15	0	0	0	0	0	9	123	0	1	133	42	0	26	0	68	0	62	18	0	80	281	1
7:30	0	0	0	0	0	13	131	0	0	144	43	0	28	0	71	0	83	30	0	113	328	0
7:45	0	0	0	0	0	19	180	0	0	199	78	0	34	0	112	0	79	35	0	114	425	0
Total	0	0	0	0	0	47	543	0	1	591	186	0	119	0	305	0	279	114	0	393	1289	1
8:00	0	0	0	0	0	35	188	0	0	223	79	0	33	0	112	0	92	31	0	123	458	0
8:15	0	0	0	0	0	16	197	0	0	213	121	0	42	0	163	0	94	45	0	139	515	0
8:30	0	0	0	0	0	23	186	0	0	209	113	0	27	0	140	0	74	42	0	116	465	0
8:45	0	0	0	0	0	21	220	0	0	241	105	0	44	0	149	0	99	35	0	134	524	0
Total	0	0	0	0	0	95	791	0	0	886	418	0	146	0	564	0	359	153	0	512	1962	0
16:00	0	0	0	0	0	31	121	0	2	154	49	0	28	0	77	0	183	105	0	288	519	2
16:15	0	0	0	0	0	29	130	0	0	159	48	0	30	0	78	0	201	102	0	303	540	0
16:30	0	0	0	0	0	47	154	0	0	201	49	0	32	0	81	0	232	110	1	343	625	1
16:45	0	0	0	0	0	54	157	0	0	211	44	0	22	0	66	0	229	84	0	313	590	0
Total	0	0	0	0	0	161	562	0	2	725	190	0	112	0	302	0	845	401	1	1247	2274	3
17:00	0	0	0	0	0	48	167	0	0	215	59	0	22	0	81	0	256	118	1	375	671	1
17:15	0	0	0	0	0	50	148	0	0	198	57	0	20	0	77	0	243	122	0	365	640	0
17:30	0	0	0	0	0	41	146	0	2	189	50	0	23	0	73	0	253	138	0	391	653	2
17:45	0	0	0	0	0	38	148	0	0	186	51	0	27	0	78	0	224	119	1	344	608	1
Total	0	0	0	0	0	177	609	0	2	788	217	0	92	0	309	0	976	497	2	1475	2572	4
Grand Total	0	0	0	0	0	480	2505	0	5	2990	1011	0	469	0	1480	0	2459	1165	3	3627	8097	8
Apprch %	0.0%	0.0%	0.0%	0.0%		16.1%	83.8%	0.0%	0.2%		68.3%	0.0%	31.7%	0.0%		0.0%	67.8%	32.1%	0.1%			
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	5.9%	30.9%	0.0%	0.1%	36.9%	12.5%	0.0%	5.8%	0.0%	18.3%	0.0%	30.4%	14.4%	0.0%	44.8%	100.0%	

AM PEAK HOUR	El Embarcadero Southbound					Grand Ave Westbound					El Embarcadero Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	0	0	0	0	35	188	0	0	223	79	0	33	0	112	0	92	31	0	123	458
8:15	0	0	0	0	0	16	197	0	0	213	121	0	42	0	163	0	94	45	0	139	515
8:30	0	0	0	0	0	23	186	0	0	209	113	0	27	0	140	0	74	42	0	116	465
8:45	0	0	0	0	0	21	220	0	0	241	105	0	44	0	149	0	99	35	0	134	524
Total Volume	0	0	0	0	0	95	791	0	0	886	418	0	146	0	564	0	359	153	0	512	1962
% App Total	0.0%	0.0%	0.0%	0.0%		10.7%	89.3%	0.0%	0.0%		74.1%	0.0%	25.9%	0.0%		0.0%	70.1%	29.9%	0.0%		
PHF	.000	.000	.000	.000	.000	.679	.899	.000	.000	.919	.864	.000	.830	.000	.865	.000	.907	.850	.000	.921	.936

PM PEAK HOUR	El Embarcadero Southbound					Grand Ave Westbound					El Embarcadero Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	0	0	0	0	48	167	0	0	215	59	0	22	0	81	0	256	118	1	375	671
17:15	0	0	0	0	0	50	148	0	0	198	57	0	20	0	77	0	243	122	0	365	640
17:30	0	0	0	0	0	41	146	0	2	189	50	0	23	0	73	0	253	138	0	391	653
17:45	0	0	0	0	0	38	148	0	0	186	51	0	27	0	78	0	224	119	1	344	608
Total Volume	0	0	0	0	0	177	609	0	2	788	217	0	92	0	309	0	976	497	2	1475	2572
% App Total	0.0%	0.0%	0.0%	0.0%		22.5%	77.3%	0.0%	0.3%		70.2%	0.0%	29.8%	0.0%		0.0%	66.2%	33.7%	0.1%		
PHF	.000	.000	.000	.000	.000	.885	.912	.000	.250	.916	.919	.000	.852	.000	.954	.000	.953	.900	.500	.943	.958

National Data and Surveying Services

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7003-010 El Embarcadero & Grand Ave
Date : 1/25/2017

Bank 2 Count = Bikes & Peds

	El Embarcadero					Grand Ave					El Embarcadero					Grand Ave						
	Southbound					Westbound					Northbound					Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	0	0	2	0	0	13	2	7	0	0	9	7	0	3	1	6	4	13	28
7:15	0	0	0	0	0	0	1	0	9	1	2	0	0	11	2	0	0	2	3	2	5	23
7:30	0	0	0	0	0	2	3	0	15	5	2	0	0	11	2	0	1	3	8	4	11	34
7:45	0	0	0	0	0	1	7	0	7	8	10	0	0	11	10	0	2	4	3	6	24	21
Total	0	0	0	0	0	5	11	0	44	16	21	0	0	42	21	0	6	10	20	16	53	106
8:00	0	0	0	0	0	0	8	0	21	8	12	0	2	12	14	0	1	1	8	2	24	41
8:15	0	0	0	0	0	1	9	0	16	10	13	0	0	18	13	0	3	0	3	3	26	37
8:30	0	0	0	0	0	2	5	0	10	7	15	0	1	13	16	0	0	0	0	0	23	23
8:45	0	0	0	0	0	0	3	0	17	3	15	0	0	8	15	0	5	1	8	6	24	33
Total	0	0	0	0	0	3	25	0	64	28	55	0	3	51	58	0	9	2	19	11	97	134
16:00	0	0	0	0	0	0	1	0	11	1	0	0	0	19	0	0	7	2	13	9	10	43
16:15	0	0	0	0	0	0	0	0	20	0	4	0	0	10	4	0	6	1	12	7	11	42
16:30	0	0	0	0	0	0	1	0	11	1	3	0	1	16	4	0	4	3	20	7	12	47
16:45	0	0	0	0	0	1	1	0	17	2	3	0	4	16	7	0	7	0	13	7	16	46
Total	0	0	0	0	0	1	3	0	59	4	10	0	5	61	15	0	24	6	58	30	49	178
17:00	0	0	0	0	0	1	4	0	12	5	3	0	1	21	4	0	6	1	17	7	16	50
17:15	0	0	0	0	0	2	3	0	29	5	1	0	1	16	2	0	6	4	24	10	17	69
17:30	0	0	0	0	0	0	2	0	10	2	6	0	0	27	6	0	12	0	21	12	20	58
17:45	0	0	0	0	0	1	0	0	25	1	3	0	1	35	4	0	14	0	30	14	19	90
Total	0	0	0	0	0	4	9	0	76	13	13	0	3	99	16	0	38	5	92	43	72	267
Grand Total	0	0	0	0	0	13	48	0	243	61	99	0	11	253	110	0	77	23	189	100	271	685
Apprch %	0.0%	0.0%	0.0%			21.3%	78.7%	0.0%			90.0%	0.0%	10.0%			0.0%	77.0%	23.0%				
Total %	0.0%	0.0%	0.0%		0.0%	4.8%	17.7%	0.0%		22.5%	36.5%	0.0%	4.1%		40.6%	0.0%	28.4%	8.5%		36.9%	100.0%	

AM PEAK HOUR	El Embarcadero					Grand Ave					El Embarcadero					Grand Ave					
	Southbound					Westbound					Northbound					Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	0	0	0	0	0	8	0	21	8	12	0	2	12	14	0	1	1	8	2	24
8:15	0	0	0	0	0	1	9	0	16	10	13	0	0	18	13	0	3	0	3	3	26
8:30	0	0	0	0	0	2	5	0	10	7	15	0	1	13	16	0	0	0	0	0	23
8:45	0	0	0	0	0	0	3	0	17	3	15	0	0	8	15	0	5	1	8	6	24
Total Volume	0	0	0	0	0	3	25	0	64	28	55	0	3	51	58	0	9	2	19	11	97
% App Total	0.0%	0.0%	0.0%			10.7%	89.3%	0.0%			94.8%	0.0%	5.2%			0.0%	81.8%	18.2%			
PHF	.000	.000	.000		.000	.375	.694	.000		.700	.917	.000	.375		.906	.000	.450	.500		.458	.933

PM PEAK HOUR	El Embarcadero					Grand Ave					El Embarcadero					Grand Ave					
	Southbound					Westbound					Northbound					Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	0	0	0	0	1	4	0	12	5	3	0	1	21	4	0	6	1	17	7	16
17:15	0	0	0	0	0	2	3	0	29	5	1	0	1	16	2	0	6	4	24	10	17
17:30	0	0	0	0	0	0	2	0	10	2	6	0	0	27	6	0	12	0	21	12	20
17:45	0	0	0	0	0	1	0	0	25	1	3	0	1	35	4	0	14	0	30	14	19
Total Volume	0	0	0	0	0	4	9	0	76	13	13	0	3	99	16	0	38	5	92	43	72
% App Total	0.0%	0.0%	0.0%			30.8%	69.2%	0.0%			81.3%	0.0%	18.8%			0.0%	88.4%	11.6%			
PHF	.000	.000	.000		.000	.500	.563	.000		.650	.542	.000	.750		.667	.000	.679	.313		.768	.900

National Data and Surveying Services

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7003-011 MacArthur Blvd & Grand Ave
Date : 1/25/2017

Unshifted Count = All Vehicles & Uturns

	MacArthur Blvd Southbound					Grand Ave Westbound					MacArthur Blvd Northbound					Grand Ave Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	52	84	14	0	150	21	106	0	1	128	0	0	0	0	0	0	56	32	0	88	366	1
7:15	45	87	18	0	150	18	112	0	0	130	0	0	0	0	0	0	43	47	0	90	370	0
7:30	49	121	24	0	194	37	129	0	1	167	0	0	0	0	0	0	67	40	0	107	468	1
7:45	74	156	29	0	259	59	165	0	8	232	0	0	0	0	0	0	64	49	0	113	604	8
Total	220	448	85	0	753	135	512	0	10	657	0	0	0	0	0	0	230	168	0	398	1808	10
8:00	69	183	31	0	283	56	201	0	6	263	0	0	0	0	0	0	70	53	0	123	669	6
8:15	69	171	29	0	269	45	185	0	3	233	0	0	0	0	0	0	81	55	0	136	638	3
8:30	73	166	42	0	281	28	176	0	1	205	0	0	0	0	0	0	56	40	0	96	582	1
8:45	74	129	53	0	256	36	185	0	2	223	0	0	0	0	0	0	89	51	1	141	620	3
Total	285	649	155	0	1089	165	747	0	12	924	0	0	0	0	0	0	296	199	1	496	2509	13
16:00	62	170	36	0	268	58	115	0	6	179	0	0	0	0	0	0	93	105	0	198	645	6
16:15	72	170	38	0	280	59	130	0	1	190	0	0	0	0	0	0	102	105	0	207	677	1
16:30	68	176	32	0	276	86	169	0	5	260	0	0	0	0	0	0	124	143	0	267	803	5
16:45	60	170	37	0	267	72	187	0	8	267	0	0	0	0	0	0	103	144	0	247	781	8
Total	262	686	143	0	1091	275	601	0	20	896	0	0	0	0	0	0	422	497	0	919	2906	20
17:00	65	177	47	0	289	56	156	0	2	214	0	0	0	0	0	0	118	163	0	281	784	2
17:15	66	168	36	0	270	66	169	0	3	238	0	0	0	0	0	0	107	138	1	246	754	4
17:30	74	214	42	0	330	50	138	0	2	190	0	0	0	0	0	0	125	151	0	276	796	2
17:45	79	204	38	0	321	70	153	0	4	227	0	0	0	0	0	0	119	134	0	253	801	4
Total	284	763	163	0	1210	242	616	0	11	869	0	0	0	0	0	0	469	586	1	1056	3135	12
Grand Total	1051	2546	546	0	4143	817	2476	0	53	3346	0	0	0	0	0	0	1417	1450	2	2869	10358	55
Apprch %	25.4%	61.5%	13.2%	0.0%		24.4%	74.0%	0.0%	1.6%		0.0%	0.0%	0.0%	0.0%		0.0%	49.4%	50.5%	0.1%			
Total %	10.1%	24.6%	5.3%	0.0%	40.0%	7.9%	23.9%	0.0%	0.5%	32.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	13.7%	14.0%	0.0%	27.7%	100.0%	

AM PEAK HOUR	MacArthur Blvd Southbound					Grand Ave Westbound					MacArthur Blvd Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	69	183	31	0	283	56	201	0	6	263	0	0	0	0	0	0	70	53	0	123	669
8:15	69	171	29	0	269	45	185	0	3	233	0	0	0	0	0	0	81	55	0	136	638
8:30	73	166	42	0	281	28	176	0	1	205	0	0	0	0	0	0	56	40	0	96	582
8:45	74	129	53	0	256	36	185	0	2	223	0	0	0	0	0	0	89	51	1	141	620
Total Volume	285	649	155	0	1089	165	747	0	12	924	0	0	0	0	0	0	296	199	1	496	2509
% App Total	26.2%	59.6%	14.2%	0.0%		17.9%	80.8%	0.0%	1.3%		0.0%	0.0%	0.0%	0.0%		0.0%	59.7%	40.1%	0.2%		
PHF	.963	.887	.731	.000	.962	.737	.929	.000	.500	.878	.000	.000	.000	.000	.000	.000	.831	.905	.250	.879	.938

PM PEAK HOUR	MacArthur Blvd Southbound					Grand Ave Westbound					MacArthur Blvd Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	65	177	47	0	289	56	156	0	2	214	0	0	0	0	0	0	118	163	0	281	784
17:15	66	168	36	0	270	66	169	0	3	238	0	0	0	0	0	0	107	138	1	246	754
17:30	74	214	42	0	330	50	138	0	2	190	0	0	0	0	0	0	125	151	0	276	796
17:45	79	204	38	0	321	70	153	0	4	227	0	0	0	0	0	0	119	134	0	253	801
Total Volume	284	763	163	0	1210	242	616	0	11	869	0	0	0	0	0	0	469	586	1	1056	3135
% App Total	23.5%	63.1%	13.5%	0.0%		27.8%	70.9%	0.0%	1.3%		0.0%	0.0%	0.0%	0.0%		0.0%	44.4%	55.5%	0.1%		
PHF	.899	.891	.867	.000	.917	.864	.911	.000	.688	.913	.000	.000	.000	.000	.000	.000	.938	.899	.250	.940	.978

National Data and Surveying Services

(323) 782-0090
info@ndsdata.com

City of Oakland
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Bikes & Peds On Bank 2

File Name : 17-7003-011 MacArthur Blvd & Grand Ave
Date : 1/25/2017

Bank 2 Count = Bikes & Peds

	MacArthur Blvd Southbound					Grand Ave Westbound					MacArthur Blvd Northbound					Grand Ave Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	9	0	1	2	0	0	3	0	0	0	11	0	1	3	0	8	4	7	28
7:15	0	0	0	8	0	1	1	0	0	2	0	0	0	17	0	0	1	0	9	1	3	34
7:30	0	0	0	17	0	0	9	0	0	9	0	0	0	9	0	0	2	0	17	2	11	43
7:45	0	1	0	43	1	1	8	0	0	9	0	0	0	19	0	0	2	0	23	2	12	85
Total	0	1	0	77	1	3	20	0	0	23	0	0	0	56	0	1	8	0	57	9	33	190
8:00	0	0	0	18	0	2	11	0	1	13	1	0	0	25	1	0	2	0	15	2	16	59
8:15	0	0	0	13	0	0	14	0	0	14	0	0	0	36	0	0	3	1	25	4	18	74
8:30	0	1	0	13	1	1	5	0	0	6	0	0	0	24	0	0	4	0	7	4	11	44
8:45	0	1	2	10	3	0	6	0	0	6	0	0	0	35	0	0	3	1	16	4	13	61
Total	0	2	2	54	4	3	36	0	1	39	1	0	0	120	1	0	12	2	63	14	58	238
16:00	0	1	0	13	1	1	5	0	0	6	0	0	0	30	0	0	5	0	10	5	12	53
16:15	0	0	1	29	1	0	3	0	0	3	1	0	0	41	1	0	3	2	29	5	10	99
16:30	0	0	1	37	1	0	3	0	0	3	0	0	0	38	0	0	6	0	26	6	10	101
16:45	1	2	0	18	3	0	7	0	1	7	0	0	0	32	0	0	5	0	17	5	15	68
Total	1	3	2	97	6	1	18	0	1	19	1	0	0	141	1	0	19	2	82	21	47	321
17:00	0	0	0	26	0	2	9	0	1	11	0	0	0	38	0	0	9	0	29	9	20	94
17:15	0	0	0	38	0	0	4	0	0	4	0	0	0	37	0	0	7	0	29	7	11	104
17:30	0	1	0	20	1	0	4	0	0	4	0	0	0	55	0	0	10	1	32	11	16	107
17:45	0	1	0	36	1	0	0	0	2	0	0	0	0	43	0	0	15	0	27	15	16	108
Total	0	2	0	120	2	2	17	0	3	19	0	0	0	173	0	0	41	1	117	42	63	413
Grand Total	1	8	4	348	13	9	91	0	5	100	2	0	0	490	2	1	80	5	319	86	201	1162
Apprch %	7.7%	61.5%	30.8%			9.0%	91.0%	0.0%			100.0%	0.0%	0.0%			1.2%	93.0%	5.8%				
Total %	0.5%	4.0%	2.0%		6.5%	4.5%	45.3%	0.0%		49.8%	1.0%	0.0%	0.0%		1.0%	0.5%	39.8%	2.5%		42.8%	100.0%	

AM PEAK HOUR	MacArthur Blvd Southbound					Grand Ave Westbound					MacArthur Blvd Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	0	0	18	0	2	11	0	1	13	1	0	0	25	1	0	2	0	15	2	16
8:15	0	0	0	13	0	0	14	0	0	14	0	0	0	36	0	0	3	1	25	4	18
8:30	0	1	0	13	1	1	5	0	0	6	0	0	0	24	0	0	4	0	7	4	11
8:45	0	1	2	10	3	0	6	0	0	6	0	0	0	35	0	0	3	1	16	4	13
Total Volume	0	2	2	54	4	3	36	0	1	39	1	0	0	120	1	0	12	2	63	14	58
% App Total	0.0%	50.0%	50.0%			7.7%	92.3%	0.0%			100.0%	0.0%	0.0%			0.0%	85.7%	14.3%			
PHF	.000	.500	.250		.333	.375	.643	.000		.696	.250	.000	.000		.250	.000	.750	.500		.875	.806

PM PEAK HOUR	MacArthur Blvd Southbound					Grand Ave Westbound					MacArthur Blvd Northbound					Grand Ave Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	0	0	26	0	2	9	0	1	11	0	0	0	38	0	0	9	0	29	9	20
17:15	0	0	0	38	0	0	4	0	0	4	0	0	0	37	0	0	7	0	29	7	11
17:30	0	1	0	20	1	0	4	0	0	4	0	0	0	55	0	0	10	1	32	11	16
17:45	0	1	0	36	1	0	0	0	2	0	0	0	0	43	0	0	15	0	27	15	16
Total Volume	0	2	0	120	2	2	17	0	3	19	0	0	0	173	0	0	41	1	117	42	63
% App Total	0.0%	100.0%	0.0%			10.5%	89.5%	0.0%			0.0%	0.0%	0.0%			0.0%	97.6%	2.4%			
PHF	.000	.500	.000		.500	.250	.472	.000		.432	.000	.000	.000		.000	.000	.683	.250		.700	.788

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7388-005 Telegraph Ave & 22nd St
Date : 5/26/2016

Unshifted Count = All Vehicles & Uturns

	Telegraph Ave Southbound					22nd St Westbound					Telegraph Ave Northbound					22nd St Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	0	58	9	0	67	3	2	2	0	7	3	37	0	0	40	0	0	0	0	0	114	0
7:15	0	77	8	0	85	9	1	5	0	15	2	36	0	0	38	0	0	0	0	0	138	0
7:30	0	100	8	0	108	8	0	7	0	15	3	52	0	0	55	0	0	0	0	0	178	0
7:45	0	125	6	1	132	8	1	10	0	19	1	73	0	0	74	0	0	0	0	0	225	1
Total	0	360	31	1	392	28	4	24	0	56	9	198	0	0	207	0	0	0	0	0	655	1
8:00	0	152	9	0	161	9	1	7	0	17	7	107	0	0	114	0	0	0	0	0	292	0
8:15	0	149	10	0	159	11	0	14	0	25	8	79	0	0	87	0	0	0	0	0	271	0
8:30	0	151	10	0	161	7	0	8	0	15	11	49	0	0	60	0	0	0	0	0	236	0
8:45	0	155	9	1	165	8	1	15	0	24	9	66	0	0	75	0	0	0	0	0	264	1
Total	0	607	38	1	646	35	2	44	0	81	35	301	0	0	336	0	0	0	0	0	1063	1
16:00	0	98	10	0	108	11	2	34	0	47	6	113	0	0	119	0	0	0	0	0	274	0
16:15	0	101	4	0	105	4	0	34	0	38	8	133	0	0	141	0	0	0	0	0	284	0
16:30	0	99	15	2	116	9	3	42	0	54	9	144	0	0	153	0	0	0	0	0	323	2
16:45	0	99	9	1	109	5	0	35	0	40	5	115	0	0	120	0	0	0	0	0	269	1
Total	0	397	38	3	438	29	5	145	0	179	28	505	0	0	533	0	0	0	0	0	1150	3
17:00	0	103	10	1	114	6	1	34	0	41	2	157	0	0	159	0	0	0	0	0	314	1
17:15	0	107	9	2	118	11	4	50	0	65	8	139	0	0	147	0	0	0	0	0	330	2
17:30	0	99	9	1	109	7	2	46	0	55	15	125	0	4	144	0	0	0	0	0	308	5
17:45	0	112	11	2	125	6	3	29	0	38	3	119	0	0	122	0	0	0	0	0	285	2
Total	0	421	39	6	466	30	10	159	0	199	28	540	0	4	572	0	0	0	0	0	1237	10
Grand Total	0	1785	146	11	1942	122	21	372	0	515	100	1544	0	4	1648	0	0	0	0	0	4105	15
Apprch %	0.0%	91.9%	7.5%	0.6%		23.7%	4.1%	72.2%	0.0%		6.1%	93.7%	0.0%	0.2%		0.0%	0.0%	0.0%	0.0%			
Total %	0.0%	43.5%	3.6%	0.3%	47.3%	3.0%	0.5%	9.1%	0.0%	12.5%	2.4%	37.6%	0.0%	0.1%	40.1%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	

AM PEAK HOUR	Telegraph Ave Southbound					22nd St Westbound					Telegraph Ave Northbound					22nd St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	152	9	0	161	9	1	7	0	17	7	107	0	0	114	0	0	0	0	0	292
8:15	0	149	10	0	159	11	0	14	0	25	8	79	0	0	87	0	0	0	0	0	271
8:30	0	151	10	0	161	7	0	8	0	15	11	49	0	0	60	0	0	0	0	0	236
8:45	0	155	9	1	165	8	1	15	0	24	9	66	0	0	75	0	0	0	0	0	264
Total Volume	0	607	38	1	646	35	2	44	0	81	35	301	0	0	336	0	0	0	0	0	1063
% App Total	0.0%	94.0%	5.9%	0.2%		43.2%	2.5%	54.3%	0.0%		10.4%	89.6%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		
PHF	.000	.979	.950	.250	.979	.795	.500	.733	.000	.810	.795	.703	.000	.000	.737	.000	.000	.000	.000	.000	.910

PM PEAK HOUR	Telegraph Ave Southbound					22nd St Westbound					Telegraph Ave Northbound					22nd St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	0	99	15	2	116	9	3	42	0	54	9	144	0	0	153	0	0	0	0	0	323
16:45	0	99	9	1	109	5	0	35	0	40	5	115	0	0	120	0	0	0	0	0	269
17:00	0	103	10	1	114	6	1	34	0	41	2	157	0	0	159	0	0	0	0	0	314
17:15	0	107	9	2	118	11	4	50	0	65	8	139	0	0	147	0	0	0	0	0	330
Total Volume	0	408	43	6	457	31	8	161	0	200	24	555	0	0	579	0	0	0	0	0	1236
% App Total	0.0%	89.3%	9.4%	1.3%		15.5%	4.0%	80.5%	0.0%		4.1%	95.9%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		
PHF	.000	.953	.717	.750	.968	.705	.500	.805	.000	.769	.667	.884	.000	.000	.910	.000	.000	.000	.000	.000	.936

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

File Name : 16-7388-005 Telegraph Ave & 22nd St
Date : 5/26/2016

Bank 1 Count = Bikes & Peds

	Telegraph Ave Southbound					22nd St Westbound					Telegraph Ave Northbound					22nd St Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	8	0	0	8	0	0	0	14	0	0	4	0	6	4	0	0	0	7	0	12	27
7:15	0	11	0	0	11	0	0	0	15	0	0	1	0	2	1	1	0	0	8	1	13	25
7:30	0	9	0	1	9	1	0	0	13	1	0	2	0	5	2	0	0	1	13	1	13	32
7:45	0	15	0	0	15	1	1	0	16	2	0	2	0	11	2	0	0	0	17	0	19	44
Total	0	43	0	1	43	2	1	0	58	3	0	9	0	24	9	1	0	1	45	2	57	128
8:00	0	17	0	0	17	0	0	0	15	0	0	3	0	5	3	0	0	1	21	1	21	41
8:15	0	24	1	1	25	1	0	0	21	1	0	5	0	2	5	0	0	0	16	0	31	40
8:30	0	13	0	0	13	1	0	0	21	1	0	0	0	10	0	0	0	1	16	1	15	47
8:45	0	21	0	0	21	0	0	0	11	0	0	2	0	3	2	0	0	0	18	0	23	32
Total	0	75	1	1	76	2	0	0	68	2	0	10	0	20	10	0	0	2	71	2	90	160
16:00	0	7	0	0	7	0	0	0	12	0	1	7	0	6	8	0	0	0	26	0	15	44
16:15	0	3	0	0	3	0	0	0	12	0	0	15	0	10	15	2	0	0	28	2	20	50
16:30	0	7	1	0	8	0	0	0	17	0	0	8	1	6	9	0	0	1	25	1	18	48
16:45	0	11	1	0	12	3	2	1	26	6	1	16	0	5	17	0	0	0	23	0	35	54
Total	0	28	2	0	30	3	2	1	67	6	2	46	1	27	49	2	0	1	102	3	88	196
17:00	0	10	2	0	12	1	0	5	40	6	0	21	2	5	23	0	0	1	17	1	42	62
17:15	0	12	0	0	12	1	0	3	29	4	0	28	0	15	28	0	0	2	25	2	46	69
17:30	0	11	0	0	11	1	2	3	25	6	2	15	0	8	17	0	0	0	24	0	34	57
17:45	0	7	0	0	7	0	0	3	36	3	0	15	0	4	15	1	0	1	33	2	27	73
Total	0	40	2	0	42	3	2	14	130	19	2	79	2	32	83	1	0	4	99	5	149	261
Grand Total	0	186	5	2	191	10	5	15	323	30	4	144	3	103	151	4	0	8	317	12	384	745
Apprch %	0.0%	97.4%	2.6%			33.3%	16.7%	50.0%			2.6%	95.4%	2.0%			33.3%	0.0%	66.7%				
Total %	0.0%	48.4%	1.3%		49.7%	2.6%	1.3%	3.9%		7.8%	1.0%	37.5%	0.8%		39.3%	1.0%	0.0%	2.1%		3.1%	100.0%	

AM PEAK HOUR	Telegraph Ave Southbound					22nd St Westbound					Telegraph Ave Northbound					22nd St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	17	0	0	17	0	0	0	15	0	0	3	0	5	3	0	0	1	21	1	21
8:15	0	24	1	1	25	1	0	0	21	1	0	5	0	2	5	0	0	0	16	0	31
8:30	0	13	0	0	13	1	0	0	21	1	0	0	0	10	0	0	0	1	16	1	15
8:45	0	21	0	0	21	0	0	0	11	0	0	2	0	3	2	0	0	0	18	0	23
Total Volume	0	75	1	1	76	2	0	0	68	2	0	10	0	20	10	0	0	2	71	2	90
% App Total	0.0%	98.7%	1.3%			100.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	100.0%			
PHF	.000	.781	.250		.760	.500	.000	.000		.500	.000	.500	.000		.500	.000	.000	.500		.500	.726

PM PEAK HOUR	Telegraph Ave Southbound					22nd St Westbound					Telegraph Ave Northbound					22nd St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	0	7	1	0	8	0	0	0	17	0	0	8	1	6	9	0	0	1	25	1	18
16:45	0	11	1	0	12	3	2	1	26	6	1	16	0	5	17	0	0	0	23	0	35
17:00	0	10	2	0	12	1	0	5	40	6	0	21	2	5	23	0	0	1	17	1	42
17:15	0	12	0	0	12	1	0	3	29	4	0	28	0	15	28	0	0	2	25	2	46
Total Volume	0	40	4	0	44	5	2	9	112	16	1	73	3	31	77	0	0	4	90	4	141
% App Total	0.0%	90.9%	9.1%			31.3%	12.5%	56.3%			1.3%	94.8%	3.9%			0.0%	0.0%	100.0%			
PHF	.000	.833	.500		.917	.417	.250	.450		.667	.250	.652	.375		.688	.000	.000	.500		.500	.766

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

File Name : 16-7388-006 Valley St & 22nd St
Date : 5/26/2016

Unshifted Count = All Vehicles & Uturns

	Valley St Southbound					22nd St Westbound					Valley St Northbound					22nd St Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	0	0	4	0	4	0	5	1	0	6	0	0	0	0	0	0	0	0	0	0	10	0
7:15	0	0	6	0	6	0	5	1	0	6	0	0	0	0	0	0	0	0	0	0	12	0
7:30	0	0	3	0	3	0	9	2	0	11	0	0	0	0	0	0	0	0	0	0	14	0
7:45	0	0	6	0	6	0	14	0	0	14	0	0	0	0	0	0	0	0	0	0	20	0
Total	0	0	19	0	19	0	33	4	0	37	0	0	0	0	0	0	0	0	0	0	56	0
8:00	0	0	3	1	4	0	10	3	0	13	0	0	0	0	0	0	0	0	0	0	17	1
8:15	0	0	5	0	5	0	18	3	0	21	0	0	0	0	0	0	0	0	0	0	26	0
8:30	0	0	6	0	6	0	10	4	0	14	0	0	0	0	0	0	0	0	0	0	20	0
8:45	0	0	4	0	4	0	21	7	0	28	0	0	0	0	0	0	0	0	0	0	32	0
Total	0	0	18	1	19	0	59	17	0	76	0	0	0	0	0	0	0	0	0	0	95	1
16:00	0	0	12	0	12	0	35	6	0	41	0	0	0	0	0	0	0	0	0	0	53	0
16:15	0	0	5	0	5	0	33	2	0	35	0	0	0	0	0	0	0	0	0	0	40	0
16:30	0	0	5	0	5	0	41	4	0	45	0	0	0	0	0	0	0	0	0	0	50	0
16:45	0	0	7	0	7	0	31	1	0	32	0	0	0	0	0	0	0	0	0	0	39	0
Total	0	0	29	0	29	0	140	13	0	153	0	0	0	0	0	0	0	0	0	0	182	0
17:00	0	0	13	0	13	0	34	5	0	39	0	0	0	0	0	0	0	0	0	0	52	0
17:15	0	0	7	0	7	0	45	6	0	51	0	0	0	0	0	0	0	0	0	0	58	0
17:30	0	0	12	0	12	0	36	3	0	39	0	0	0	0	0	0	0	0	0	0	51	0
17:45	0	0	4	1	5	0	30	5	0	35	0	0	0	0	0	0	0	0	0	0	40	1
Total	0	0	36	1	37	0	145	19	0	164	0	0	0	0	0	0	0	0	0	0	201	1
Grand Total	0	0	102	2	104	0	377	53	0	430	0	0	0	0	0	0	0	0	0	0	534	2
Apprch %	0.0%	0.0%	98.1%	1.9%		0.0%	87.7%	12.3%	0.0%		0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%			
Total %	0.0%	0.0%	19.1%	0.4%	19.5%	0.0%	70.6%	9.9%	0.0%	80.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	

AM PEAK HOUR	Valley St Southbound					22nd St Westbound					Valley St Northbound					22nd St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	0	3	1	4	0	10	3	0	13	0	0	0	0	0	0	0	0	0	0	17
8:15	0	0	5	0	5	0	18	3	0	21	0	0	0	0	0	0	0	0	0	0	26
8:30	0	0	6	0	6	0	10	4	0	14	0	0	0	0	0	0	0	0	0	0	20
8:45	0	0	4	0	4	0	21	7	0	28	0	0	0	0	0	0	0	0	0	0	32
Total Volume	0	0	18	1	19	0	59	17	0	76	0	0	0	0	0	0	0	0	0	0	95
% App Total	0.0%	0.0%	94.7%	5.3%		0.0%	77.6%	22.4%	0.0%		0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		
PHF	.000	.000	.750	.250	.792	.000	.702	.607	.000	.679	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.742

PM PEAK HOUR	Valley St Southbound					22nd St Westbound					Valley St Northbound					22nd St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	0	0	7	0	7	0	31	1	0	32	0	0	0	0	0	0	0	0	0	0	39
17:00	0	0	13	0	13	0	34	5	0	39	0	0	0	0	0	0	0	0	0	0	52
17:15	0	0	7	0	7	0	45	6	0	51	0	0	0	0	0	0	0	0	0	0	58
17:30	0	0	12	0	12	0	36	3	0	39	0	0	0	0	0	0	0	0	0	0	51
Total Volume	0	0	39	0	39	0	146	15	0	161	0	0	0	0	0	0	0	0	0	0	200
% App Total	0.0%	0.0%	100.0%	0.0%		0.0%	90.7%	9.3%	0.0%		0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		
PHF	.000	.000	.750	.000	.750	.000	.811	.625	.000	.789	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.862

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7388-006 Valley St & 22nd St
Date : 5/26/2016

Bank 1 Count = Bikes & Peds

	Valley St Southbound					22nd St Westbound					Valley St Northbound					22nd St Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	1	0	0	2	1	0	0	0	5	0	0	0	0	3	0	0	0	0	0	0	1	10
7:15	0	0	0	2	0	0	0	0	3	0	0	0	0	2	0	0	0	0	1	0	0	8
7:30	0	0	1	4	1	0	0	0	6	0	0	0	0	1	0	0	0	0	0	0	1	11
7:45	0	0	1	5	1	0	1	0	6	1	0	0	0	4	0	0	0	0	1	0	2	16
Total	1	0	2	13	3	0	1	0	20	1	0	0	0	10	0	0	0	0	2	0	4	45
8:00	0	0	0	3	0	0	0	0	4	0	0	0	0	4	0	0	0	0	1	0	0	12
8:15	0	0	0	3	0	0	2	0	3	2	0	0	0	4	0	0	0	0	1	0	2	11
8:30	2	0	1	1	3	0	0	0	10	0	0	0	0	4	0	0	0	0	0	0	3	15
8:45	1	0	0	8	1	0	0	0	3	0	0	0	0	4	0	0	0	0	0	0	1	15
Total	3	0	1	15	4	0	2	0	20	2	0	0	0	16	0	0	0	0	2	0	6	53
16:00	0	0	0	14	0	0	0	0	9	0	0	0	0	8	0	0	0	0	1	0	0	32
16:15	0	0	0	6	0	0	0	0	6	0	0	0	0	8	0	0	0	0	0	0	0	20
16:30	0	0	0	2	0	0	2	1	11	3	0	0	0	3	0	0	0	0	0	0	3	16
16:45	0	0	2	7	2	0	5	0	4	5	0	0	0	4	0	0	0	0	1	0	7	16
Total	0	0	2	29	2	0	7	1	30	8	0	0	0	23	0	0	0	0	2	0	10	84
17:00	0	0	1	6	1	0	6	1	6	7	0	0	0	10	0	0	2	0	2	2	10	24
17:15	0	0	2	9	2	0	5	0	4	5	0	0	0	8	0	0	0	0	0	0	7	21
17:30	0	0	1	9	1	0	5	1	9	6	0	0	0	3	0	0	1	0	0	1	8	21
17:45	0	0	0	8	0	0	3	0	3	3	0	0	0	10	0	0	0	0	1	0	3	22
Total	0	0	4	32	4	0	19	2	22	21	0	0	0	31	0	0	3	0	3	3	28	88
Grand Total	4	0	9	89	13	0	29	3	92	32	0	0	0	80	0	0	3	0	9	3	48	270
Apprch %	30.8%	0.0%	69.2%			0.0%	90.6%	9.4%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%				
Total %	8.3%	0.0%	18.8%		27.1%	0.0%	60.4%	6.3%		66.7%	0.0%	0.0%	0.0%		0.0%	0.0%	6.3%	0.0%		6.3%	100.0%	

AM PEAK HOUR	Valley St Southbound					22nd St Westbound					Valley St Northbound					22nd St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	0	0	3	0	0	0	0	4	0	0	0	0	4	0	0	0	0	1	0	0
8:15	0	0	0	3	0	0	2	0	3	2	0	0	0	4	0	0	0	0	1	0	2
8:30	2	0	1	1	3	0	0	0	10	0	0	0	0	4	0	0	0	0	0	0	3
8:45	1	0	0	8	1	0	0	0	3	0	0	0	0	4	0	0	0	0	0	0	1
Total Volume	3	0	1	15	4	0	2	0	20	2	0	0	0	16	0	0	0	0	2	0	6
% App Total	75.0%	0.0%	25.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.375	.000	.250		.333	.000	.250	.000		.250	.000	.000	.000		.000	.000	.000	.000		.000	.500

PM PEAK HOUR	Valley St Southbound					22nd St Westbound					Valley St Northbound					22nd St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	0	0	2	7	2	0	5	0	4	5	0	0	0	4	0	0	0	0	1	0	7
17:00	0	0	1	6	1	0	6	1	6	7	0	0	0	10	0	0	2	0	2	2	10
17:15	0	0	2	9	2	0	5	0	4	5	0	0	0	8	0	0	0	0	0	0	7
17:30	0	0	1	9	1	0	5	1	9	6	0	0	0	3	0	0	1	0	0	1	8
Total Volume	0	0	6	31	6	0	21	2	23	23	0	0	0	25	0	0	3	0	3	3	32
% App Total	0.0%	0.0%	100.0%			0.0%	91.3%	8.7%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.000	.000	.750		.750	.000	.875	.500		.821	.000	.000	.000		.000	.000	.375	.000		.375	.800

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

File Name : 16-7038-011 Broadway & 22nd Street
Date : 1/21/2016

Unshifted Count = All Vehicles & Uturns

	Broadway Southbound					22nd Street Westbound					Broadway Northbound					22nd Street Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	0	46	4	0	50	0	1	37	0	38	1	34	0	0	35	0	0	0	0	0	123	0
7:15	0	62	1	0	63	2	5	31	0	38	3	66	0	1	70	0	0	0	0	0	171	1
7:30	0	61	2	0	63	2	6	29	0	37	5	63	0	0	68	0	0	0	0	0	168	0
7:45	0	94	6	0	100	2	10	39	0	51	5	88	0	0	93	0	0	0	0	0	244	0
Total	0	263	13	0	276	6	22	136	0	164	14	251	0	1	266	0	0	0	0	0	706	1
8:00	0	99	4	0	103	4	5	52	0	61	3	98	0	0	101	0	0	0	0	0	265	0
8:15	0	129	4	0	133	0	6	46	0	52	2	88	0	0	90	0	0	0	0	0	275	0
8:30	0	123	2	0	125	4	9	57	0	70	3	104	0	0	107	0	0	0	0	0	302	0
8:45	0	122	1	0	123	5	5	51	0	61	7	85	0	1	93	0	0	0	0	0	277	1
Total	0	473	11	0	484	13	25	206	0	244	15	375	0	1	391	0	0	0	0	0	1119	1
16:00	0	104	4	0	108	8	24	95	0	127	7	133	0	1	141	0	0	0	0	0	376	1
16:15	0	103	8	0	111	3	25	95	0	123	6	133	0	2	141	0	0	0	0	0	375	2
16:30	0	109	9	0	118	2	29	107	0	138	4	141	0	2	147	0	0	0	0	0	403	2
16:45	0	104	4	0	108	3	25	94	0	122	9	153	0	1	163	0	0	0	0	0	393	1
Total	0	420	25	0	445	16	103	391	0	510	26	560	0	6	592	0	0	0	0	0	1547	6
17:00	0	128	7	0	135	2	30	126	0	158	15	145	0	0	160	0	0	0	0	0	453	0
17:15	0	100	6	0	106	8	34	110	0	152	4	159	0	1	164	0	0	0	0	0	422	1
17:30	0	106	13	0	119	2	30	111	0	143	6	142	0	0	148	0	0	0	0	0	410	0
17:45	0	139	7	0	146	7	28	105	0	140	7	145	0	2	154	0	0	0	0	0	440	2
Total	0	473	33	0	506	19	122	452	0	593	32	591	0	3	626	0	0	0	0	0	1725	3
Grand Total	0	1629	82	0	1711	54	272	1185	0	1511	87	1777	0	11	1875	0	0	0	0	0	5097	11
Apprch %	0.0%	95.2%	4.8%	0.0%		3.6%	18.0%	78.4%	0.0%		4.6%	94.8%	0.0%	0.6%		0.0%	0.0%	0.0%	0.0%			
Total %	0.0%	32.0%	1.6%	0.0%	33.6%	1.1%	5.3%	23.2%	0.0%	29.6%	1.7%	34.9%	0.0%	0.2%	36.8%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	

AM PEAK HOUR	Broadway Southbound					22nd Street Westbound					Broadway Northbound					22nd Street Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	99	4	0	103	4	5	52	0	61	3	98	0	0	101	0	0	0	0	0	265
8:15	0	129	4	0	133	0	6	46	0	52	2	88	0	0	90	0	0	0	0	0	275
8:30	0	123	2	0	125	4	9	57	0	70	3	104	0	0	107	0	0	0	0	0	302
8:45	0	122	1	0	123	5	5	51	0	61	7	85	0	1	93	0	0	0	0	0	277
Total Volume	0	473	11	0	484	13	25	206	0	244	15	375	0	1	391	0	0	0	0	0	1119
% App Total	0.0%	97.7%	2.3%	0.0%		5.3%	10.2%	84.4%	0.0%		3.8%	95.9%	0.0%	0.3%		0.0%	0.0%	0.0%	0.0%		
PHF	.000	.917	.688	.000	.910	.650	.694	.904	.000	.871	.536	.901	.000	.250	.914	.000	.000	.000	.000	.000	.926

PM PEAK HOUR	Broadway Southbound					22nd Street Westbound					Broadway Northbound					22nd Street Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	128	7	0	135	2	30	126	0	158	15	145	0	0	160	0	0	0	0	0	453
17:15	0	100	6	0	106	8	34	110	0	152	4	159	0	1	164	0	0	0	0	0	422
17:30	0	106	13	0	119	2	30	111	0	143	6	142	0	0	148	0	0	0	0	0	410
17:45	0	139	7	0	146	7	28	105	0	140	7	145	0	2	154	0	0	0	0	0	440
Total Volume	0	473	33	0	506	19	122	452	0	593	32	591	0	3	626	0	0	0	0	0	1725
% App Total	0.0%	93.5%	6.5%	0.0%		3.2%	20.6%	76.2%	0.0%		5.1%	94.4%	0.0%	0.5%		0.0%	0.0%	0.0%	0.0%		
PHF	.000	.851	.635	.000	.866	.594	.897	.897	.000	.938	.533	.929	.000	.375	.954	.000	.000	.000	.000	.000	.952

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

File Name : 16-7038-011 Broadway & 22nd Street
Date : 1/21/2016

Bank 1 Count = Bikes & Peds

	Broadway Southbound					22nd Street Westbound					Broadway Northbound					22nd Street Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	3	0	1	3	0	0	0	19	0	0	2	1	7	3	0	0	0	16	0	6	43
7:15	0	11	0	0	11	0	0	1	17	1	1	0	0	8	1	0	1	0	30	1	14	55
7:30	0	9	0	0	9	0	0	1	23	1	0	5	0	9	5	0	0	0	25	0	15	57
7:45	0	15	0	0	15	0	1	1	36	2	0	1	0	7	1	0	1	0	40	1	19	83
Total	0	38	0	1	38	0	1	3	95	4	1	8	1	31	10	0	2	0	111	2	54	238
8:00	0	15	1	1	16	1	1	0	42	2	0	0	0	6	0	0	0	1	53	1	19	102
8:15	1	14	1	1	16	0	0	3	50	3	0	3	0	17	3	0	0	1	48	1	23	116
8:30	0	15	1	0	16	0	1	2	32	3	0	2	0	7	2	0	0	0	46	0	21	85
8:45	0	20	4	0	24	0	0	2	37	2	1	2	0	21	3	0	0	0	43	0	29	101
Total	1	64	7	2	72	1	2	7	161	10	1	7	0	51	8	0	0	2	190	2	92	404
16:00	0	2	0	2	2	0	1	3	33	4	0	11	0	8	11	0	0	0	33	0	17	76
16:15	0	6	0	0	6	2	0	4	35	6	0	4	0	9	4	0	0	0	42	0	16	86
16:30	0	6	0	0	6	0	1	10	30	11	1	8	0	7	9	1	0	0	51	1	27	88
16:45	0	9	1	0	10	0	0	12	26	12	0	17	2	12	19	0	1	0	41	1	42	79
Total	0	23	1	2	24	2	2	29	124	33	1	40	2	36	43	1	1	0	167	2	102	329
17:00	0	5	0	0	5	0	0	11	46	11	1	15	0	13	16	0	0	0	69	0	32	128
17:15	0	4	0	0	4	2	0	17	41	19	0	20	0	17	20	0	0	1	41	1	44	99
17:30	0	2	0	0	2	0	1	14	59	15	0	11	2	13	13	1	0	0	39	1	31	111
17:45	0	2	0	0	2	0	0	14	48	14	0	17	0	11	17	0	0	0	49	0	33	108
Total	0	13	0	0	13	2	1	56	194	59	1	63	2	54	66	1	0	1	198	2	140	446
Grand Total	1	138	8	5	147	5	6	95	574	106	4	118	5	172	127	2	3	3	666	8	388	1417
Apprch %	0.7%	93.9%	5.4%			4.7%	5.7%	89.6%			3.1%	92.9%	3.9%			25.0%	37.5%	37.5%				
Total %	0.3%	35.6%	2.1%		37.9%	1.3%	1.5%	24.5%		27.3%	1.0%	30.4%	1.3%		32.7%	0.5%	0.8%	0.8%		2.1%	100.0%	

AM PEAK HOUR	Broadway Southbound					22nd Street Westbound					Broadway Northbound					22nd Street Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	15	1	1	16	1	1	0	42	2	0	0	0	6	0	0	0	1	53	1	19
8:15	1	14	1	1	16	0	0	3	50	3	0	3	0	17	3	0	0	1	48	1	23
8:30	0	15	1	0	16	0	1	2	32	3	0	2	0	7	2	0	0	0	46	0	21
8:45	0	20	4	0	24	0	0	2	37	2	1	2	0	21	3	0	0	0	43	0	29
Total Volume	1	64	7	2	72	1	2	7	161	10	1	7	0	51	8	0	0	2	190	2	92
% App Total	1.4%	88.9%	9.7%			10.0%	20.0%	70.0%			12.5%	87.5%	0.0%			0.0%	0.0%	100.0%			
PHF	.250	.800	.438		.750	.250	.500	.583		.833	.250	.583	.000		.667	.000	.000	.500		.500	.793

PM PEAK HOUR	Broadway Southbound					22nd Street Westbound					Broadway Northbound					22nd Street Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	5	0	0	5	0	0	11	46	11	1	15	0	13	16	0	0	0	69	0	32
17:15	0	4	0	0	4	2	0	17	41	19	0	20	0	17	20	0	0	1	41	1	44
17:30	0	2	0	0	2	0	1	14	59	15	0	11	2	13	13	1	0	0	39	1	31
17:45	0	2	0	0	2	0	0	14	48	14	0	17	0	11	17	0	0	0	49	0	33
Total Volume	0	13	0	0	13	2	1	56	194	59	1	63	2	54	66	1	0	1	198	2	140
% App Total	0.0%	100.0%	0.0%			3.4%	1.7%	94.9%			1.5%	95.5%	3.0%			50.0%	0.0%	50.0%			
PHF	.000	.650	.000		.650	.250	.250	.824		.776	.250	.788	.250		.825	.250	.000	.250		.500	.795

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7388-008 Telegraph Ave & 21st St
Date : 5/26/2016

Unshifted Count = All Vehicles & Uturns

	Telegraph Ave Southbound					21st St Westbound					Telegraph Ave Northbound					21st St Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	14	37	0	0	51	0	0	0	0	0	0	42	6	1	49	4	2	2	0	8	108	1
7:15	10	61	0	0	71	0	0	0	0	0	0	40	1	0	41	4	0	1	0	5	117	0
7:30	15	64	0	0	79	0	0	0	0	0	0	55	1	0	56	5	4	3	0	12	147	0
7:45	15	96	0	0	111	0	0	0	0	0	0	76	2	0	78	4	5	2	0	11	200	0
Total	54	258	0	0	312	0	0	0	0	0	0	213	10	1	224	17	11	8	0	36	572	1
8:00	22	117	0	0	139	0	0	0	0	0	0	109	7	0	116	12	6	7	0	25	280	0
8:15	26	105	0	0	131	0	0	0	0	0	0	78	5	0	83	15	3	8	0	26	240	0
8:30	27	110	0	0	137	0	0	0	0	0	0	55	1	0	56	13	2	6	0	21	214	0
8:45	25	112	0	0	137	0	0	0	0	0	0	60	7	2	69	12	5	22	0	39	245	2
Total	100	444	0	0	544	0	0	0	0	0	0	302	20	2	324	52	16	43	0	111	979	2
16:00	7	105	0	0	112	0	0	0	0	0	0	80	6	0	86	15	4	11	0	30	228	0
16:15	2	106	0	1	109	0	0	0	0	0	0	115	1	1	117	11	2	9	0	22	248	2
16:30	6	102	0	1	109	0	0	0	0	0	0	115	4	0	119	15	5	15	0	35	263	1
16:45	8	99	0	0	107	0	0	0	0	0	0	93	0	0	93	9	2	12	0	23	223	0
Total	23	412	0	2	437	0	0	0	0	0	0	403	11	1	415	50	13	47	0	110	962	3
17:00	10	101	0	0	111	0	0	0	0	0	0	117	2	0	119	13	2	11	0	26	256	0
17:15	12	110	0	0	122	0	0	0	0	0	0	116	7	1	124	14	3	11	0	28	274	1
17:30	11	102	0	1	114	0	0	0	0	0	0	105	7	0	112	14	4	9	0	27	253	1
17:45	9	112	0	3	124	0	0	0	0	0	0	96	5	0	101	7	5	5	0	17	242	3
Total	42	425	0	4	471	0	0	0	0	0	0	434	21	1	456	48	14	36	0	98	1025	5
Grand Total	219	1539	0	6	1764	0	0	0	0	0	0	1352	62	5	1419	167	54	134	0	355	3538	11
Apprch %	12.4%	87.2%	0.0%	0.3%		0.0%	0.0%	0.0%	0.0%		0.0%	95.3%	4.4%	0.4%		47.0%	15.2%	37.7%	0.0%			
Total %	6.2%	43.5%	0.0%	0.2%	49.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	38.2%	1.8%	0.1%	40.1%	4.7%	1.5%	3.8%	0.0%	10.0%	100.0%	

AM PEAK HOUR	Telegraph Ave Southbound					21st St Westbound					Telegraph Ave Northbound					21st St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	22	117	0	0	139	0	0	0	0	0	0	109	7	0	116	12	6	7	0	25	280
8:15	26	105	0	0	131	0	0	0	0	0	0	78	5	0	83	15	3	8	0	26	240
8:30	27	110	0	0	137	0	0	0	0	0	0	55	1	0	56	13	2	6	0	21	214
8:45	25	112	0	0	137	0	0	0	0	0	0	60	7	2	69	12	5	22	0	39	245
Total Volume	100	444	0	0	544	0	0	0	0	0	0	302	20	2	324	52	16	43	0	111	979
% App Total	18.4%	81.6%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		0.0%	93.2%	6.2%	0.6%		46.8%	14.4%	38.7%	0.0%		
PHF	.926	.949	.000	.000	.978	.000	.000	.000	.000	.000	.000	.693	.714	.250	.698	.867	.667	.489	.000	.712	.874

PM PEAK HOUR	Telegraph Ave Southbound					21st St Westbound					Telegraph Ave Northbound					21st St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	10	101	0	0	111	0	0	0	0	0	0	117	2	0	119	13	2	11	0	26	256
17:15	12	110	0	0	122	0	0	0	0	0	0	116	7	1	124	14	3	11	0	28	274
17:30	11	102	0	1	114	0	0	0	0	0	0	105	7	0	112	14	4	9	0	27	253
17:45	9	112	0	3	124	0	0	0	0	0	0	96	5	0	101	7	5	5	0	17	242
Total Volume	42	425	0	4	471	0	0	0	0	0	0	434	21	1	456	48	14	36	0	98	1025
% App Total	8.9%	90.2%	0.0%	0.8%		0.0%	0.0%	0.0%	0.0%		0.0%	95.2%	4.6%	0.2%		49.0%	14.3%	36.7%	0.0%		
PHF	.875	.949	.000	.333	.950	.000	.000	.000	.000	.000	.000	.927	.750	.250	.919	.857	.700	.818	.000	.875	.935

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

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orders@atdtraffic.com

File Name : 16-7388-008 Telegraph Ave & 21st St
Date : 5/26/2016

Bank 1 Count = Bikes & Peds

	Telegraph Ave Southbound					21st St Westbound					Telegraph Ave Northbound					21st St Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	7	0	5	7	0	0	0	20	0	0	4	0	9	4	0	0	0	13	0	11	47
7:15	0	11	0	4	11	0	0	1	18	1	0	0	0	9	0	0	0	0	10	0	12	41
7:30	0	10	0	3	10	0	0	0	18	0	0	2	0	4	2	1	1	0	19	2	14	44
7:45	0	15	0	7	15	0	0	0	23	0	0	3	0	9	3	0	1	0	22	1	19	61
Total	0	43	0	19	43	0	0	1	79	1	0	9	0	31	9	1	2	0	64	3	56	193
8:00	0	18	0	3	18	0	0	0	22	0	0	3	0	10	3	0	0	0	25	0	21	60
8:15	2	23	0	4	25	0	0	0	23	0	0	4	0	6	4	0	1	0	17	1	30	50
8:30	0	13	0	8	13	0	0	0	29	0	0	0	0	8	0	0	0	0	18	0	13	63
8:45	1	20	0	7	21	0	0	0	23	0	0	1	1	6	2	1	1	1	21	3	26	57
Total	3	74	0	22	77	0	0	0	97	0	0	8	1	30	9	1	2	1	81	4	90	230
16:00	0	5	0	2	5	0	0	0	22	0	0	10	1	4	11	0	1	0	22	1	17	50
16:15	0	5	1	6	6	0	0	3	22	3	0	12	0	4	12	0	0	0	25	0	21	57
16:30	0	8	0	4	8	0	2	0	32	2	1	8	0	8	9	0	0	0	24	0	19	68
16:45	0	14	1	6	15	0	0	1	42	1	1	13	1	9	15	1	0	1	31	2	33	88
Total	0	32	2	18	34	0	2	4	118	6	2	43	2	25	47	1	1	1	102	3	90	263
17:00	2	10	0	7	12	0	0	1	47	1	1	21	1	6	23	1	0	0	22	1	37	82
17:15	1	15	0	9	16	0	0	1	43	1	1	25	0	5	26	1	0	0	23	1	44	80
17:30	0	10	0	4	10	0	0	1	38	1	0	16	0	10	16	0	0	0	32	0	27	84
17:45	0	7	0	3	7	0	0	1	54	1	0	15	1	12	16	0	0	0	24	0	24	93
Total	3	42	0	23	45	0	0	4	182	4	2	77	2	33	81	2	0	0	101	2	132	339
Grand Total	6	191	2	82	199	0	2	9	476	11	4	137	5	119	146	5	5	2	348	12	368	1025
Apprch %	3.0%	96.0%	1.0%			0.0%	18.2%	81.8%			2.7%	93.8%	3.4%			41.7%	41.7%	16.7%				
Total %	1.6%	51.9%	0.5%		54.1%	0.0%	0.5%	2.4%		3.0%	1.1%	37.2%	1.4%		39.7%	1.4%	1.4%	0.5%		3.3%	100.0%	

AM PEAK HOUR	Telegraph Ave Southbound					21st St Westbound					Telegraph Ave Northbound					21st St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	18	0	3	18	0	0	0	22	0	0	3	0	10	3	0	0	0	25	0	21
8:15	2	23	0	4	25	0	0	0	23	0	0	4	0	6	4	0	1	0	17	1	30
8:30	0	13	0	8	13	0	0	0	29	0	0	0	0	8	0	0	0	0	18	0	13
8:45	1	20	0	7	21	0	0	0	23	0	0	1	1	6	2	1	1	1	21	3	26
Total Volume	3	74	0	22	77	0	0	0	97	0	0	8	1	30	9	1	2	1	81	4	90
% App Total	3.9%	96.1%	0.0%			0.0%	0.0%	0.0%			0.0%	88.9%	11.1%			25.0%	50.0%	25.0%			
PHF	.375	.804	.000		.770	.000	.000	.000		.000	.000	.500	.250		.563	.250	.500	.250		.333	.750

PM PEAK HOUR	Telegraph Ave Southbound					21st St Westbound					Telegraph Ave Northbound					21st St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	2	10	0	7	12	0	0	1	47	1	1	21	1	6	23	1	0	0	22	1	37
17:15	1	15	0	9	16	0	0	1	43	1	1	25	0	5	26	1	0	0	23	1	44
17:30	0	10	0	4	10	0	0	1	38	1	0	16	0	10	16	0	0	0	32	0	27
17:45	0	7	0	3	7	0	0	1	54	1	0	15	1	12	16	0	0	0	24	0	24
Total Volume	3	42	0	23	45	0	0	4	182	4	2	77	2	33	81	2	0	0	101	2	132
% App Total	6.7%	93.3%	0.0%			0.0%	0.0%	100.0%			2.5%	95.1%	2.5%			100.0%	0.0%	0.0%			
PHF	.375	.700	.000		.703	.000	.000	1.000		1.000	.500	.770	.500		.779	.500	.000	.000		.500	.750

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

File Name : 16-7038-013 Broadway & 21st Street
Date : 1/21/2016

Unshifted Count = All Vehicles & Uturns

	Broadway					21st Street					Broadway					21st Street						
	Southbound					Westbound					Northbound					Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	4	45	0	0	49	3	0	5	0	8	0	31	5	0	36	1	7	3	0	11	104	0
7:15	5	56	0	2	63	1	0	11	0	12	0	53	4	0	57	2	15	3	0	20	152	2
7:30	5	58	0	0	63	4	0	9	0	13	0	59	4	0	63	3	17	1	0	21	160	0
7:45	8	87	0	0	95	6	0	7	0	13	0	81	7	0	88	2	23	3	0	28	224	0
Total	22	246	0	2	270	14	0	32	0	46	0	224	20	0	244	8	62	10	0	80	640	2
8:00	8	98	0	0	106	8	0	12	0	20	0	93	6	0	99	0	16	2	0	18	243	0
8:15	10	122	0	0	132	3	0	10	0	13	0	77	5	0	82	0	19	2	0	21	248	0
8:30	14	106	0	1	121	6	0	8	0	14	0	96	11	0	107	0	25	6	0	31	273	1
8:45	7	127	0	0	134	6	0	14	0	20	0	82	10	0	92	0	16	3	0	19	265	0
Total	39	453	0	1	493	23	0	44	0	67	0	348	32	0	380	0	76	13	0	89	1029	1
16:00	10	109	0	2	121	8	0	14	0	22	0	115	2	0	117	11	8	5	0	24	284	2
16:15	6	94	0	1	101	10	0	20	0	30	0	116	5	0	121	4	11	9	0	24	276	1
16:30	4	119	0	0	123	6	0	19	0	25	0	123	5	0	128	5	7	6	0	18	294	0
16:45	4	108	0	1	113	7	0	31	0	38	0	131	8	1	140	4	6	5	0	15	306	2
Total	24	430	0	4	458	31	0	84	0	115	0	485	20	1	506	24	32	25	0	81	1160	5
17:00	8	107	0	3	118	7	0	29	0	36	0	118	11	1	130	5	17	14	0	36	320	4
17:15	7	112	0	0	119	9	0	27	0	36	0	131	4	0	135	11	9	9	0	29	319	0
17:30	9	96	0	2	107	4	0	19	0	23	0	130	8	1	139	2	17	12	0	31	300	3
17:45	12	143	0	1	156	10	0	19	0	29	0	128	5	0	133	9	15	3	0	27	345	1
Total	36	458	0	6	500	30	0	94	0	124	0	507	28	2	537	27	58	38	0	123	1284	8
Grand Total	121	1587	0	13	1721	98	0	254	0	352	0	1564	100	3	1667	59	228	86	0	373	4113	16
Apprch %	7.0%	92.2%	0.0%	0.8%		27.8%	0.0%	72.2%	0.0%		0.0%	93.8%	6.0%	0.2%		15.8%	61.1%	23.1%	0.0%			
Total %	2.9%	38.6%	0.0%	0.3%	41.8%	2.4%	0.0%	6.2%	0.0%	8.6%	0.0%	38.0%	2.4%	0.1%	40.5%	1.4%	5.5%	2.1%	0.0%	9.1%	100.0%	

AM PEAK HOUR	Broadway					21st Street					Broadway					21st Street					
	Southbound					Westbound					Northbound					Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	8	98	0	0	106	8	0	12	0	20	0	93	6	0	99	0	16	2	0	18	243
8:15	10	122	0	0	132	3	0	10	0	13	0	77	5	0	82	0	19	2	0	21	248
8:30	14	106	0	1	121	6	0	8	0	14	0	96	11	0	107	0	25	6	0	31	273
8:45	7	127	0	0	134	6	0	14	0	20	0	82	10	0	92	0	16	3	0	19	265
Total Volume	39	453	0	1	493	23	0	44	0	67	0	348	32	0	380	0	76	13	0	89	1029
% App Total	7.9%	91.9%	0.0%	0.2%		34.3%	0.0%	65.7%	0.0%		0.0%	91.6%	8.4%	0.0%		0.0%	85.4%	14.6%	0.0%		
PHF	.696	.892	.000	.250	.920	.719	.000	.786	.000	.838	.000	.906	.727	.000	.888	.000	.760	.542	.000	.718	.942

PM PEAK HOUR	Broadway					21st Street					Broadway					21st Street					
	Southbound					Westbound					Northbound					Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	8	107	0	3	118	7	0	29	0	36	0	118	11	1	130	5	17	14	0	36	320
17:15	7	112	0	0	119	9	0	27	0	36	0	131	4	0	135	11	9	9	0	29	319
17:30	9	96	0	2	107	4	0	19	0	23	0	130	8	1	139	2	17	12	0	31	300
17:45	12	143	0	1	156	10	0	19	0	29	0	128	5	0	133	9	15	3	0	27	345
Total Volume	36	458	0	6	500	30	0	94	0	124	0	507	28	2	537	27	58	38	0	123	1284
% App Total	7.2%	91.6%	0.0%	1.2%		24.2%	0.0%	75.8%	0.0%		0.0%	94.4%	5.2%	0.4%		22.0%	47.2%	30.9%	0.0%		
PHF	.750	.801	.000	.500	.801	.750	.000	.810	.000	.861	.000	.968	.636	.500	.966	.614	.853	.679	.000	.854	.930

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Nothing On Bank 2

File Name : 16-7038-013 Broadway & 21st Street
Date : 1/21/2016

Bank 1 Count = Bikes & Peds

	Broadway Southbound					21st Street Westbound					Broadway Northbound					21st Street Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	3	0	12	3	0	0	0	25	0	0	2	0	8	2	0	1	0	13	1	6	58
7:15	0	9	0	13	9	0	0	0	27	0	0	1	1	10	2	0	0	0	33	0	11	83
7:30	0	10	0	15	10	0	0	1	27	1	0	4	1	12	5	0	1	0	33	1	17	87
7:45	0	14	0	13	14	0	2	0	49	2	0	1	0	11	1	0	1	0	43	1	18	116
Total	0	36	0	53	36	0	2	1	128	3	0	8	2	41	10	0	3	0	122	3	52	344
8:00	0	20	0	22	20	0	0	0	55	0	0	0	2	12	2	0	0	0	54	0	22	143
8:15	0	13	0	26	13	0	1	0	84	1	0	3	1	14	4	0	3	0	63	3	21	187
8:30	0	16	0	18	16	0	0	0	53	0	0	2	0	15	2	0	0	0	68	0	18	154
8:45	0	20	0	32	20	2	0	0	60	2	0	3	2	14	5	0	1	0	59	1	28	165
Total	0	69	0	98	69	2	1	0	252	3	0	8	5	55	13	0	4	0	244	4	89	649
16:00	0	1	0	21	1	0	0	0	36	0	0	13	1	19	14	0	0	1	53	1	16	129
16:15	0	10	0	24	10	1	0	0	40	1	0	4	0	13	4	0	0	0	53	0	15	130
16:30	1	2	0	22	3	0	0	0	49	0	0	10	2	21	12	0	0	0	61	0	15	153
16:45	1	8	0	16	9	0	1	0	41	1	0	20	0	13	20	0	1	0	52	1	31	122
Total	2	21	0	83	23	1	1	0	166	2	0	47	3	66	50	0	1	1	219	2	77	534
17:00	0	5	0	40	5	0	0	0	62	0	0	15	2	19	17	0	0	0	120	0	22	241
17:15	1	7	0	33	8	1	0	1	55	2	0	18	1	17	19	0	1	0	59	1	30	164
17:30	0	0	0	23	0	2	0	0	74	2	0	9	0	17	9	1	1	0	88	2	13	202
17:45	0	4	0	24	4	1	1	0	79	2	0	21	1	18	22	0	0	0	80	0	28	201
Total	1	16	0	120	17	4	1	1	270	6	0	63	4	71	67	1	2	0	347	3	93	808
Grand Total	3	142	0	354	145	7	5	2	816	14	0	126	14	233	140	1	10	1	932	12	311	2335
Apprch %	2.1%	97.9%	0.0%			50.0%	35.7%	14.3%			0.0%	90.0%	10.0%			8.3%	83.3%	8.3%				
Total %	1.0%	45.7%	0.0%		46.6%	2.3%	1.6%	0.6%		4.5%	0.0%	40.5%	4.5%		45.0%	0.3%	3.2%	0.3%		3.9%	100.0%	

AM PEAK HOUR	Broadway Southbound					21st Street Westbound					Broadway Northbound					21st Street Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	20	0	22	20	0	0	0	55	0	0	0	2	12	2	0	0	0	54	0	22
8:15	0	13	0	26	13	0	1	0	84	1	0	3	1	14	4	0	3	0	63	3	21
8:30	0	16	0	18	16	0	0	0	53	0	0	2	0	15	2	0	0	0	68	0	18
8:45	0	20	0	32	20	2	0	0	60	2	0	3	2	14	5	0	1	0	59	1	28
Total Volume	0	69	0	98	69	2	1	0	252	3	0	8	5	55	13	0	4	0	244	4	89
% App Total	0.0%	100.0%	0.0%			66.7%	33.3%	0.0%			0.0%	61.5%	38.5%			0.0%	100.0%	0.0%			
PHF	.000	.863	.000		.863	.250	.250	.000		.375	.000	.667	.625		.650	.000	.333	.000		.333	.795

PM PEAK HOUR	Broadway Southbound					21st Street Westbound					Broadway Northbound					21st Street Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	5	0	40	5	0	0	0	62	0	0	15	2	19	17	0	0	0	120	0	22
17:15	1	7	0	33	8	1	0	1	55	2	0	18	1	17	19	0	1	0	59	1	30
17:30	0	0	0	23	0	2	0	0	74	2	0	9	0	17	9	1	1	0	88	2	13
17:45	0	4	0	24	4	1	1	0	79	2	0	21	1	18	22	0	0	0	80	0	28
Total Volume	1	16	0	120	17	4	1	1	270	6	0	63	4	71	67	1	2	0	347	3	93
% App Total	5.9%	94.1%	0.0%			66.7%	16.7%	16.7%			0.0%	94.0%	6.0%			33.3%	66.7%	0.0%			
PHF	.250	.571	.000		.531	.500	.250	.250		.750	.000	.750	.500		.761	.250	.500	.000		.375	.775

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7388-025 Martin Luther King Jr Way & Thomas L Berkley Way
Date : 5/26/2016

Unshifted Count = All Vehicles & Uturns

	Martin Luther King Jr Way Southbound					Thomas L Berkley Way Westbound					Martin Luther King Jr Way Northbound					Thomas L Berkley Way Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	0	5	2	0	7	6	1	0	0	7	0	0	3	0	3	0	13	5	0	18	35	0
7:15	0	11	0	0	11	12	2	0	0	14	0	0	6	0	6	0	26	9	0	35	66	0
7:30	0	25	3	0	28	14	3	0	0	17	2	0	12	0	14	0	11	15	0	26	85	0
7:45	0	18	9	0	27	18	1	0	0	19	2	0	10	0	12	0	22	6	0	28	86	0
Total	0	59	14	0	73	50	7	0	0	57	4	0	31	0	35	0	72	35	0	107	272	0
8:00	0	29	5	0	34	13	5	0	0	18	2	0	14	0	16	0	18	5	0	23	91	0
8:15	0	37	3	0	40	11	6	0	0	17	0	0	15	0	15	0	32	9	0	41	113	0
8:30	0	31	2	0	33	8	1	0	0	9	0	0	12	0	12	0	18	5	0	23	77	0
8:45	0	41	5	0	46	12	1	0	0	13	0	0	20	0	20	0	22	5	0	27	106	0
Total	0	138	15	0	153	44	13	0	0	57	2	0	61	0	63	0	90	24	0	114	387	0
16:00	0	28	1	0	29	12	3	0	0	15	0	0	25	0	25	0	18	10	0	28	97	0
16:15	0	34	6	0	40	19	3	0	0	22	1	0	22	0	23	0	11	9	0	20	105	0
16:30	0	41	2	0	43	25	2	0	0	27	0	0	38	0	38	0	14	13	0	27	135	0
16:45	0	26	1	0	27	11	1	0	0	12	0	0	20	0	20	0	8	5	0	13	72	0
Total	0	129	10	0	139	67	9	0	0	76	1	0	105	0	106	0	51	37	0	88	409	0
17:00	0	34	3	0	37	28	1	0	0	29	0	0	47	0	47	0	20	16	0	36	149	0
17:15	0	34	1	0	35	16	2	0	0	18	1	0	36	0	37	0	16	9	0	25	115	0
17:30	0	24	1	0	25	22	4	0	0	26	0	0	31	0	31	0	17	3	0	20	102	0
17:45	0	28	3	0	31	17	2	0	0	19	0	0	33	0	33	0	15	14	0	29	112	0
Total	0	120	8	0	128	83	9	0	0	92	1	0	147	0	148	0	68	42	0	110	478	0
Grand Total	0	446	47	0	493	244	38	0	0	282	8	0	344	0	352	0	281	138	0	419	1546	0
Apprch %	0.0%	90.5%	9.5%	0.0%		86.5%	13.5%	0.0%	0.0%		2.3%	0.0%	97.7%	0.0%		0.0%	67.1%	32.9%	0.0%			
Total %	0.0%	28.8%	3.0%	0.0%	31.9%	15.8%	2.5%	0.0%	0.0%	18.2%	0.5%	0.0%	22.3%	0.0%	22.8%	0.0%	18.2%	8.9%	0.0%	27.1%	100.0%	

AM PEAK HOUR	Martin Luther King Jr Way Southbound					Thomas L Berkley Way Westbound					Martin Luther King Jr Way Northbound					Thomas L Berkley Way Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	29	5	0	34	13	5	0	0	18	2	0	14	0	16	0	18	5	0	23	91
8:15	0	37	3	0	40	11	6	0	0	17	0	0	15	0	15	0	32	9	0	41	113
8:30	0	31	2	0	33	8	1	0	0	9	0	0	12	0	12	0	18	5	0	23	77
8:45	0	41	5	0	46	12	1	0	0	13	0	0	20	0	20	0	22	5	0	27	106
Total Volume	0	138	15	0	153	44	13	0	0	57	2	0	61	0	63	0	90	24	0	114	387
% App Total	0.0%	90.2%	9.8%	0.0%		77.2%	22.8%	0.0%	0.0%		3.2%	0.0%	96.8%	0.0%		0.0%	78.9%	21.1%	0.0%		
PHF	.000	.841	.750	.000	.832	.846	.542	.000	.000	.792	.250	.000	.763	.000	.788	.000	.703	.667	.000	.695	.856

PM PEAK HOUR	Martin Luther King Jr Way Southbound					Thomas L Berkley Way Westbound					Martin Luther King Jr Way Northbound					Thomas L Berkley Way Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	34	3	0	37	28	1	0	0	29	0	0	47	0	47	0	20	16	0	36	149
17:15	0	34	1	0	35	16	2	0	0	18	1	0	36	0	37	0	16	9	0	25	115
17:30	0	24	1	0	25	22	4	0	0	26	0	0	31	0	31	0	17	3	0	20	102
17:45	0	28	3	0	31	17	2	0	0	19	0	0	33	0	33	0	15	14	0	29	112
Total Volume	0	120	8	0	128	83	9	0	0	92	1	0	147	0	148	0	68	42	0	110	478
% App Total	0.0%	93.8%	6.3%	0.0%		90.2%	9.8%	0.0%	0.0%		0.7%	0.0%	99.3%	0.0%		0.0%	61.8%	38.2%	0.0%		
PHF	.000	.882	.667	.000	.865	.741	.563	.000	.000	.793	.250	.000	.782	.000	.787	.000	.850	.656	.000	.764	.802

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

File Name : 16-7388-025 Martin Luther King Jr Way & Thomas L Berkley Way
Date : 5/26/2016

Bank 1 Count = Bikes & Peds

	Martin Luther King Jr Way Southbound					Thomas L Berkley Way Westbound					Martin Luther King Jr Way Northbound					Thomas L Berkley Way Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	2	0	0	0	0	2	0	0	0	0	6	0	0	0	0	1	0	0	11
7:15	0	1	0	2	1	0	0	0	3	0	0	0	0	1	0	0	0	0	0	0	1	6
7:30	0	0	0	6	0	1	0	0	7	1	0	0	0	0	0	0	0	0	3	0	1	16
7:45	0	2	0	10	2	1	0	0	6	1	0	0	1	14	1	0	0	0	6	0	4	36
Total	0	3	0	20	3	2	0	0	18	2	0	0	1	21	1	0	0	0	10	0	6	69
8:00	0	1	0	0	1	0	0	0	2	0	0	0	0	13	0	0	0	0	7	0	1	22
8:15	0	1	0	10	1	0	0	0	10	0	0	0	2	12	2	0	0	0	5	0	3	37
8:30	0	4	0	6	4	1	0	0	7	1	0	0	2	4	2	0	0	0	1	0	7	18
8:45	1	4	0	2	5	0	0	0	2	0	0	0	1	2	1	0	0	0	4	0	6	10
Total	1	10	0	18	11	1	0	0	21	1	0	0	5	31	5	0	0	0	17	0	17	87
16:00	0	0	0	17	0	0	1	0	17	1	0	0	0	2	0	0	0	0	0	0	1	36
16:15	0	0	0	11	0	0	0	0	9	0	0	0	0	12	0	0	0	0	5	0	0	37
16:30	0	0	0	10	0	1	1	0	12	2	0	0	3	8	3	0	0	0	1	0	5	31
16:45	0	3	0	9	3	2	0	0	7	2	0	0	2	7	2	0	0	0	4	0	7	27
Total	0	3	0	47	3	3	2	0	45	5	0	0	5	29	5	0	0	0	10	0	13	131
17:00	0	1	0	4	1	3	0	0	8	3	0	0	3	6	3	0	0	0	4	0	7	22
17:15	0	1	0	6	1	0	0	0	5	0	0	0	1	3	1	0	0	0	1	0	2	15
17:30	0	2	0	3	2	0	0	0	4	0	0	0	2	6	2	0	0	0	2	0	4	15
17:45	0	1	0	10	1	1	0	0	15	1	0	0	2	4	2	0	2	0	3	2	6	32
Total	0	5	0	23	5	4	0	0	32	4	0	0	8	19	8	0	2	0	10	2	19	84
Grand Total	1	21	0	108	22	10	2	0	116	12	0	0	19	100	19	0	2	0	47	2	55	371
Apprch %	4.5%	95.5%	0.0%			83.3%	16.7%	0.0%			0.0%	0.0%	100.0%			0.0%	100.0%	0.0%				
Total %	1.8%	38.2%	0.0%		40.0%	18.2%	3.6%	0.0%		21.8%	0.0%	0.0%	34.5%		34.5%	0.0%	3.6%	0.0%		3.6%	100.0%	

AM PEAK HOUR	Martin Luther King Jr Way Southbound					Thomas L Berkley Way Westbound					Martin Luther King Jr Way Northbound					Thomas L Berkley Way Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	1	0	0	1	0	0	0	2	0	0	0	0	13	0	0	0	0	7	0	1
8:15	0	1	0	10	1	0	0	0	10	0	0	0	2	12	2	0	0	0	5	0	3
8:30	0	4	0	6	4	1	0	0	7	1	0	0	2	4	2	0	0	0	1	0	7
8:45	1	4	0	2	5	0	0	0	2	0	0	0	1	2	1	0	0	0	4	0	6
Total Volume	1	10	0	18	11	1	0	0	21	1	0	0	5	31	5	0	0	0	17	0	17
% App Total	9.1%	90.9%	0.0%			100.0%	0.0%	0.0%			0.0%	0.0%	100.0%			0.0%	0.0%	0.0%			
PHF	.250	.625	.000		.550	.250	.000	.000		.250	.000	.000	.625		.625	.000	.000	.000		.000	.607

PM PEAK HOUR	Martin Luther King Jr Way Southbound					Thomas L Berkley Way Westbound					Martin Luther King Jr Way Northbound					Thomas L Berkley Way Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	1	0	4	1	3	0	0	8	3	0	0	3	6	3	0	0	0	4	0	7
17:15	0	1	0	6	1	0	0	0	5	0	0	0	1	3	1	0	0	0	1	0	2
17:30	0	2	0	3	2	0	0	0	4	0	0	0	2	6	2	0	0	0	2	0	4
17:45	0	1	0	10	1	1	0	0	15	1	0	0	2	4	2	0	2	0	3	2	6
Total Volume	0	5	0	23	5	4	0	0	32	4	0	0	8	19	8	0	2	0	10	2	19
% App Total	0.0%	100.0%	0.0%			100.0%	0.0%	0.0%			0.0%	0.0%	100.0%			0.0%	100.0%	0.0%			
PHF	.000	.625	.000		.625	.333	.000	.000		.333	.000	.000	.667		.667	.000	.250	.000		.250	.679

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

File Name : 16-7683-001 Telegraph Ave & Thomas L Berkley Way (20th St)
Date : 9/29/2016

Unshifted Count = All Vehicles & Uturns

	Telegraph Ave Southbound					Thomas L Berkley Way (20th St) Westbound					Telegraph Ave Northbound					Thomas L Berkley Way (20th St) Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:30	31	25	16	0	72	3	22	21	0	46	3	46	3	0	52	9	20	3	0	32	202	0
7:45	28	66	14	0	108	7	23	17	0	47	3	74	6	0	83	18	24	4	0	46	284	0
8:00	43	65	15	0	123	3	23	25	0	51	3	57	12	0	72	18	35	9	0	62	308	0
8:15	33	49	16	0	98	3	34	28	0	65	1	42	4	0	47	11	23	7	0	41	251	0
Total	135	205	61	0	401	16	102	91	0	209	10	219	25	0	254	56	102	23	0	181	1045	0
8:30	36	57	20	0	113	0	28	31	0	59	2	41	5	0	48	7	30	1	0	38	258	0
8:45	47	58	16	0	121	1	28	26	0	55	2	38	3	0	43	6	23	5	0	34	253	0
9:00	45	45	13	0	103	4	32	33	0	69	4	38	4	0	46	9	22	4	0	35	253	0
9:15	37	56	13	0	106	2	20	26	0	48	3	43	9	0	55	3	22	5	0	30	239	0
Total	165	216	62	0	443	7	108	116	0	231	11	160	21	0	192	25	97	15	0	137	1003	0
16:00	22	63	17	0	102	5	25	44	0	74	5	71	6	0	82	11	23	4	0	38	296	0
16:15	21	69	13	0	103	4	23	38	0	65	0	60	7	0	67	9	26	5	0	40	275	0
16:30	29	80	24	0	133	7	32	37	0	76	6	60	5	0	71	7	33	5	0	45	325	0
16:45	18	62	20	0	100	2	35	34	0	71	4	74	8	0	86	18	25	4	0	47	304	0
Total	90	274	74	0	438	18	115	153	0	286	15	265	26	0	306	45	107	18	0	170	1200	0
17:00	31	57	24	0	112	3	41	49	0	93	5	59	3	0	67	8	38	3	0	49	321	0
17:15	22	74	15	0	111	3	37	62	0	102	3	62	12	0	77	14	29	7	0	50	340	0
17:30	26	61	17	0	104	4	32	37	0	73	1	57	11	0	69	23	36	7	0	66	312	0
17:45	18	79	20	0	117	10	35	57	0	102	2	57	14	0	73	23	29	9	0	61	353	0
Total	97	271	76	0	444	20	145	205	0	370	11	235	40	0	286	68	132	26	0	226	1326	0
Grand Total	487	966	273	0	1726	61	470	565	0	1096	47	879	112	0	1038	194	438	82	0	714	4574	0
Apprch %	28.2%	56.0%	15.8%	0.0%		5.6%	42.9%	51.6%	0.0%		4.5%	84.7%	10.8%	0.0%		27.2%	61.3%	11.5%	0.0%			
Total %	10.6%	21.1%	6.0%	0.0%	37.7%	1.3%	10.3%	12.4%	0.0%	24.0%	1.0%	19.2%	2.4%	0.0%	22.7%	4.2%	9.6%	1.8%	0.0%	15.6%	100.0%	

AM PEAK HOUR	Telegraph Ave Southbound					Thomas L Berkley Way (20th St) Westbound					Telegraph Ave Northbound					Thomas L Berkley Way (20th St) Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:45 to 08:45																					
Peak Hour For Entire Intersection Begins at 07:45																					
7:45	28	66	14	0	108	7	23	17	0	47	3	74	6	0	83	18	24	4	0	46	284
8:00	43	65	15	0	123	3	23	25	0	51	3	57	12	0	72	18	35	9	0	62	308
8:15	33	49	16	0	98	3	34	28	0	65	1	42	4	0	47	11	23	7	0	41	251
8:30	36	57	20	0	113	0	28	31	0	59	2	41	5	0	48	7	30	1	0	38	258
Total Volume	140	237	65	0	442	13	108	101	0	222	9	214	27	0	250	54	112	21	0	187	1101
% App Total	31.7%	53.6%	14.7%	0.0%		5.9%	48.6%	45.5%	0.0%		3.6%	85.6%	10.8%	0.0%		28.9%	59.9%	11.2%	0.0%		
PHF	.814	.898	.813	.000	.898	.464	.794	.815	.000	.854	.750	.723	.563	.000	.753	.750	.800	.583	.000	.754	.894

PM PEAK HOUR	Telegraph Ave Southbound					Thomas L Berkley Way (20th St) Westbound					Telegraph Ave Northbound					Thomas L Berkley Way (20th St) Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	31	57	24	0	112	3	41	49	0	93	5	59	3	0	67	8	38	3	0	49	321
17:15	22	74	15	0	111	3	37	62	0	102	3	62	12	0	77	14	29	7	0	50	340
17:30	26	61	17	0	104	4	32	37	0	73	1	57	11	0	69	23	36	7	0	66	312
17:45	18	79	20	0	117	10	35	57	0	102	2	57	14	0	73	23	29	9	0	61	353
Total Volume	97	271	76	0	444	20	145	205	0	370	11	235	40	0	286	68	132	26	0	226	1326
% App Total	21.8%	61.0%	17.1%	0.0%		5.4%	39.2%	55.4%	0.0%		3.8%	82.2%	14.0%	0.0%		30.1%	58.4%	11.5%	0.0%		
PHF	.782	.858	.792	.000	.949	.500	.884	.827	.000	.907	.550	.948	.714	.000	.929	.739	.868	.722	.000	.856	.939

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7683-001 Telegraph Ave & Thomas L Berkley Way (20th St)
Date : 9/29/2016

Bank 1 Count = Bikes & Peds

	Telegraph Ave Southbound					Thomas L Berkley Way (20th St) Westbound					Telegraph Ave Northbound					Thomas L Berkley Way (20th St) Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:30	5	11	2	18	18	0	1	0	19	1	0	1	0	50	1	0	1	0	17	1	21	104
7:45	1	10	2	21	13	0	2	1	27	3	1	2	0	51	3	0	3	1	30	4	23	129
8:00	4	18	0	27	22	1	3	0	31	4	0	1	1	44	2	4	2	3	19	9	37	121
8:15	3	15	0	15	18	2	1	0	27	3	1	3	2	76	6	0	7	3	22	10	37	140
Total	13	54	4	81	71	3	7	1	104	11	2	7	3	221	12	4	13	7	88	24	118	494
8:30	5	18	0	26	23	0	2	0	21	2	0	3	0	49	3	0	9	2	21	11	39	117
8:45	7	27	1	24	35	1	0	1	24	2	0	2	0	50	2	1	4	1	21	6	45	119
9:00	8	16	0	21	24	0	1	0	17	1	0	3	1	41	4	1	3	0	25	4	33	104
9:15	7	14	1	20	22	0	1	2	19	3	0	2	0	46	2	0	1	1	17	2	29	102
Total	27	75	2	91	104	1	4	3	81	8	0	10	1	186	11	2	17	4	84	23	146	442
16:00	1	10	1	24	12	0	5	0	15	5	1	7	0	36	8	1	0	0	37	1	26	112
16:15	2	2	3	32	7	0	2	0	25	2	1	12	1	44	14	0	0	0	46	0	23	147
16:30	0	7	3	25	10	1	2	5	36	8	0	9	0	36	9	1	0	1	38	2	29	135
16:45	0	6	1	22	7	0	2	0	33	2	1	10	0	39	11	0	2	0	31	2	22	125
Total	3	25	8	103	36	1	11	5	109	17	3	38	1	155	42	2	2	1	152	5	100	519
17:00	3	4	0	21	7	0	4	5	35	9	1	15	1	35	17	5	3	0	24	8	41	115
17:15	1	7	0	37	8	0	6	2	47	8	0	16	0	32	16	2	1	0	30	3	35	146
17:30	1	9	0	20	10	0	2	6	31	8	0	23	0	37	23	0	2	1	29	3	44	117
17:45	1	6	1	34	8	0	3	2	43	5	3	13	1	41	17	0	0	1	35	1	31	153
Total	6	26	1	112	33	0	15	15	156	30	4	67	2	145	73	7	6	2	118	15	151	531
Grand Total	49	180	15	387	244	5	37	24	450	66	9	122	7	707	138	15	38	14	442	67	515	1986
Apprch %	20.1%	73.8%	6.1%			7.6%	56.1%	36.4%			6.5%	88.4%	5.1%			22.4%	56.7%	20.9%				
Total %	9.5%	35.0%	2.9%		47.4%	1.0%	7.2%	4.7%		12.8%	1.7%	23.7%	1.4%		26.8%	2.9%	7.4%	2.7%		13.0%	100.0%	

AM PEAK HOUR	Telegraph Ave Southbound					Thomas L Berkley Way (20th St) Westbound					Telegraph Ave Northbound					Thomas L Berkley Way (20th St) Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 07:45 to 08:45																					
Peak Hour For Entire Intersection Begins at 07:45																					
7:45	1	10	2	21	13	0	2	1	27	3	1	2	0	51	3	0	3	1	30	4	23
8:00	4	18	0	27	22	1	3	0	31	4	0	1	1	44	2	4	2	3	19	9	37
8:15	3	15	0	15	18	2	1	0	27	3	1	3	2	76	6	0	7	3	22	10	37
8:30	5	18	0	26	23	0	2	0	21	2	0	3	0	49	3	0	9	2	21	11	39
Total Volume	13	61	2	89	76	3	8	1	106	12	2	9	3	220	14	4	21	9	92	34	136
% App Total	17.1%	80.3%	2.6%			25.0%	66.7%	8.3%			14.3%	64.3%	21.4%			11.8%	61.8%	26.5%			
PHF	.650	.847	.250		.826	.375	.667	.250		.750	.500	.750	.375		.583	.250	.583	.750		.773	.872

PM PEAK HOUR	Telegraph Ave Southbound					Thomas L Berkley Way (20th St) Westbound					Telegraph Ave Northbound					Thomas L Berkley Way (20th St) Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	3	4	0	21	7	0	4	5	35	9	1	15	1	35	17	5	3	0	24	8	41
17:15	1	7	0	37	8	0	6	2	47	8	0	16	0	32	16	2	1	0	30	3	35
17:30	1	9	0	20	10	0	2	6	31	8	0	23	0	37	23	0	2	1	29	3	44
17:45	1	6	1	34	8	0	3	2	43	5	3	13	1	41	17	0	0	1	35	1	31
Total Volume	6	26	1	112	33	0	15	15	156	30	4	67	2	145	73	7	6	2	118	15	151
% App Total	18.2%	78.8%	3.0%			0.0%	50.0%	50.0%			5.5%	91.8%	2.7%			46.7%	40.0%	13.3%			
PHF	.500	.722	.250		.825	.000	.625	.625		.833	.333	.728	.500		.793	.350	.500	.500		.469	.858

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7388-009 Broadway & 20th St
Date : 5/26/2016

Unshifted Count = All Vehicles & Uturns

	Broadway Southbound					20th St Westbound					Broadway Northbound					20th St Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	3	31	10	0	44	6	18	16	0	40	14	39	7	0	60	1	24	6	0	31	175	0
7:15	8	50	4	0	62	9	15	15	0	39	14	52	7	0	73	2	26	17	0	45	219	0
7:30	2	55	12	0	69	7	20	21	0	48	16	67	6	0	89	4	31	19	0	54	260	0
7:45	12	62	12	0	86	13	29	22	0	64	15	66	8	0	89	7	40	16	0	63	302	0
Total	25	198	38	0	261	35	82	74	0	191	59	224	28	0	311	14	121	58	0	193	956	0
8:00	11	73	13	0	97	9	44	14	0	67	20	70	18	0	108	7	50	16	0	73	345	0
8:15	8	89	11	0	108	13	31	13	0	57	18	77	15	0	110	4	68	16	0	88	363	0
8:30	4	100	12	0	116	8	28	27	0	63	12	75	5	0	92	4	57	14	0	75	346	0
8:45	13	91	12	0	116	6	35	22	0	63	11	74	15	0	100	4	52	14	0	70	349	0
Total	36	353	48	0	437	36	138	76	0	250	61	296	53	0	410	19	227	60	0	306	1403	0
16:00	8	124	25	0	157	14	36	12	1	63	16	117	13	0	146	4	30	24	0	58	424	1
16:15	9	108	12	0	129	11	47	10	0	68	23	95	12	0	130	2	45	25	0	72	399	0
16:30	7	104	20	0	131	12	41	17	0	70	14	84	14	0	112	6	43	17	0	66	379	0
16:45	5	125	17	0	147	12	38	10	0	60	19	94	13	0	126	4	38	18	0	60	393	0
Total	29	461	74	0	564	49	162	49	1	261	72	390	52	0	514	16	156	84	0	256	1595	1
17:00	11	107	14	0	132	13	63	15	0	91	23	123	15	1	162	5	36	29	1	71	456	2
17:15	9	112	20	1	142	16	46	10	0	72	14	104	17	0	135	7	62	20	0	89	438	1
17:30	17	114	13	0	144	11	48	12	0	71	18	106	13	0	137	11	55	23	0	89	441	0
17:45	11	119	11	0	141	14	35	19	0	68	17	81	18	0	116	5	36	22	0	63	388	0
Total	48	452	58	1	559	54	192	56	0	302	72	414	63	1	550	28	189	94	1	312	1723	3
Grand Total	138	1464	218	1	1821	174	574	255	1	1004	264	1324	196	1	1785	77	693	296	1	1067	5677	4
Apprch %	7.6%	80.4%	12.0%	0.1%		17.3%	57.2%	25.4%	0.1%		14.8%	74.2%	11.0%	0.1%		7.2%	64.9%	27.7%	0.1%			
Total %	2.4%	25.8%	3.8%	0.0%	32.1%	3.1%	10.1%	4.5%	0.0%	17.7%	4.7%	23.3%	3.5%	0.0%	31.4%	1.4%	12.2%	5.2%	0.0%	18.8%	100.0%	

AM PEAK HOUR	Broadway Southbound					20th St Westbound					Broadway Northbound					20th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	11	73	13	0	97	9	44	14	0	67	20	70	18	0	108	7	50	16	0	73	345
8:15	8	89	11	0	108	13	31	13	0	57	18	77	15	0	110	4	68	16	0	88	363
8:30	4	100	12	0	116	8	28	27	0	63	12	75	5	0	92	4	57	14	0	75	346
8:45	13	91	12	0	116	6	35	22	0	63	11	74	15	0	100	4	52	14	0	70	349
Total Volume	36	353	48	0	437	36	138	76	0	250	61	296	53	0	410	19	227	60	0	306	1403
% App Total	8.2%	80.8%	11.0%	0.0%		14.4%	55.2%	30.4%	0.0%		14.9%	72.2%	12.9%	0.0%		6.2%	74.2%	19.6%	0.0%		
PHF	.692	.883	.923	.000	.942	.692	.784	.704	.000	.933	.763	.961	.736	.000	.932	.679	.835	.938	.000	.869	.966

PM PEAK HOUR	Broadway Southbound					20th St Westbound					Broadway Northbound					20th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	11	107	14	0	132	13	63	15	0	91	23	123	15	1	162	5	36	29	1	71	456
17:15	9	112	20	1	142	16	46	10	0	72	14	104	17	0	135	7	62	20	0	89	438
17:30	17	114	13	0	144	11	48	12	0	71	18	106	13	0	137	11	55	23	0	89	441
17:45	11	119	11	0	141	14	35	19	0	68	17	81	18	0	116	5	36	22	0	63	388
Total Volume	48	452	58	1	559	54	192	56	0	302	72	414	63	1	550	28	189	94	1	312	1723
% App Total	8.6%	80.9%	10.4%	0.2%		17.9%	63.6%	18.5%	0.0%		13.1%	75.3%	11.5%	0.2%		9.0%	60.6%	30.1%	0.3%		
PHF	.706	.950	.725	.250	.970	.844	.762	.737	.000	.830	.783	.841	.875	.250	.849	.636	.762	.810	.250	.876	.945

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

File Name : 16-7388-009 Broadway & 20th St
Date : 5/26/2016

Bank 1 Count = Bikes & Peds

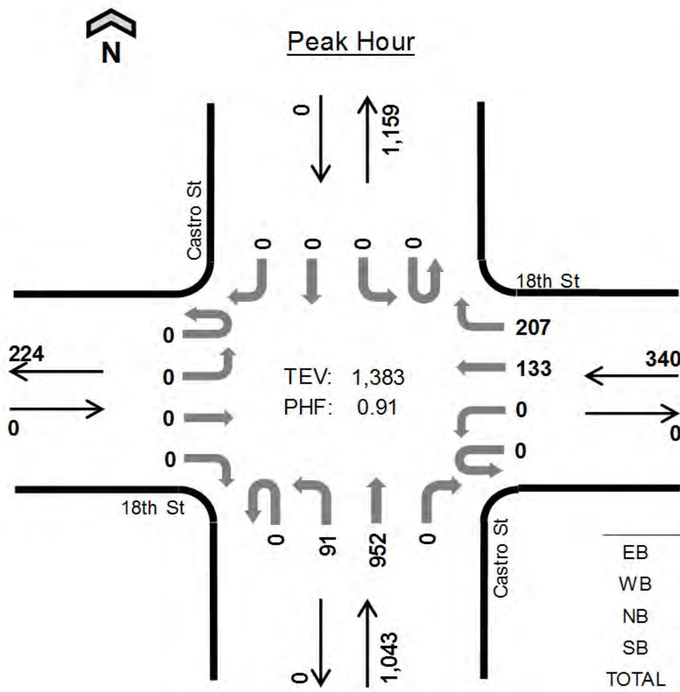
	Broadway Southbound					20th St Westbound					Broadway Northbound					20th St Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	7	0	18	7	4	1	0	18	5	0	1	0	11	1	0	0	2	45	2	15	92
7:15	0	10	1	34	11	3	0	0	26	3	0	3	0	13	3	0	2	2	39	4	21	112
7:30	0	17	2	41	19	3	2	0	28	5	0	2	0	25	2	1	1	2	60	4	30	154
7:45	1	31	2	46	34	1	0	0	34	1	1	2	0	19	3	1	4	2	83	7	45	182
Total	1	65	5	139	71	11	3	0	106	14	1	8	0	68	9	2	7	8	227	17	111	540
8:00	0	14	1	46	15	5	6	1	49	12	0	1	1	22	2	1	1	1	78	3	32	195
8:15	1	20	0	50	21	4	0	0	37	4	0	1	0	27	1	1	4	7	93	12	38	207
8:30	3	23	0	44	26	8	0	0	90	8	1	0	0	31	1	2	2	1	113	5	40	278
8:45	2	24	1	79	27	4	1	0	72	5	1	2	2	36	5	0	4	4	97	8	45	284
Total	6	81	2	219	89	21	7	1	248	29	2	4	3	116	9	4	11	13	381	28	155	964
16:00	0	14	1	47	15	0	3	0	47	3	1	7	0	24	8	0	0	1	116	1	27	234
16:15	1	3	2	35	6	0	2	0	50	2	2	9	0	39	11	0	2	0	84	2	21	208
16:30	0	9	1	52	10	2	0	0	65	2	3	10	3	33	16	1	3	4	94	8	36	244
16:45	0	9	1	54	10	2	3	1	56	6	3	13	2	30	18	1	4	2	97	7	41	237
Total	1	35	5	188	41	4	8	1	218	13	9	39	5	126	53	2	9	7	391	18	125	923
17:00	0	5	3	59	8	0	7	1	66	8	3	11	5	45	19	0	3	0	112	3	38	282
17:15	0	11	2	70	13	0	8	1	74	9	3	16	5	44	24	0	4	1	138	5	51	326
17:30	3	12	0	57	15	0	4	1	67	5	1	18	4	44	23	0	3	3	104	6	49	272
17:45	1	1	3	71	5	0	8	1	66	9	1	18	3	44	22	2	0	0	118	2	38	299
Total	4	29	8	257	41	0	27	4	273	31	8	63	17	177	88	2	10	4	472	16	176	1179
Grand Total	12	210	20	803	242	36	45	6	845	87	20	114	25	487	159	10	37	32	1471	79	567	3606
Apprch %	5.0%	86.8%	8.3%			41.4%	51.7%	6.9%			12.6%	71.7%	15.7%			12.7%	46.8%	40.5%				
Total %	2.1%	37.0%	3.5%		42.7%	6.3%	7.9%	1.1%		15.3%	3.5%	20.1%	4.4%		28.0%	1.8%	6.5%	5.6%		13.9%	100.0%	

AM PEAK HOUR	Broadway Southbound					20th St Westbound					Broadway Northbound					20th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	14	1	46	15	5	6	1	49	12	0	1	1	22	2	1	1	1	78	3	32
8:15	1	20	0	50	21	4	0	0	37	4	0	1	0	27	1	1	4	7	93	12	38
8:30	3	23	0	44	26	8	0	0	90	8	1	0	0	31	1	2	2	1	113	5	40
8:45	2	24	1	79	27	4	1	0	72	5	1	2	2	36	5	0	4	4	97	8	45
Total Volume	6	81	2	219	89	21	7	1	248	29	2	4	3	116	9	4	11	13	381	28	155
% App Total	6.7%	91.0%	2.2%			72.4%	24.1%	3.4%			22.2%	44.4%	33.3%			14.3%	39.3%	46.4%			
PHF	.500	.844	.500		.824	.656	.292	.250		.604	.500	.500	.375		.450	.500	.688	.464		.583	.861

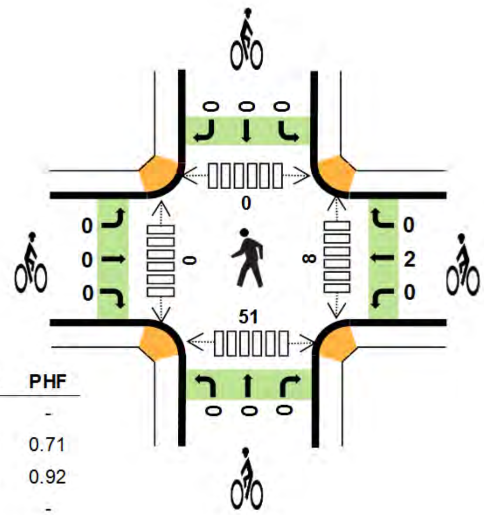
PM PEAK HOUR	Broadway Southbound					20th St Westbound					Broadway Northbound					20th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	5	3	59	8	0	7	1	66	8	3	11	5	45	19	0	3	0	112	3	38
17:15	0	11	2	70	13	0	8	1	74	9	3	16	5	44	24	0	4	1	138	5	51
17:30	3	12	0	57	15	0	4	1	67	5	1	18	4	44	23	0	3	3	104	6	49
17:45	1	1	3	71	5	0	8	1	66	9	1	18	3	44	22	2	0	0	118	2	38
Total Volume	4	29	8	257	41	0	27	4	273	31	8	63	17	177	88	2	10	4	472	16	176
% App Total	9.8%	70.7%	19.5%			0.0%	87.1%	12.9%			9.1%	71.6%	19.3%			12.5%	62.5%	25.0%			
PHF	.333	.604	.667		.683	.000	.844	1.000		.861	.667	.875	.850		.917	.250	.625	.333		.667	.863

Castro St
18th St

Date: 04/29/2015
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM



	HV %:	PHF
EB	-	-
WB	3.2%	0.71
NB	2.6%	0.92
SB	-	-
TOTAL	2.7%	0.91



Two-Hour Count Summaries

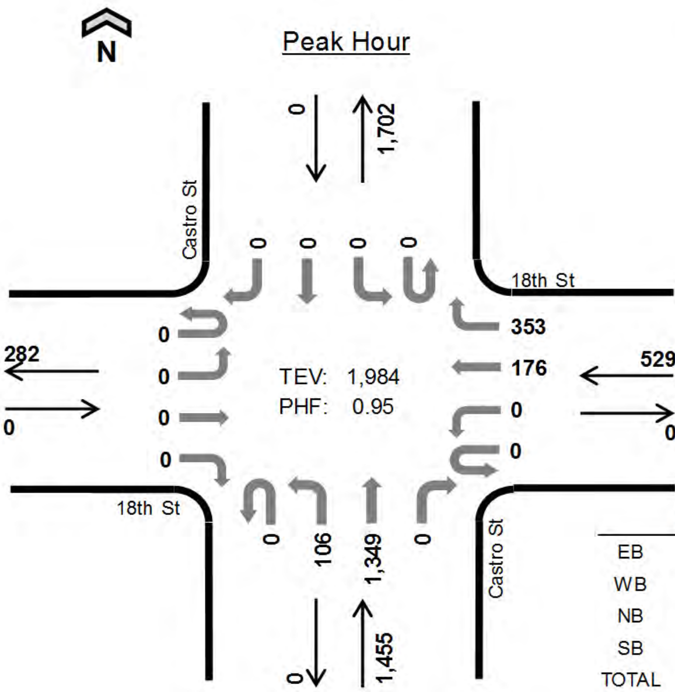
Interval Start	18th St Eastbound				18th St Westbound				Castro St Northbound				Castro St Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	13	15	0	15	125	0	0	0	0	0	168	0
7:15 AM	0	0	0	0	0	0	16	24	0	23	195	0	0	0	0	0	258	0
7:30 AM	0	0	0	0	0	0	21	33	0	15	230	0	0	0	0	0	299	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**33**	**45**	**0**	**15**	**234**	**0**	**0**	**0**	**0**	**0**	**327**	1,052
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**40**	**80**	**0**	**18**	**241**	**0**	**0**	**0**	**0**	**0**	**379**	1,263
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**38**	**51**	**0**	**30**	**254**	**0**	**0**	**0**	**0**	**0**	**373**	1,378
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**22**	**31**	**0**	**28**	**223**	**0**	**0**	**0**	**0**	**0**	**304**	**1,383**
8:45 AM	0	0	0	0	0	0	22	30	0	24	233	0	0	0	0	0	309	1,365
Count Total	0	0	0	0	0	0	205	309	0	168	1,735	0	0	0	0	0	2,417	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**0**	**133**	**207**	**0**	**91**	**952**	**0**	**0**	**0**	**0**	**0**	**1,383**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**7**	**0**	**1**	**26**	**0**	**0**	**0**	**0**	**0**	**38**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**-**	**3%**	**3%**	**-**	**1%**	**3%**	**-**	**-**	**-**	**-**	**-**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

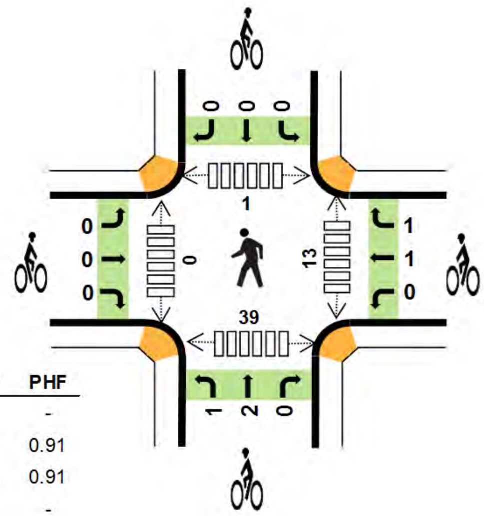
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	16	0	*16*	0	0	0	0	*0*	4	0	0	2	*6*
7:15 AM	0	2	21	0	*23*	0	0	0	0	*0*	1	0	0	7	*8*
7:30 AM	0	1	16	0	*17*	0	0	0	0	*0*	3	0	0	9	*12*
7:45 AM	**0**	**4**	**4**	**0**	***8***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**9**	*10*
8:00 AM	**0**	**2**	**6**	**0**	***8***	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**0**	**15**	*18*
8:15 AM	**0**	**3**	**12**	**0**	***15***	**0**	**0**	**0**	**0**	***0***	**2**	**0**	**0**	**15**	*17*
8:30 AM	**0**	**2**	**5**	**0**	***7***	**0**	**2**	**0**	**0**	***2***	**2**	**0**	**0**	**12**	***14***
8:45 AM	0	3	15	0	*18*	0	1	0	0	*1*	1	0	0	7	*8*
Count Total	0	17	95	0	*112*	0	3	0	0	*3*	17	0	0	76	*93*
Peak Hour	**0**	**11**	**27**	**0**	***38***	**0**	**2**	**0**	**0**	***2***	**8**	**0**	**0**	**51**	***59***

Castro St
18th St

Date: 04/29/2015
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	-	-
WB	0.8%	0.91
NB	1.4%	0.91
SB	-	-
TOTAL	1.2%	0.95



Three-Hour Count Summaries

Interval Start		18th St Eastbound UT	LT	TH	RT	18th St Westbound UT	LT	TH	RT	Castro St Northbound UT	LT	TH	RT	Castro St Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:30 PM		0	0	0	0	0	0	47	98	0	24	333	0	0	0	0	0	502	0
4:45 PM		0	0	0	0	0	0	45	81	0	26	313	0	0	0	0	0	465	0
5:00 PM		0	0	0	0	0	0	37	86	0	31	368	0	0	0	0	0	522	0
5:15 PM		0	0	0	0	0	0	47	88	0	25	335	0	0	0	0	0	495	1,984
Peak Hour	All	0	0	0	0	0	0	176	353	0	106	1,349	0	0	0	0	0	1,984	0
	HV	0	0	0	0	0	0	2	2	0	5	15	0	0	0	0	0	24	0
	HV%	-	-	-	-	-	-	1%	1%	-	5%	1%	-	-	-	-	-	1%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:30 PM	0	0	7	0	*7*	0	0	0	0	*0*	2	0	0	9	*11*
4:45 PM	0	3	6	0	*9*	0	2	1	0	*3*	4	0	1	9	*14*
5:00 PM	0	0	4	0	*4*	0	0	2	0	*2*	7	0	0	12	*19*
5:15 PM	0	1	3	0	*4*	0	0	0	0	*0*	0	0	0	9	*9*
Peak Hour	0	4	20	0	*24*	0	2	3	0	*5*	13	0	1	39	*53*

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

File Name : 16-7388-017 Martin Luther King Jr Way & 18th St
Date : 5/26/2016

Unshifted Count = All Vehicles & Uturns

	Martin Luther King Jr Way Southbound					18th St Westbound					Martin Luther King Jr Way Northbound					18th St Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	0	8	9	0	17	1	18	0	0	19	1	5	0	0	6	0	0	0	0	0	42	0
7:15	0	17	11	0	28	0	26	0	0	26	1	9	0	1	11	0	0	0	0	0	65	1
7:30	0	31	20	0	51	5	34	0	0	39	5	13	0	0	18	0	0	0	0	0	108	0
7:45	0	23	18	0	41	6	59	1	0	66	6	13	0	0	19	0	0	0	0	0	126	0
Total	0	79	58	0	137	12	137	1	0	150	13	40	0	1	54	0	0	0	0	0	341	1
8:00	0	29	17	0	46	4	93	1	0	98	8	15	0	1	24	0	0	0	0	0	168	1
8:15	0	36	17	0	53	5	71	2	0	78	10	14	0	0	24	0	0	0	0	0	155	0
8:30	0	32	12	0	44	5	45	0	0	50	4	17	0	0	21	0	0	0	0	0	115	0
8:45	0	44	12	0	56	3	43	0	0	46	5	24	0	1	30	0	0	0	0	0	132	1
Total	0	141	58	0	199	17	252	3	0	272	27	70	0	2	99	0	0	0	0	0	570	2
16:00	0	29	20	0	49	10	85	2	0	97	9	19	0	0	28	0	0	0	0	0	174	0
16:15	0	37	26	0	63	4	110	0	0	114	7	27	0	0	34	0	0	0	0	0	211	0
16:30	0	48	30	0	78	2	88	0	0	90	17	35	0	0	52	0	0	0	0	0	220	0
16:45	0	26	23	0	49	2	73	0	0	75	8	27	0	0	35	0	0	0	0	0	159	0
Total	0	140	99	0	239	18	356	2	0	376	41	108	0	0	149	0	0	0	0	0	764	0
17:00	0	38	46	0	84	7	103	2	0	112	14	38	0	2	54	0	0	0	0	0	250	2
17:15	0	47	15	0	62	2	67	5	0	74	9	31	0	0	40	0	0	0	0	0	176	0
17:30	0	25	27	0	52	3	50	0	0	53	10	33	0	0	43	0	0	0	0	0	148	0
17:45	0	31	21	0	52	2	85	2	0	89	5	29	0	0	34	0	0	0	0	0	175	0
Total	0	141	109	0	250	14	305	9	0	328	38	131	0	2	171	0	0	0	0	0	749	2
Grand Total	0	501	324	0	825	61	1050	15	0	1126	119	349	0	5	473	0	0	0	0	0	2424	5
Apprch %	0.0%	60.7%	39.3%	0.0%		5.4%	93.3%	1.3%	0.0%		25.2%	73.8%	0.0%	1.1%		0.0%	0.0%	0.0%	0.0%			
Total %	0.0%	20.7%	13.4%	0.0%	34.0%	2.5%	43.3%	0.6%	0.0%	46.5%	4.9%	14.4%	0.0%	0.2%	19.5%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	

AM PEAK HOUR	Martin Luther King Jr Way Southbound					18th St Westbound					Martin Luther King Jr Way Northbound					18th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	29	17	0	46	4	93	1	0	98	8	15	0	1	24	0	0	0	0	0	168
8:15	0	36	17	0	53	5	71	2	0	78	10	14	0	0	24	0	0	0	0	0	155
8:30	0	32	12	0	44	5	45	0	0	50	4	17	0	0	21	0	0	0	0	0	115
8:45	0	44	12	0	56	3	43	0	0	46	5	24	0	1	30	0	0	0	0	0	132
Total Volume	0	141	58	0	199	17	252	3	0	272	27	70	0	2	99	0	0	0	0	0	570
% App Total	0.0%	70.9%	29.1%	0.0%		6.3%	92.6%	1.1%	0.0%		27.3%	70.7%	0.0%	2.0%		0.0%	0.0%	0.0%	0.0%		
PHF	.000	.801	.853	.000	.888	.850	.677	.375	.000	.694	.675	.729	.000	.500	.825	.000	.000	.000	.000	.000	.848

PM PEAK HOUR	Martin Luther King Jr Way Southbound					18th St Westbound					Martin Luther King Jr Way Northbound					18th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:15 to 17:15																					
Peak Hour For Entire Intersection Begins at 16:15																					
16:15	0	37	26	0	63	4	110	0	0	114	7	27	0	0	34	0	0	0	0	0	211
16:30	0	48	30	0	78	2	88	0	0	90	17	35	0	0	52	0	0	0	0	0	220
16:45	0	26	23	0	49	2	73	0	0	75	8	27	0	0	35	0	0	0	0	0	159
17:00	0	38	46	0	84	7	103	2	0	112	14	38	0	2	54	0	0	0	0	0	250
Total Volume	0	149	125	0	274	15	374	2	0	391	46	127	0	2	175	0	0	0	0	0	840
% App Total	0.0%	54.4%	45.6%	0.0%		3.8%	95.7%	0.5%	0.0%		26.3%	72.6%	0.0%	1.1%		0.0%	0.0%	0.0%	0.0%		
PHF	.000	.776	.679	.000	.815	.536	.850	.250	.000	.857	.676	.836	.000	.250	.810	.000	.000	.000	.000	.000	.840

ALL TRAFFIC DATA

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orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

File Name : 16-7388-017 Martin Luther King Jr Way & 18th St
Date : 5/26/2016

Bank 1 Count = Bikes & Peds

	Martin Luther King Jr Way Southbound					18th St Westbound					Martin Luther King Jr Way Northbound					18th St Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	1	0	0	1	0	2	1	0	0	0	5	0	0	0	0	3	0	1	11
7:15	0	1	0	1	1	0	0	0	1	0	0	2	0	2	2	0	0	0	6	0	3	10
7:30	0	1	1	2	2	0	0	0	3	0	0	0	0	10	0	0	0	0	3	0	2	18
7:45	0	3	1	2	4	0	1	0	8	1	0	1	0	5	1	0	0	0	7	0	6	22
Total	0	5	2	6	7	0	2	0	14	2	0	3	0	22	3	0	0	0	19	0	12	61
8:00	0	0	0	3	0	0	0	0	2	0	0	0	0	7	0	0	0	0	8	0	0	20
8:15	0	2	0	1	2	0	2	0	2	2	0	2	0	7	2	0	0	1	4	1	7	14
8:30	0	4	0	4	4	0	1	0	6	1	0	2	0	4	2	0	0	0	4	0	7	18
8:45	0	4	0	5	4	1	0	0	4	1	0	1	0	9	1	0	0	0	9	0	6	27
Total	0	10	0	13	10	1	3	0	14	4	0	5	0	27	5	0	0	1	25	1	20	79
16:00	0	0	0	3	0	0	1	0	6	1	0	0	0	2	0	0	0	0	3	0	1	14
16:15	0	0	1	4	1	0	0	0	2	0	0	0	0	8	0	0	0	0	9	0	1	23
16:30	0	0	1	3	1	0	0	0	4	0	0	0	0	6	0	2	0	0	4	2	3	17
16:45	0	0	5	2	5	0	0	0	1	0	0	2	1	11	3	0	1	0	7	1	9	21
Total	0	0	7	12	7	0	1	0	13	1	0	2	1	27	3	2	1	0	23	3	14	75
17:00	0	2	1	4	3	0	1	0	6	1	0	5	0	7	5	0	0	0	9	0	9	26
17:15	0	1	0	4	1	0	2	0	3	2	0	1	0	4	1	0	0	0	4	0	4	15
17:30	0	3	0	5	3	0	0	0	8	0	0	2	0	10	2	0	0	0	7	0	5	30
17:45	0	1	0	2	1	0	3	0	0	3	1	4	0	5	5	0	0	0	4	0	9	11
Total	0	7	1	15	8	0	6	0	17	6	1	12	0	26	13	0	0	0	24	0	27	82
Grand Total	0	22	10	46	32	1	12	0	58	13	1	22	1	102	24	2	1	1	91	4	73	297
Apprch %	0.0%	68.8%	31.3%			7.7%	92.3%	0.0%			4.2%	91.7%	4.2%			50.0%	25.0%	25.0%				
Total %	0.0%	30.1%	13.7%		43.8%	1.4%	16.4%	0.0%		17.8%	1.4%	30.1%	1.4%		32.9%	2.7%	1.4%	1.4%		5.5%	100.0%	

AM PEAK HOUR	Martin Luther King Jr Way Southbound					18th St Westbound					Martin Luther King Jr Way Northbound					18th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	0	0	3	0	0	0	0	2	0	0	0	0	7	0	0	0	0	8	0	0
8:15	0	2	0	1	2	0	2	0	2	2	0	2	0	7	2	0	0	1	4	1	7
8:30	0	4	0	4	4	0	1	0	6	1	0	2	0	4	2	0	0	0	4	0	7
8:45	0	4	0	5	4	1	0	0	4	1	0	1	0	9	1	0	0	0	9	0	6
Total Volume	0	10	0	13	10	1	3	0	14	4	0	5	0	27	5	0	0	1	25	1	20
% App Total	0.0%	100.0%	0.0%			25.0%	75.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	100.0%			
PHF	.000	.625	.000		.625	.250	.375	.000		.500	.000	.625	.000		.625	.000	.000	.250		.250	.714

PM PEAK HOUR	Martin Luther King Jr Way Southbound					18th St Westbound					Martin Luther King Jr Way Northbound					18th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:15 to 17:15																					
Peak Hour For Entire Intersection Begins at 16:15																					
16:15	0	0	1	4	1	0	0	0	2	0	0	0	0	8	0	0	0	0	9	0	1
16:30	0	0	1	3	1	0	0	0	4	0	0	0	0	6	0	2	0	0	4	2	3
16:45	0	0	5	2	5	0	0	0	1	0	0	2	1	11	3	0	1	0	7	1	9
17:00	0	2	1	4	3	0	1	0	6	1	0	5	0	7	5	0	0	0	9	0	9
Total Volume	0	2	8	13	10	0	1	0	13	1	0	7	1	32	8	2	1	0	29	3	22
% App Total	0.0%	20.0%	80.0%			0.0%	100.0%	0.0%			0.0%	87.5%	12.5%			66.7%	33.3%	0.0%			
PHF	.000	.250	.400		.500	.000	.250	.000		.250	.000	.350	.250		.400	.250	.250	.000		.375	.611

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7388-032 San Pablo Ave & 19th St
Date : 5/26/2016

Unshifted Count = All Vehicles & Uturns

	San Pablo Ave Southbound					19th St Westbound					San Pablo Ave Northbound					19th St Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	0	24	0	0	24	2	16	5	0	23	1	7	0	1	9	0	0	0	0	0	56	1
7:15	0	22	1	0	23	3	21	8	0	32	1	15	0	0	16	0	0	0	0	0	71	0
7:30	0	37	4	1	42	5	33	7	0	45	1	7	0	0	8	0	0	0	0	0	95	1
7:45	0	66	4	0	70	14	62	20	0	96	3	14	0	0	17	0	0	0	0	0	183	0
Total	0	149	9	1	159	24	132	40	0	196	6	43	0	1	50	0	0	0	0	0	405	2
8:00	0	42	5	2	49	19	99	17	0	135	0	20	0	0	20	0	0	0	0	0	204	2
8:15	0	47	5	0	52	8	58	16	0	82	3	20	0	0	23	0	0	0	0	0	157	0
8:30	0	48	8	1	57	9	46	10	0	65	2	21	0	0	23	0	0	0	0	0	145	1
8:45	0	60	5	2	67	7	28	11	0	46	7	16	0	0	23	0	0	0	0	0	136	2
Total	0	197	23	5	225	43	231	54	0	328	12	77	0	0	89	0	0	0	0	0	642	5
16:00	0	45	8	0	53	11	79	20	0	110	5	38	0	0	43	0	0	0	0	0	206	0
16:15	0	60	4	4	68	12	105	32	0	149	5	41	0	1	47	0	0	0	0	0	264	5
16:30	0	62	7	1	70	14	68	29	0	111	8	39	0	0	47	0	0	0	0	0	228	1
16:45	0	71	3	1	75	14	71	26	0	111	1	37	0	0	38	0	0	0	0	0	224	1
Total	0	238	22	6	266	51	323	107	0	481	19	155	0	1	175	0	0	0	0	0	922	7
17:00	0	73	12	1	86	6	89	45	0	140	6	56	0	0	62	0	0	0	0	0	288	1
17:15	0	72	7	2	81	15	54	39	0	108	9	53	0	0	62	0	0	0	0	0	251	2
17:30	0	60	3	1	64	17	48	34	0	99	5	42	0	0	47	0	0	0	0	0	210	1
17:45	0	57	5	0	62	15	64	23	0	102	10	36	0	0	46	0	0	0	0	0	210	0
Total	0	262	27	4	293	53	255	141	0	449	30	187	0	0	217	0	0	0	0	0	959	4
Grand Total	0	846	81	16	943	171	941	342	0	1454	67	462	0	2	531	0	0	0	0	0	2928	18
Apprch %	0.0%	89.7%	8.6%	1.7%		11.8%	64.7%	23.5%	0.0%		12.6%	87.0%	0.0%	0.4%		0.0%	0.0%	0.0%	0.0%			
Total %	0.0%	28.9%	2.8%	0.5%	32.2%	5.8%	32.1%	11.7%	0.0%	49.7%	2.3%	15.8%	0.0%	0.1%	18.1%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	

AM PEAK HOUR	San Pablo Ave Southbound					19th St Westbound					San Pablo Ave Northbound					19th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:45 to 08:45																					
Peak Hour For Entire Intersection Begins at 07:45																					
7:45	0	66	4	0	70	14	62	20	0	96	3	14	0	0	17	0	0	0	0	0	183
8:00	0	42	5	2	49	19	99	17	0	135	0	20	0	0	20	0	0	0	0	0	204
8:15	0	47	5	0	52	8	58	16	0	82	3	20	0	0	23	0	0	0	0	0	157
8:30	0	48	8	1	57	9	46	10	0	65	2	21	0	0	23	0	0	0	0	0	145
Total Volume	0	203	22	3	228	50	265	63	0	378	8	75	0	0	83	0	0	0	0	0	689
% App Total	0.0%	89.0%	9.6%	1.3%		13.2%	70.1%	16.7%	0.0%		9.6%	90.4%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		
PHF	.000	.769	.688	.375	.814	.658	.669	.788	.000	.700	.667	.893	.000	.000	.902	.000	.000	.000	.000	.000	.844

PM PEAK HOUR	San Pablo Ave Southbound					19th St Westbound					San Pablo Ave Northbound					19th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:15 to 17:15																					
Peak Hour For Entire Intersection Begins at 16:15																					
16:15	0	60	4	4	68	12	105	32	0	149	5	41	0	1	47	0	0	0	0	0	264
16:30	0	62	7	1	70	14	68	29	0	111	8	39	0	0	47	0	0	0	0	0	228
16:45	0	71	3	1	75	14	71	26	0	111	1	37	0	0	38	0	0	0	0	0	224
17:00	0	73	12	1	86	6	89	45	0	140	6	56	0	0	62	0	0	0	0	0	288
Total Volume	0	266	26	7	299	46	333	132	0	511	20	173	0	1	194	0	0	0	0	0	1004
% App Total	0.0%	89.0%	8.7%	2.3%		9.0%	65.2%	25.8%	0.0%		10.3%	89.2%	0.0%	0.5%		0.0%	0.0%	0.0%	0.0%		
PHF	.000	.911	.542	.438	.869	.821	.793	.733	.000	.857	.625	.772	.000	.250	.782	.000	.000	.000	.000	.000	.872

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7388-032 San Pablo Ave & 19th St
Date : 5/26/2016

Bank 1 Count = Bikes & Peds

	San Pablo Ave Southbound					19th St Westbound					San Pablo Ave Northbound					19th St Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	3	0	1	3	0	1	0	5	1	0	3	0	1	3	0	0	0	3	0	7	10
7:15	0	7	0	3	7	0	0	0	3	0	0	2	0	1	2	0	0	0	5	0	9	12
7:30	0	3	0	4	3	0	1	0	10	1	0	0	0	6	0	0	0	0	6	0	4	26
7:45	1	9	0	8	10	1	1	1	10	3	0	1	0	2	1	0	0	0	3	0	14	23
Total	1	22	0	16	23	1	3	1	28	5	0	6	0	10	6	0	0	0	17	0	34	71
8:00	0	9	0	14	9	1	0	0	6	1	0	2	0	1	2	0	0	0	4	0	12	25
8:15	0	15	0	8	15	2	2	0	10	4	1	1	0	1	2	0	0	0	5	0	21	24
8:30	0	15	0	5	15	1	1	0	16	2	0	3	0	4	3	0	0	0	8	0	20	33
8:45	0	17	0	3	17	2	1	0	20	3	0	2	0	11	2	0	0	0	7	0	22	41
Total	0	56	0	30	56	6	4	0	52	10	1	8	0	17	9	0	0	0	24	0	75	123
16:00	0	0	0	4	0	0	1	0	14	1	0	11	0	8	11	0	0	1	5	1	13	31
16:15	1	3	0	16	4	0	0	2	18	2	0	2	0	3	2	0	0	0	6	0	8	43
16:30	0	2	0	15	2	0	0	1	16	1	0	11	1	9	12	0	0	0	10	0	15	50
16:45	0	5	0	16	5	0	0	1	16	1	0	9	2	3	11	0	0	0	12	0	17	47
Total	1	10	0	51	11	0	1	4	64	5	0	33	3	23	36	0	0	1	33	1	53	171
17:00	0	2	0	18	2	0	1	3	14	4	0	12	0	4	12	0	0	0	5	0	18	41
17:15	0	6	0	8	6	0	1	2	16	3	0	8	0	4	8	0	0	0	12	0	17	40
17:30	0	2	0	20	2	0	0	1	9	1	0	12	0	6	12	0	0	0	2	0	15	37
17:45	0	3	0	8	3	0	3	5	17	8	0	9	0	6	9	0	0	0	10	0	20	41
Total	0	13	0	54	13	0	5	11	56	16	0	41	0	20	41	0	0	0	29	0	70	159
Grand Total	2	101	0	151	103	7	13	16	200	36	1	88	3	70	92	0	0	1	103	1	232	524
Apprch %	1.9%	98.1%	0.0%			19.4%	36.1%	44.4%			1.1%	95.7%	3.3%			0.0%	0.0%	100.0%				
Total %	0.9%	43.5%	0.0%		44.4%	3.0%	5.6%	6.9%		15.5%	0.4%	37.9%	1.3%		39.7%	0.0%	0.0%	0.4%		0.4%	100.0%	

AM PEAK HOUR	San Pablo Ave Southbound					19th St Westbound					San Pablo Ave Northbound					19th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 07:45 to 08:45																					
Peak Hour For Entire Intersection Begins at 07:45																					
7:45	1	9	0	8	10	1	1	1	10	3	0	1	0	2	1	0	0	0	3	0	14
8:00	0	9	0	14	9	1	0	0	6	1	0	2	0	1	2	0	0	0	4	0	12
8:15	0	15	0	8	15	2	2	0	10	4	1	1	0	1	2	0	0	0	5	0	21
8:30	0	15	0	5	15	1	1	0	16	2	0	3	0	4	3	0	0	0	8	0	20
Total Volume	1	48	0	35	49	5	4	1	42	10	1	7	0	8	8	0	0	0	20	0	67
% App Total	2.0%	98.0%	0.0%			50.0%	40.0%	10.0%			12.5%	87.5%	0.0%			0.0%	0.0%	0.0%			
PHF	.250	.800	.000		.817	.625	.500	.250		.625	.250	.583	.000		.667	.000	.000	.000		.000	.798

PM PEAK HOUR	San Pablo Ave Southbound					19th St Westbound					San Pablo Ave Northbound					19th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:15 to 17:15																					
Peak Hour For Entire Intersection Begins at 16:15																					
16:15	1	3	0	16	4	0	0	2	18	2	0	2	0	3	2	0	0	0	6	0	8
16:30	0	2	0	15	2	0	0	1	16	1	0	11	1	9	12	0	0	0	10	0	15
16:45	0	5	0	16	5	0	0	1	16	1	0	9	2	3	11	0	0	0	12	0	17
17:00	0	2	0	18	2	0	1	3	14	4	0	12	0	4	12	0	0	0	5	0	18
Total Volume	1	12	0	65	13	0	1	7	64	8	0	34	3	19	37	0	0	0	33	0	58
% App Total	7.7%	92.3%	0.0%			0.0%	12.5%	87.5%			0.0%	91.9%	8.1%			0.0%	0.0%	0.0%			
PHF	.250	.600	.000		.650	.000	.250	.583		.500	.000	.708	.375		.771	.000	.000	.000		.000	.806

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7388-132 San Pablo Ave & 19th St
Date : 5/26/2016

Unshifted Count = All Vehicles & Uturns

	San Pablo Ave Southbound					19th St Westbound					San Pablo Ave Northbound					19th St Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	0	3	0	0	3	4	0	0	0	4	0	0	0	0	0	2	3	0	0	5	12	0
7:15	0	9	0	0	9	2	0	0	0	2	0	0	0	0	0	3	9	1	0	13	24	0
7:30	0	3	0	0	3	4	0	0	0	4	0	0	0	0	0	3	11	0	0	14	21	0
7:45	0	5	0	0	5	5	0	0	0	5	0	0	0	0	0	4	15	1	0	20	30	0
Total	0	20	0	0	20	15	0	0	0	15	0	0	0	0	0	12	38	2	0	52	87	0
8:00	0	11	0	0	11	8	0	0	0	8	1	0	0	0	1	2	15	0	0	17	37	0
8:15	0	16	0	0	16	3	0	0	0	3	1	0	0	0	1	2	16	1	0	19	39	0
8:30	0	8	0	0	8	5	0	0	0	5	0	0	0	0	0	4	14	1	0	19	32	0
8:45	0	11	0	0	11	2	0	0	0	2	2	0	0	0	2	5	8	0	0	13	28	0
Total	0	46	0	0	46	18	0	0	0	18	4	0	0	0	4	13	53	2	0	68	136	0
16:00	0	12	0	0	12	3	0	0	0	3	0	0	0	0	0	3	28	1	0	32	47	0
16:15	0	9	0	0	9	7	0	0	0	7	0	0	0	0	0	5	27	3	0	35	51	0
16:30	0	8	0	0	8	4	0	0	0	4	1	0	0	0	1	4	24	1	0	29	42	0
16:45	0	4	0	0	4	7	0	0	0	7	1	0	0	0	1	5	29	2	0	36	48	0
Total	0	33	0	0	33	21	0	0	0	21	2	0	0	0	2	17	108	7	0	132	188	0
17:00	0	10	0	0	10	7	0	0	0	7	1	0	0	0	1	6	39	2	0	47	65	0
17:15	0	21	0	0	21	5	0	0	0	5	1	0	0	0	1	4	28	0	0	32	59	0
17:30	0	9	0	0	9	9	0	0	0	9	0	0	0	0	0	3	19	1	0	23	41	0
17:45	0	16	0	0	16	5	0	0	0	5	9	0	0	0	9	3	15	1	0	19	49	0
Total	0	56	0	0	56	26	0	0	0	26	11	0	0	0	11	16	101	4	0	121	214	0
Grand Total	0	155	0	0	155	80	0	0	0	80	17	0	0	0	17	58	300	15	0	373	625	0
Apprch %	0.0%	100.0%	0.0%	0.0%		100.0%	0.0%	0.0%	0.0%		100.0%	0.0%	0.0%	0.0%		15.5%	80.4%	4.0%	0.0%			
Total %	0.0%	24.8%	0.0%	0.0%	24.8%	12.8%	0.0%	0.0%	0.0%	12.8%	2.7%	0.0%	0.0%	0.0%	2.7%	9.3%	48.0%	2.4%	0.0%	59.7%	100.0%	

AM PEAK HOUR	San Pablo Ave Southbound					19th St Westbound					San Pablo Ave Northbound					19th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:45 to 08:45																					
Peak Hour For Entire Intersection Begins at 07:45																					
7:45	0	5	0	0	5	5	0	0	0	5	0	0	0	0	0	4	15	1	0	20	30
8:00	0	11	0	0	11	8	0	0	0	8	1	0	0	0	1	2	15	0	0	17	37
8:15	0	16	0	0	16	3	0	0	0	3	1	0	0	0	1	2	16	1	0	19	39
8:30	0	8	0	0	8	5	0	0	0	5	0	0	0	0	0	4	14	1	0	19	32
Total Volume	0	40	0	0	40	21	0	0	0	21	2	0	0	0	2	12	60	3	0	75	138
% App Total	0.0%	100.0%	0.0%	0.0%		100.0%	0.0%	0.0%	0.0%		100.0%	0.0%	0.0%	0.0%		16.0%	80.0%	4.0%	0.0%		
PHF	.000	.625	.000	.000	.625	.656	.000	.000	.000	.656	.500	.000	.000	.000	.500	.750	.938	.750	.000	.938	.885

PM PEAK HOUR	San Pablo Ave Southbound					19th St Westbound					San Pablo Ave Northbound					19th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	0	8	0	0	8	4	0	0	0	4	1	0	0	0	1	4	24	1	0	29	42
16:45	0	4	0	0	4	7	0	0	0	7	1	0	0	0	1	5	29	2	0	36	48
17:00	0	10	0	0	10	7	0	0	0	7	1	0	0	0	1	6	39	2	0	47	65
17:15	0	21	0	0	21	5	0	0	0	5	1	0	0	0	1	4	28	0	0	32	59
Total Volume	0	43	0	0	43	23	0	0	0	23	4	0	0	0	4	19	120	5	0	144	214
% App Total	0.0%	100.0%	0.0%	0.0%		100.0%	0.0%	0.0%	0.0%		100.0%	0.0%	0.0%	0.0%		13.2%	83.3%	3.5%	0.0%		
PHF	.000	.512	.000	.000	.512	.821	.000	.000	.000	.821	1.000	.000	.000	.000	1.000	.792	.769	.625	.000	.766	.823

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

File Name : 16-7388-132 San Pablo Ave & 19th St
Date : 5/26/2016

Bank 1 Count = Bikes & Peds

	San Pablo Ave Southbound					19th St Westbound					San Pablo Ave Northbound					19th St Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	2
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	12
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	22	1	1	22
8:00	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2	1	4	3	4	4
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	1	1	5
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8
8:45	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	10	1	3	10
Total	2	0	0	0	2	1	0	0	0	1	0	0	0	0	0	0	2	3	27	5	8	27
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	5	2	2	5
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	1	1	4
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	7	1	1	7
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	8	2	2	8
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1	24	6	6	24
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	13	1	1	13
17:15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	10	2	3	10
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	2	3	3	2
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	8	2	2	8
Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	6	1	33	8	9	33
Grand Total	3	0	0	0	3	1	0	0	0	1	0	0	0	0	0	1	13	6	106	20	24	106
Apprch %	100.0%	0.0%	0.0%			100.0%	0.0%	0.0%			0.0%	0.0%	0.0%			5.0%	65.0%	30.0%				
Total %	12.5%	0.0%	0.0%		12.5%	4.2%	0.0%	0.0%		4.2%	0.0%	0.0%	0.0%		0.0%	4.2%	54.2%	25.0%		83.3%	100.0%	

AM PEAK HOUR	San Pablo Ave Southbound					19th St Westbound					San Pablo Ave Northbound					19th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 07:45 to 08:45																					
Peak Hour For Entire Intersection Begins at 07:45																					
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
8:00	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2	1	4	3	4
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	1	1
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0
Total Volume	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2	2	19	4	5
% App Total	0.0%	0.0%	0.0%			100.0%	0.0%	0.0%			0.0%	0.0%	0.0%			0.0%	50.0%	50.0%			
PHF	.000	.000	.000		.000	.250	.000	.000		.250	.000	.000	.000		.000	.000	.250	.500		.333	.313

PM PEAK HOUR	San Pablo Ave Southbound					19th St Westbound					San Pablo Ave Northbound					19th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:30 to 17:30																					
Peak Hour For Entire Intersection Begins at 16:30																					
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	7	1	1
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	8	2	2
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	13	1	1
17:15	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	10	2	3
Total Volume	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	5	0	38	6	7
% App Total	100.0%	0.0%	0.0%			0.0%	0.0%	0.0%			0.0%	0.0%	0.0%			16.7%	83.3%	0.0%			
PHF	.250	.000	.000		.250	.000	.000	.000		.000	.000	.000	.000		.000	.250	.625	.000		.750	.583

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7388-015 Telegraph Ave & 19th St
Date : 5/26/2016

Unshifted Count = All Vehicles & Uturns

	Telegraph Ave Southbound					19th St Westbound					Telegraph Ave Northbound					19th St Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	0	9	3	0	12	3	11	13	0	27	5	12	0	0	17	0	0	0	0	0	56	0
7:15	0	17	3	0	20	2	16	16	0	34	8	8	0	0	16	0	0	0	0	0	70	0
7:30	0	14	9	0	23	5	23	14	0	42	12	17	0	0	29	0	0	0	0	0	94	0
7:45	0	25	26	0	51	8	29	18	0	55	38	45	0	0	83	0	0	0	0	0	189	0
Total	0	65	41	0	106	18	79	61	0	158	63	82	0	0	145	0	0	0	0	0	409	0
8:00	0	31	40	0	71	6	46	27	0	79	49	48	0	0	97	0	0	0	0	0	247	0
8:15	0	32	18	0	50	5	32	29	0	66	28	20	0	0	48	0	0	0	0	0	164	0
8:30	0	37	14	1	52	7	36	27	0	70	13	12	0	0	25	0	0	0	0	0	147	1
8:45	0	35	17	0	52	6	26	22	0	54	10	11	0	0	21	0	0	0	0	0	127	0
Total	0	135	89	1	225	24	140	105	0	269	100	91	0	0	191	0	0	0	0	0	685	1
16:00	0	44	30	0	74	6	74	26	0	106	23	22	0	0	45	0	0	0	0	0	225	0
16:15	0	50	35	0	85	3	91	40	0	134	28	28	0	0	56	0	0	0	0	0	275	0
16:30	0	52	25	0	77	10	74	43	0	127	15	25	0	0	40	0	0	0	0	0	244	0
16:45	0	50	23	0	73	7	90	30	0	127	13	24	0	0	37	0	0	0	0	0	237	0
Total	0	196	113	0	309	26	329	139	0	494	79	99	0	0	178	0	0	0	0	0	981	0
17:00	0	42	33	0	75	10	105	40	0	155	20	26	0	0	46	0	0	0	0	0	276	0
17:15	0	48	28	0	76	8	77	44	0	129	24	28	0	0	52	0	0	0	0	0	257	0
17:30	0	48	24	1	73	14	55	41	0	110	17	36	0	1	54	0	0	0	0	0	237	2
17:45	0	51	23	0	74	9	70	48	0	127	23	23	0	0	46	0	0	0	0	0	247	0
Total	0	189	108	1	298	41	307	173	0	521	84	113	0	1	198	0	0	0	0	0	1017	2
Grand Total	0	585	351	2	938	109	855	478	0	1442	326	385	0	1	712	0	0	0	0	0	3092	3
Apprch %	0.0%	62.4%	37.4%	0.2%		7.6%	59.3%	33.1%	0.0%		45.8%	54.1%	0.0%	0.1%		0.0%	0.0%	0.0%	0.0%			
Total %	0.0%	18.9%	11.4%	0.1%	30.3%	3.5%	27.7%	15.5%	0.0%	46.6%	10.5%	12.5%	0.0%	0.0%	23.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	

AM PEAK HOUR	Telegraph Ave Southbound					19th St Westbound					Telegraph Ave Northbound					19th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 07:45 to 08:45																					
Peak Hour For Entire Intersection Begins at 07:45																					
7:45	0	25	26	0	51	8	29	18	0	55	38	45	0	0	83	0	0	0	0	0	189
8:00	0	31	40	0	71	6	46	27	0	79	49	48	0	0	97	0	0	0	0	0	247
8:15	0	32	18	0	50	5	32	29	0	66	28	20	0	0	48	0	0	0	0	0	164
8:30	0	37	14	1	52	7	36	27	0	70	13	12	0	0	25	0	0	0	0	0	147
Total Volume	0	125	98	1	224	26	143	101	0	270	128	125	0	0	253	0	0	0	0	0	747
% App Total	0.0%	55.8%	43.8%	0.4%		9.6%	53.0%	37.4%	0.0%		50.6%	49.4%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		
PHF	.000	.845	.613	.250	.789	.813	.777	.871	.000	.854	.653	.651	.000	.000	.652	.000	.000	.000	.000	.000	.756

PM PEAK HOUR	Telegraph Ave Southbound					19th St Westbound					Telegraph Ave Northbound					19th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:15 to 17:15																					
Peak Hour For Entire Intersection Begins at 16:15																					
16:15	0	50	35	0	85	3	91	40	0	134	28	28	0	0	56	0	0	0	0	0	275
16:30	0	52	25	0	77	10	74	43	0	127	15	25	0	0	40	0	0	0	0	0	244
16:45	0	50	23	0	73	7	90	30	0	127	13	24	0	0	37	0	0	0	0	0	237
17:00	0	42	33	0	75	10	105	40	0	155	20	26	0	0	46	0	0	0	0	0	276
Total Volume	0	194	116	0	310	30	360	153	0	543	76	103	0	0	179	0	0	0	0	0	1032
% App Total	0.0%	62.6%	37.4%	0.0%		5.5%	66.3%	28.2%	0.0%		42.5%	57.5%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		
PHF	.000	.933	.829	.000	.912	.750	.857	.890	.000	.876	.679	.920	.000	.000	.799	.000	.000	.000	.000	.000	.935

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

File Name : 16-7388-015 Telegraph Ave & 19th St
Date : 5/26/2016

Bank 1 Count = Bikes & Peds

	Telegraph Ave Southbound					19th St Westbound					Telegraph Ave Northbound					19th St Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	3	0	3	3	0	1	0	3	1	1	3	0	10	4	0	0	0	3	0	8	19
7:15	2	4	0	4	6	0	0	0	5	0	0	0	0	9	0	0	0	0	7	0	6	25
7:30	0	5	0	4	5	1	0	6	7	7	0	0	0	20	0	0	0	0	13	0	12	44
7:45	0	7	1	6	8	4	2	1	13	7	0	2	0	33	2	0	1	0	9	1	18	61
Total	2	19	1	17	22	5	3	7	28	15	1	5	0	72	6	0	1	0	32	1	44	149
8:00	2	13	0	5	15	1	1	0	13	2	0	0	0	55	0	0	0	0	20	0	17	93
8:15	2	8	2	5	12	1	1	1	12	3	0	1	0	27	1	1	0	0	13	1	17	57
8:30	1	11	1	5	13	1	1	0	6	2	1	3	0	19	4	0	0	0	15	0	19	45
8:45	1	17	3	6	21	5	0	1	9	6	0	0	0	31	0	0	0	0	23	0	27	69
Total	6	49	6	21	61	8	3	2	40	13	1	4	0	132	5	1	0	0	71	1	80	264
16:00	0	4	0	13	4	0	1	5	15	6	0	2	0	40	2	0	0	0	43	0	12	111
16:15	0	2	1	4	3	0	2	6	26	8	0	6	0	118	6	0	1	0	41	1	18	189
16:30	0	3	1	9	4	0	1	3	26	4	0	4	0	24	4	0	0	0	32	0	12	91
16:45	1	3	0	15	4	1	1	2	33	4	0	9	0	31	9	1	0	0	35	1	18	114
Total	1	12	2	41	15	1	5	16	100	22	0	21	0	213	21	1	1	0	151	2	60	505
17:00	0	4	0	22	4	0	4	1	35	5	1	13	0	26	14	0	0	0	18	0	23	101
17:15	0	7	0	15	7	0	4	7	50	11	1	11	0	28	12	1	0	0	39	1	31	132
17:30	0	9	0	10	9	0	1	4	48	5	0	11	0	40	11	0	0	1	42	1	26	140
17:45	0	7	1	11	8	1	5	6	51	12	0	3	0	41	3	0	0	0	33	0	23	136
Total	0	27	1	58	28	1	14	18	184	33	2	38	0	135	40	1	0	1	132	2	103	509
Grand Total	9	107	10	137	126	15	25	43	352	83	4	68	0	552	72	3	2	1	386	6	287	1427
Apprch %	7.1%	84.9%	7.9%			18.1%	30.1%	51.8%			5.6%	94.4%	0.0%			50.0%	33.3%	16.7%				
Total %	3.1%	37.3%	3.5%		43.9%	5.2%	8.7%	15.0%		28.9%	1.4%	23.7%	0.0%		25.1%	1.0%	0.7%	0.3%		2.1%	100.0%	

AM PEAK HOUR	Telegraph Ave Southbound					19th St Westbound					Telegraph Ave Northbound					19th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 07:45 to 08:45																					
Peak Hour For Entire Intersection Begins at 07:45																					
7:45	0	7	1	6	8	4	2	1	13	7	0	2	0	33	2	0	1	0	9	1	18
8:00	2	13	0	5	15	1	1	0	13	2	0	0	0	55	0	0	0	0	20	0	17
8:15	2	8	2	5	12	1	1	1	12	3	0	1	0	27	1	1	0	0	13	1	17
8:30	1	11	1	5	13	1	1	0	6	2	1	3	0	19	4	0	0	0	15	0	19
Total Volume	5	39	4	21	48	7	5	2	44	14	1	6	0	134	7	1	1	0	57	2	71
% App Total	10.4%	81.3%	8.3%			50.0%	35.7%	14.3%			14.3%	85.7%	0.0%			50.0%	50.0%	0.0%			
PHF	.625	.750	.500		.800	.438	.625	.500		.500	.250	.500	.000		.438	.250	.250	.000		.500	.934

PM PEAK HOUR	Telegraph Ave Southbound					19th St Westbound					Telegraph Ave Northbound					19th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:15 to 17:15																					
Peak Hour For Entire Intersection Begins at 16:15																					
16:15	0	2	1	4	3	0	2	6	26	8	0	6	0	118	6	0	1	0	41	1	18
16:30	0	3	1	9	4	0	1	3	26	4	0	4	0	24	4	0	0	0	32	0	12
16:45	1	3	0	15	4	1	1	2	33	4	0	9	0	31	9	1	0	0	35	1	18
17:00	0	4	0	22	4	0	4	1	35	5	1	13	0	26	14	0	0	0	18	0	23
Total Volume	1	12	2	50	15	1	8	12	120	21	1	32	0	199	33	1	1	0	126	2	71
% App Total	6.7%	80.0%	13.3%			4.8%	38.1%	57.1%			3.0%	97.0%	0.0%			50.0%	50.0%	0.0%			
PHF	.250	.750	.500		.938	.250	.500	.500		.656	.250	.615	.000		.589	.250	.250	.000		.500	.772

ALL TRAFFIC DATA

City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7388-016 Broadway & 19th St
Date : 5/26/2016

Unshifted Count = All Vehicles & Uturns

	Broadway Southbound					19th St Westbound					Broadway Northbound					19th St Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	0	39	2	1	42	7	22	4	0	33	5	57	0	0	62	0	0	0	0	0	137	1
7:15	0	63	9	0	72	5	21	12	0	38	9	61	0	0	70	0	0	0	0	0	180	0
7:30	0	76	8	0	84	4	20	10	0	34	11	76	0	0	87	0	0	0	0	0	205	0
7:45	0	86	7	0	93	4	38	13	0	55	14	79	0	1	94	0	0	0	0	0	242	1
Total	0	264	26	1	291	20	101	39	0	160	39	273	0	1	313	0	0	0	0	0	764	2
8:00	0	89	8	0	97	2	41	19	0	62	27	89	0	0	116	0	0	0	0	0	275	0
8:15	0	108	6	0	114	6	47	14	0	67	16	92	0	0	108	0	0	0	0	0	289	0
8:30	0	120	8	0	128	6	38	12	0	56	20	83	0	0	103	0	0	0	0	0	287	0
8:45	0	106	5	0	111	4	33	6	0	43	19	91	0	0	110	0	0	0	0	0	264	0
Total	0	423	27	0	450	18	159	51	0	228	82	355	0	0	437	0	0	0	0	0	1115	0
16:00	0	148	8	0	156	15	82	23	0	120	23	127	0	0	150	0	0	0	0	0	426	0
16:15	0	136	14	0	150	24	100	21	0	145	18	103	0	2	123	0	0	0	0	0	418	2
16:30	0	116	14	1	131	17	88	21	0	126	25	91	0	1	117	0	0	0	0	0	374	2
16:45	0	139	15	0	154	21	94	21	0	136	25	114	0	0	139	0	0	0	0	0	429	0
Total	0	539	51	1	591	77	364	86	0	527	91	435	0	3	529	0	0	0	0	0	1647	4
17:00	0	143	10	0	153	17	108	23	0	148	26	135	0	0	161	0	0	0	0	0	462	0
17:15	0	132	16	0	148	15	83	25	0	123	34	109	0	2	145	0	0	0	0	0	416	2
17:30	0	138	9	1	148	19	80	20	0	119	27	114	0	1	142	0	0	0	0	0	409	2
17:45	0	132	22	0	154	10	78	21	0	109	20	97	0	0	117	0	0	0	0	0	380	0
Total	0	545	57	1	603	61	349	89	0	499	107	455	0	3	565	0	0	0	0	0	1667	4
Grand Total	0	1771	161	3	1935	176	973	265	0	1414	319	1518	0	7	1844	0	0	0	0	0	5193	10
Apprch %	0.0%	91.5%	8.3%	0.2%		12.4%	68.8%	18.7%	0.0%		17.3%	82.3%	0.0%	0.4%		0.0%	0.0%	0.0%	0.0%			
Total %	0.0%	34.1%	3.1%	0.1%	37.3%	3.4%	18.7%	5.1%	0.0%	27.2%	6.1%	29.2%	0.0%	0.1%	35.5%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	

AM PEAK HOUR	Broadway Southbound					19th St Westbound					Broadway Northbound					19th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	89	8	0	97	2	41	19	0	62	27	89	0	0	116	0	0	0	0	0	275
8:15	0	108	6	0	114	6	47	14	0	67	16	92	0	0	108	0	0	0	0	0	289
8:30	0	120	8	0	128	6	38	12	0	56	20	83	0	0	103	0	0	0	0	0	287
8:45	0	106	5	0	111	4	33	6	0	43	19	91	0	0	110	0	0	0	0	0	264
Total Volume	0	423	27	0	450	18	159	51	0	228	82	355	0	0	437	0	0	0	0	0	1115
% App Total	0.0%	94.0%	6.0%	0.0%		7.9%	69.7%	22.4%	0.0%		18.8%	81.2%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		
PHF	.000	.881	.844	.000	.879	.750	.846	.671	.000	.851	.759	.965	.000	.000	.942	.000	.000	.000	.000	.000	.965

PM PEAK HOUR	Broadway Southbound					19th St Westbound					Broadway Northbound					19th St Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	0	139	15	0	154	21	94	21	0	136	25	114	0	0	139	0	0	0	0	0	429
17:00	0	143	10	0	153	17	108	23	0	148	26	135	0	0	161	0	0	0	0	0	462
17:15	0	132	16	0	148	15	83	25	0	123	34	109	0	2	145	0	0	0	0	0	416
17:30	0	138	9	1	148	19	80	20	0	119	27	114	0	1	142	0	0	0	0	0	409
Total Volume	0	552	50	1	603	72	365	89	0	526	112	472	0	3	587	0	0	0	0	0	1716
% App Total	0.0%	91.5%	8.3%	0.2%		13.7%	69.4%	16.9%	0.0%		19.1%	80.4%	0.0%	0.5%		0.0%	0.0%	0.0%	0.0%		
PHF	.000	.965	.781	.250	.979	.857	.845	.890	.000	.889	.824	.874	.000	.375	.911	.000	.000	.000	.000	.000	.929

ALL TRAFFIC DATA

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City of Oakland
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

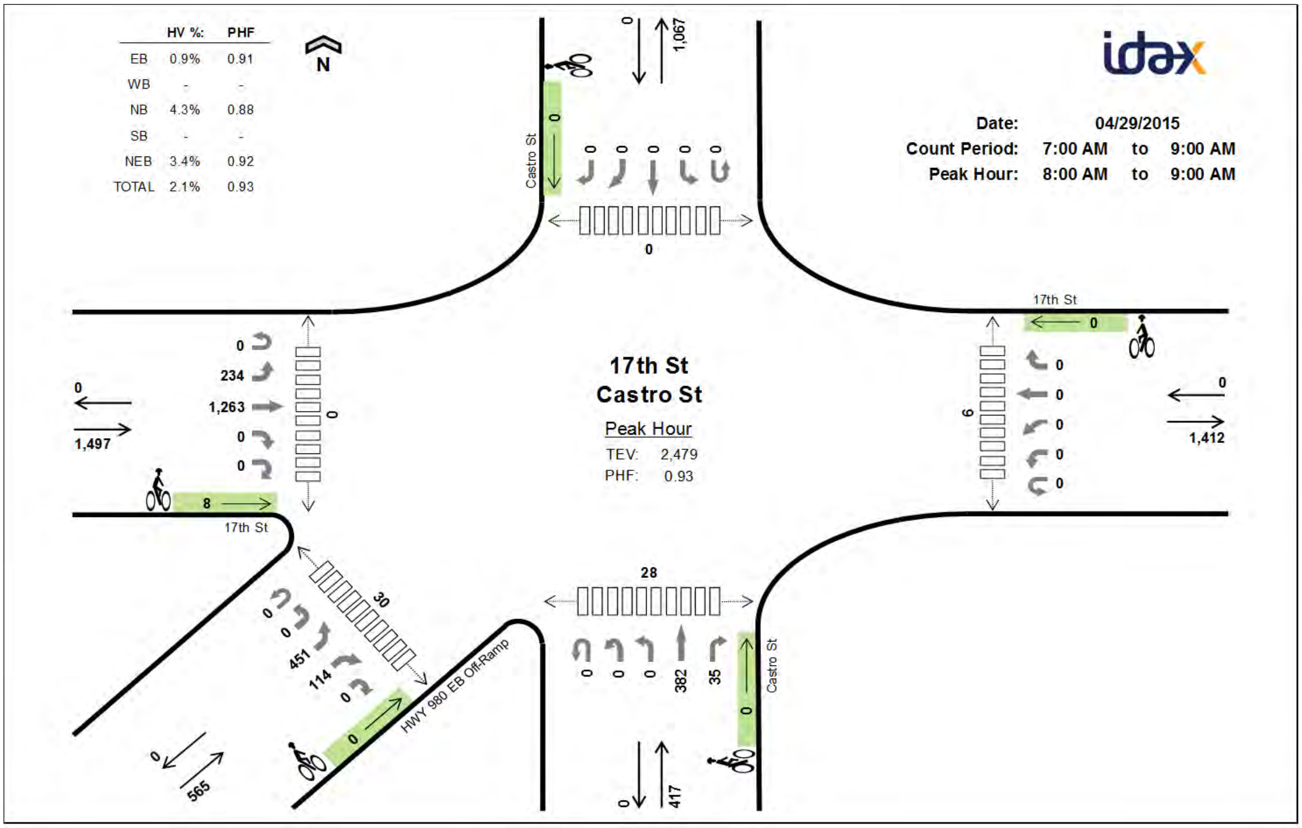
File Name : 16-7388-016 Broadway & 19th St
Date : 5/26/2016

Bank 1 Count = Bikes & Peds

	Broadway Southbound					19th St Westbound					Broadway Northbound					19th St Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	1	6	1	3	8	0	0	1	22	1	0	1	0	17	1	0	0	0	5	0	10	47
7:15	0	12	0	4	12	0	0	1	24	1	0	1	0	15	1	0	0	2	12	2	16	55
7:30	0	16	2	9	18	4	3	0	25	7	1	2	0	17	3	0	0	0	10	0	28	61
7:45	0	24	4	9	28	2	3	0	39	5	0	3	0	36	3	0	0	1	23	1	37	107
Total	1	58	7	25	66	6	6	2	110	14	1	7	0	85	8	0	0	3	50	3	91	270
8:00	0	16	1	14	17	0	2	0	46	2	0	2	0	48	2	0	0	0	24	0	21	132
8:15	1	24	1	15	26	2	2	0	36	4	2	1	0	52	3	0	1	0	31	1	34	134
8:30	0	26	1	12	27	4	1	0	104	5	0	0	0	43	0	0	0	2	48	2	34	207
8:45	0	23	3	16	26	2	5	0	74	7	1	4	0	60	5	0	0	1	28	1	39	178
Total	1	89	6	57	96	8	10	0	260	18	3	7	0	203	10	0	1	3	131	4	128	651
16:00	0	11	1	23	12	1	1	0	56	2	2	4	0	41	6	0	0	0	52	0	20	172
16:15	0	3	1	19	4	1	2	0	54	3	3	9	1	66	13	0	0	0	66	0	20	205
16:30	0	10	0	31	10	0	2	1	63	3	1	12	0	32	13	0	0	0	28	0	26	154
16:45	0	5	1	20	6	0	0	0	64	0	2	11	0	49	13	0	2	0	45	2	21	178
Total	0	29	3	93	32	2	5	1	237	8	8	36	1	188	45	0	2	0	191	2	87	709
17:00	0	2	0	28	2	0	5	2	65	7	0	15	1	42	16	0	2	0	44	2	27	179
17:15	0	5	0	19	5	2	7	0	55	9	2	20	0	43	22	0	1	1	37	2	38	154
17:30	0	13	0	27	13	1	4	0	73	5	1	18	0	54	19	0	0	0	55	0	37	209
17:45	0	1	0	28	1	2	7	0	66	9	2	18	0	68	20	0	0	0	45	0	30	207
Total	0	21	0	102	21	5	23	2	259	30	5	71	1	207	77	0	3	1	181	4	132	749
Grand Total	2	197	16	277	215	21	44	5	866	70	17	121	2	683	140	0	6	7	553	13	438	2379
Apprch %	0.9%	91.6%	7.4%			30.0%	62.9%	7.1%			12.1%	86.4%	1.4%			0.0%	46.2%	53.8%				
Total %	0.5%	45.0%	3.7%		49.1%	4.8%	10.0%	1.1%		16.0%	3.9%	27.6%	0.5%		32.0%	0.0%	1.4%	1.6%		3.0%	100.0%	

AM PEAK HOUR	Broadway Southbound					19th St Westbound					Broadway Northbound					19th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	16	1	14	17	0	2	0	46	2	0	2	0	48	2	0	0	0	24	0	21
8:15	1	24	1	15	26	2	2	0	36	4	2	1	0	52	3	0	1	0	31	1	34
8:30	0	26	1	12	27	4	1	0	104	5	0	0	0	43	0	0	0	2	48	2	34
8:45	0	23	3	16	26	2	5	0	74	7	1	4	0	60	5	0	0	1	28	1	39
Total Volume	1	89	6	57	96	8	10	0	260	18	3	7	0	203	10	0	1	3	131	4	128
% App Total	1.0%	92.7%	6.3%			44.4%	55.6%	0.0%			30.0%	70.0%	0.0%			0.0%	25.0%	75.0%			
PHF	.250	.856	.500		.889	.500	.500	.000		.643	.375	.438	.000		.500	.000	.250	.375		.500	.821

PM PEAK HOUR	Broadway Southbound					19th St Westbound					Broadway Northbound					19th St Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	0	5	1	20	6	0	0	0	64	0	2	11	0	49	13	0	2	0	45	2	21
17:00	0	2	0	28	2	0	5	2	65	7	0	15	1	42	16	0	2	0	44	2	27
17:15	0	5	0	19	5	2	7	0	55	9	2	20	0	43	22	0	1	1	37	2	38
17:30	0	13	0	27	13	1	4	0	73	5	1	18	0	54	19	0	0	0	55	0	37
Total Volume	0	25	1	94	26	3	16	2	257	21	5	64	1	188	70	0	5	1	181	6	123
% App Total	0.0%	96.2%	3.8%			14.3%	76.2%	9.5%			7.1%	91.4%	1.4%			0.0%	83.3%	16.7%			
PHF	.000	.481	.250		.500	.375	.571	.250		.583	.625	.800	.250		.795	.000	.625	.250		.750	.809

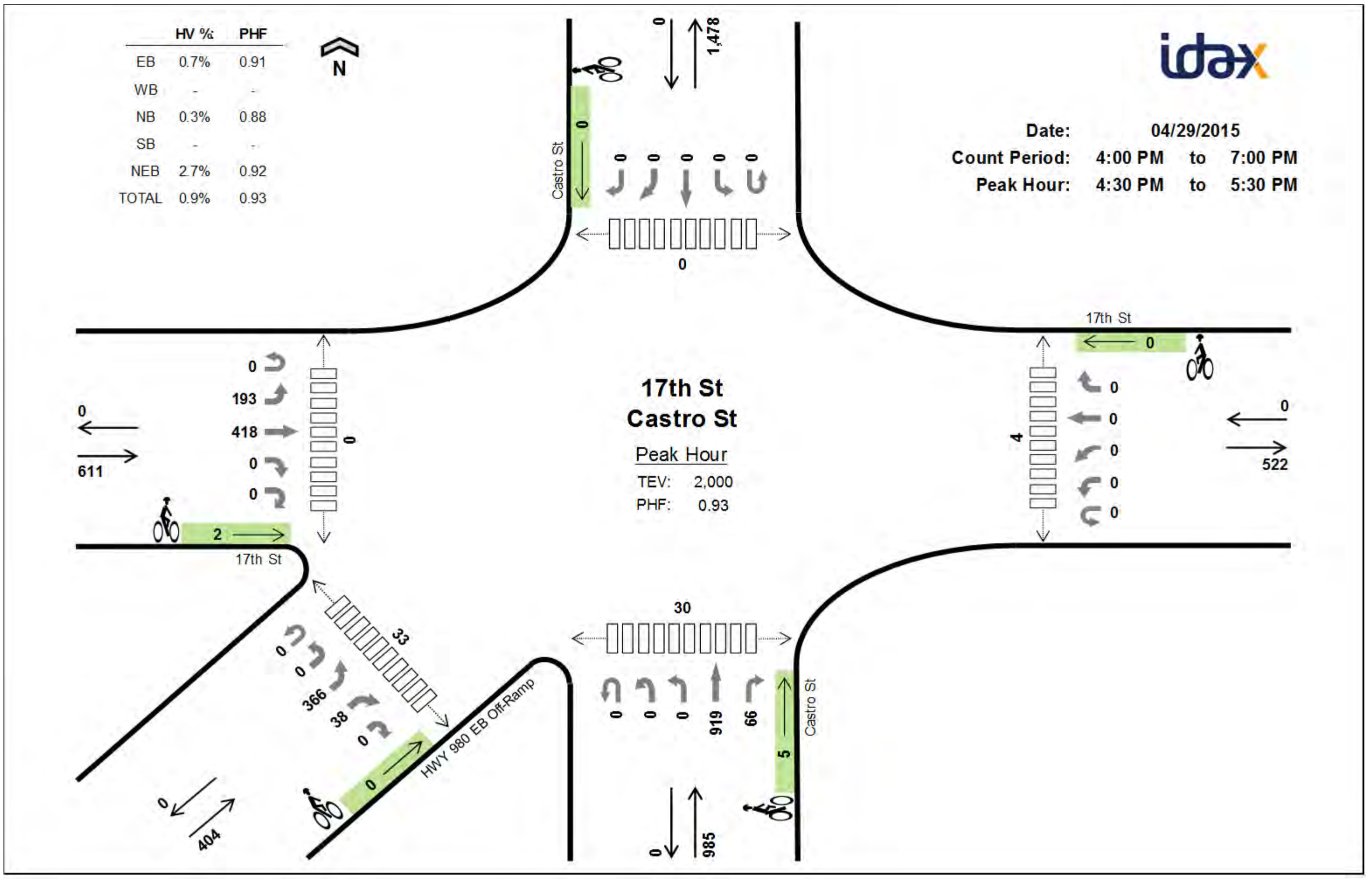


Six-Hour Count Summaries

Interval Start	17th St					17th St					Castro St					Castro St					HWY 980 EB Off-Ramp					15-min Total	Rolling One Hour
	Eastbound					Westbound					Northbound					Southbound					Northeastbound						
	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	HL	BL	BR	HR		
7:00 AM	0	30	121	0	0	0	0	0	0	0	0	0	0	62	12	0	0	0	0	0	0	0	58	12	0	295	0
7:15 AM	0	47	128	0	0	0	0	0	0	0	0	0	0	80	11	0	0	0	0	0	0	0	89	23	0	378	0
7:30 AM	0	63	154	0	0	0	0	0	0	0	0	0	0	97	5	0	0	0	0	0	0	0	88	22	0	429	0
7:45 AM	0	60	260	0	0	0	0	0	0	0	0	0	0	88	13	0	0	0	0	0	0	0	107	35	0	563	1,665
8:00 AM	**0**	**53**	**359**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**109**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**108**	**29**	**0**	**668**	2,038
8:15 AM	**0**	**74**	**272**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**93**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**115**	**32**	**0**	**593**	2,253
8:30 AM	**0**	**57**	**314**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**95**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**104**	**23**	**0**	**604**	2,428
8:45 AM	**0**	**50**	**318**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**85**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**124**	**30**	**0**	**614**	2,479
Count Total	0	434	1,926	0	0	0	0	0	0	0	0	0	0	709	76	0	0	0	0	0	0	0	793	206	0	4,144	0
Peak Hour All	**0**	**234**	**1,263**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**382**	**35**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**451**	**114**	**0**	**2,479**	**0**
Peak Hour HV	**0**	**8**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**18**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	**2**	**0**	**51**	**0**
Peak Hour HV%	**-**	**3%**	**0%**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**5%**	**0%**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**4%**	**2%**	**-**	**2%**	**0**

Note: Six-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	NEB	Total	EB	WB	NB	SB	NEB	Total	East	West	North	South	Southwest	Total
7:00 AM	5	0	11	0	4	*20*	0	0	0	0	0	*0*	0	0	0	2	2	*4*
7:15 AM	2	0	8	0	9	*19*	0	0	0	0	0	*0*	1	0	0	3	3	*7*
7:30 AM	4	0	5	0	4	*13*	2	0	0	0	0	*2*	2	0	0	12	15	*29*
7:45 AM	0	0	4	0	2	*6*	1	0	0	0	0	*1*	0	0	0	7	6	*13*
8:00 AM	**2**	**0**	**2**	**0**	**2**	***6***	**2**	**0**	**0**	**0**	**0**	*2*	**0**	**0**	**0**	**6**	**6**	***12***
8:15 AM	**5**	**0**	**6**	**0**	**6**	***17***	**4**	**0**	**0**	**0**	**0**	*4*	**3**	**0**	**0**	**10**	**9**	***22***
8:30 AM	**4**	**0**	**3**	**0**	**2**	***9***	**2**	**0**	**0**	**0**	**0**	*2*	**1**	**0**	**0**	**6**	**8**	***15***
8:45 AM	**3**	**0**	**7**	**0**	**9**	***19***	**0**	**0**	**0**	**0**	**0**	*0*	**2**	**0**	**0**	**6**	**7**	***15***
Count Total	25	0	46	0	38	*109*	11	0	0	0	0	*11*	9	0	0	52	56	*117*
Peak Hr	**14**	**0**	**18**	**0**	**19**	***51***	**8**	**0**	**0**	**0**	**0**	*8*	**6**	**0**	**0**	**28**	**30**	*64*



Six-Hour Count Summaries

Interval Start		17th St Eastbound					17th St Westbound					Castro St Northbound					Castro St Southbound					HWY 980 EB Off-Ramp Northeastbound					15-min Total	Rolling One Hour
		UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	HL	BL	BR	HR		
4:00 PM		0	44	114	0	0	0	0	0	0	0	0	0	0	200	13	0	0	0	0	0	0	0	92	6	0	469	0
4:15 PM		0	45	91	0	0	0	0	0	0	0	0	0	0	241	13	0	0	0	0	0	0	0	65	15	0	470	0
4:30 PM		**0**	**62**	**102**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**220**	**18**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**84**	**8**	**0**	**494**	0
4:45 PM		**0**	**54**	**113**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**208**	**14**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**88**	**7**	**0**	**484**	1,917
5:00 PM		**0**	**42**	**108**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**264**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**98**	**12**	**0**	**540**	1,988
5:15 PM		**0**	**35**	**95**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**227**	**18**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**96**	**11**	**0**	**482**	**2,000**
5:30 PM		**0**	**35**	**90**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**223**	**15**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**108**	**7**	**0**	**478**	1,984
5:45 PM		**0**	**48**	**112**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**156**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**105**	**14**	**0**	**442**	**1,942**
Count Total		0	524	1,176	0	0	0	0	0	0	0	0	0	0	2,347	141	0	0	0	0	0	0	0	1,064	116	0	5,368	0
Peak Hour	**All**	**0**	**193**	**418**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**919**	**66**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**366**	**38**	**0**	**2,000**	**0**
	HV	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**0**	**18**	**0**
	HV%	**-**	**2%**	**0%**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0%**	**0%**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3%**	**0%**	**-**	**1%**	**0**

Note: Six-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

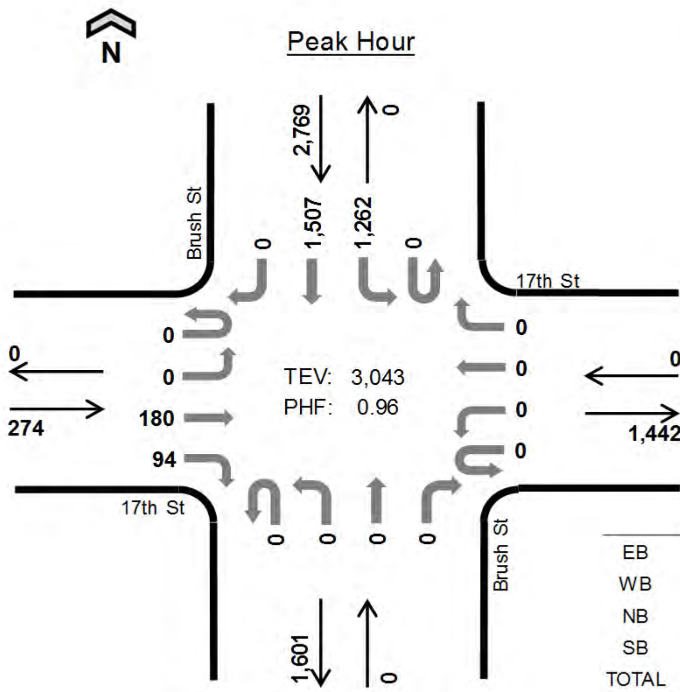
Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	NEB	Total	Bicycles EB	WB	NB	SB	NEB	Total	Pedestrians (Crossing Leg) East	West	North	South	Southwest	Total
4:00 PM	1	0	3	0	3	*7*	1	0	0	0	0	*1*	6	2	2	1	5	*16*
4:15 PM	6	0	1	0	4	*11*	2	0	0	0	0	*2*	0	1	0	9	11	*21*
4:30 PM	**2**	**0**	**1**	**0**	**5**	***8***	**1**	**0**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**12**	**11**	***23***
4:45 PM	**1**	**0**	**0**	**0**	**1**	***2***	**1**	**0**	**5**	**0**	**0**	***6***	**0**	**0**	**0**	**8**	**8**	***16***
5:00 PM	**1**	**0**	**1**	**0**	**3**	***5***	**0**	**0**	**0**	**0**	**0**	***0***	**3**	**0**	**0**	**5**	**7**	***15***
5:15 PM	**0**	**0**	**1**	**0**	**2**	***3***	**0**	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**5**	**7**	***13***
5:30 PM	1	0	2	0	1	*4*	0	0	0	0	0	*0*	2	0	0	8	10	*20*
5:45 PM	4	0	3	0	2	*9*	0	0	0	0	0	*0*	2	0	0	6	7	*15*
Count Total	21	0	15	0	26	*62*	8	0	10	0	0	*18*	21	3	2	81	94	*201*
Peak Hr	**4**	**0**	**3**	**0**	**11**	***18***	**2**	**0**	**5**	**0**	**0**	***7***	**4**	**0**	**0**	**30**	**33**	*67*

Brush St
17th St

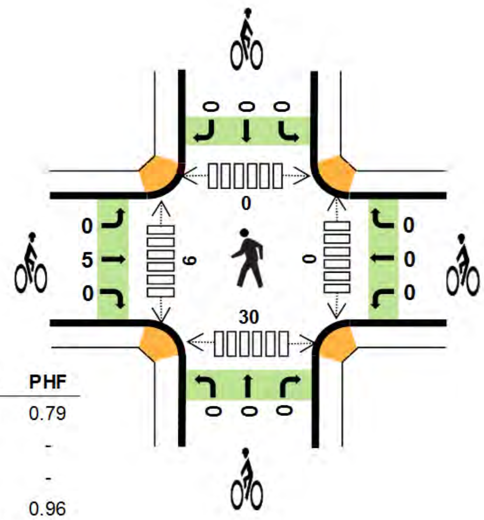
idax

Date: 04/29/2015
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM

Peak Hour



	HV %:	PHF
EB	1.8%	0.79
WB	-	-
NB	-	-
SB	1.7%	0.96
TOTAL	1.7%	0.96



Two-Hour Count Summaries

Interval Start		17th St Eastbound UT	LT	TH	RT	17th St Westbound UT	LT	TH	RT	Brush St Northbound UT	LT	TH	RT	Brush St Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM		0	0	19	14	0	0	0	0	0	0	0	0	0	131	188	0	352	0
7:15 AM		0	0	25	19	0	0	0	0	0	0	0	0	0	143	242	0	429	0
7:30 AM		0	0	49	21	0	0	0	0	0	0	0	0	0	176	267	0	513	0
7:45 AM		0	0	56	24	0	0	0	0	0	0	0	0	0	257	399	0	736	2,030
8:00 AM		**0**	**0**	**44**	**25**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**355**	**365**	**0**	**789**	2,467
8:15 AM		**0**	**0**	**58**	**29**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**280**	**378**	**0**	**745**	2,783
8:30 AM		**0**	**0**	**44**	**18**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**318**	**372**	**0**	**752**	3,022
8:45 AM		**0**	**0**	**34**	**22**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**309**	**392**	**0**	**757**	**3,043**
Count Total		0	0	329	172	0	0	0	0	0	0	0	0	0	1,969	2,603	0	5,073	0
Peak Hour	**All**	**0**	**0**	**180**	**94**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,262**	**1,507**	**0**	**3,043**	**0**
	HV	**0**	**0**	**4**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**39**	**0**	**51**	**0**
	HV%	**-**	**-**	**2%**	**1%**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1%**	**3%**	**-**	**2%**	**0**

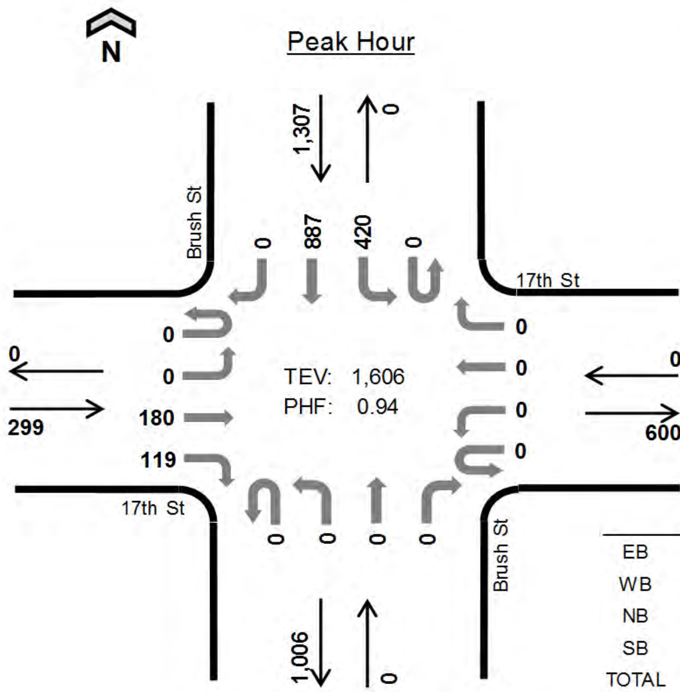
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	4	0	0	7	*11*	0	0	0	0	*0*	0	1	0	3	*4*
7:15 AM	3	0	0	9	*12*	0	0	0	0	*0*	0	2	0	2	*4*
7:30 AM	4	0	0	9	*13*	2	0	0	0	*2*	0	6	0	12	*18*
7:45 AM	0	0	0	8	*8*	1	0	0	0	*1*	0	1	0	10	*11*
8:00 AM	**0**	**0**	**0**	**11**	***11***	**1**	**0**	**0**	**0**	***1***	**0**	**1**	**0**	**5**	*6*
8:15 AM	**4**	**0**	**0**	**6**	***10***	**2**	**0**	**0**	**0**	***2***	**0**	**4**	**0**	**10**	*14*
8:30 AM	**0**	**0**	**0**	**17**	***17***	**2**	**0**	**0**	**0**	***2***	**0**	**0**	**0**	**7**	*7*
8:45 AM	**1**	**0**	**0**	**12**	***13***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**8**	*9*
Count Total	16	0	0	79	*95*	8	0	0	0	*8*	0	16	0	57	*73*
Peak Hour	**5**	**0**	**0**	**46**	***51***	**5**	**0**	**0**	**0**	***5***	**0**	**6**	**0**	**30**	*36*

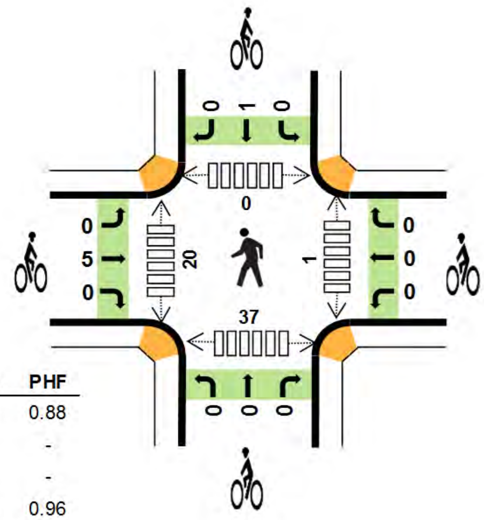
Brush St
17th St

Date: 04/29/2015
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 4:15 PM to 5:15 PM

Peak Hour



	HV %:	PHF
EB	1.0%	0.88
WB	-	-
NB	-	-
SB	2.8%	0.96
TOTAL	2.5%	0.94



Three-Hour Count Summaries

Interval Start		17th St Eastbound UT	LT	TH	RT	17th St Westbound UT	LT	TH	RT	Brush St Northbound UT	LT	TH	RT	Brush St Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:15 PM		0	0	47	25	0	0	0	0	0	0	0	0	0	88	231	0	391	0
4:30 PM		0	0	51	34	0	0	0	0	0	0	0	0	0	106	234	0	425	0
4:45 PM		0	0	45	31	0	0	0	0	0	0	0	0	0	117	205	0	398	0
5:00 PM		0	0	37	29	0	0	0	0	0	0	0	0	0	109	217	0	392	1,606
Peak Hour	All	0	0	180	119	0	0	0	0	0	0	0	0	0	420	887	0	1,606	0
	HV	0	0	1	2	0	0	0	0	0	0	0	0	0	9	28	0	40	0
	HV%	-	-	1%	2%	-	-	-	-	-	-	-	-	-	2%	3%	-	2%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:15 PM	2	0	0	12	*14*	0	0	0	1	*1*	1	5	0	8	*14*
4:30 PM	0	0	0	9	*9*	3	0	0	0	*3*	0	10	0	16	*26*
4:45 PM	1	0	0	7	*8*	1	0	0	0	*1*	0	5	0	5	*10*
5:00 PM	0	0	0	9	*9*	1	0	0	0	*1*	0	0	0	8	*8*
Peak Hour	3	0	0	37	*40*	5	0	0	1	*6*	1	20	0	37	*58*

Attachment B

Intersection Level of Service Calculations

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	226	16	13	143	0	0	0	0	644	1020	363
Future Volume (veh/h)	0	226	16	13	143	0	0	0	0	644	1020	363
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1710	1676	1676	0				1676	1676	1676
Adj Flow Rate, veh/h	0	226	10	13	143	0				555	1145	247
Adj No. of Lanes	0	2	0	1	2	0				1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	670	29	258	728	0				1074	2256	959
Arrive On Green	0.00	0.22	0.21	0.23	0.23	0.00				0.67	0.67	0.67
Sat Flow, veh/h	0	3184	136	1014	3269	0				1597	3353	1425
Grp Volume(v), veh/h	0	115	121	13	143	0				555	1145	247
Grp Sat Flow(s),veh/h/ln	0	1593	1644	1014	1593	0				1597	1676	1425
Q Serve(g_s), s	0.0	5.0	5.0	0.9	2.9	0.0				14.1	13.7	5.6
Cycle Q Clear(g_c), s	0.0	5.0	5.0	5.9	2.9	0.0				14.1	13.7	5.6
Prop In Lane	0.00		0.08	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	344	355	258	728	0				1074	2256	959
V/C Ratio(X)	0.00	0.34	0.34	0.05	0.20	0.00				0.52	0.51	0.26
Avail Cap(c_a), veh/h	0	344	355	258	728	0				1074	2256	959
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	26.8	26.9	28.5	25.2	0.0				6.6	6.6	5.2
Incr Delay (d2), s/veh	0.0	2.6	2.6	0.4	0.6	0.0				1.8	0.8	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.4	2.5	0.3	1.4	0.0				6.7	6.5	2.3
LnGrp Delay(d),s/veh	0.0	29.5	29.5	28.9	25.9	0.0				8.4	7.4	5.9
LnGrp LOS		C	C	C	C					A	A	A
Approach Vol, veh/h		236			156						1947	
Approach Delay, s/veh		29.5			26.1						7.5	
Approach LOS		C			C						A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				22.5		58.5		22.5
Change Period (Y+Rc), s				* 5.5		6.5		5.5
Max Green Setting (Gmax), s				* 17		52.0		16.0
Max Q Clear Time (g_c+I1), s				7.0		16.1		7.9
Green Ext Time (p_c), s				1.6		20.9		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	11.0
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	705	0	0	142	307	14	307	11	0	0	0
Future Volume (veh/h)	165	705	0	0	142	307	14	307	11	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1676	1676	0	0	1676	1676	1710	1676	1710			
Adj Flow Rate, veh/h	165	705	0	0	142	63	14	307	6			
Adj No. of Lanes	1	2	0	0	2	2	0	3	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	2	2	0	0	2	2	0	2	0			
Cap, veh/h	349	1593	0	0	657	495	83	1940	39			
Arrive On Green	0.07	0.16	0.00	0.00	0.21	0.21	0.43	0.43	0.41			
Sat Flow, veh/h	1597	3353	0	0	3269	2401	195	4565	92			
Grp Volume(v), veh/h	165	705	0	0	142	63	119	99	108			
Grp Sat Flow(s),veh/h/ln	1597	1676	0	0	1593	1200	1667	1526	1660			
Q Serve(g_s), s	7.9	15.2	0.0	0.0	3.0	1.7	3.5	3.2	3.2			
Cycle Q Clear(g_c), s	7.9	15.2	0.0	0.0	3.0	1.7	3.5	3.2	3.2			
Prop In Lane	1.00		0.00	0.00		1.00	0.12		0.06			
Lane Grp Cap(c), veh/h	349	1593	0	0	657	495	708	648	706			
V/C Ratio(X)	0.47	0.44	0.00	0.00	0.22	0.13	0.17	0.15	0.15			
Avail Cap(c_a), veh/h	349	1593	0	0	657	495	708	648	706			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	32.7	24.1	0.0	0.0	26.4	25.9	14.2	14.1	14.2			
Incr Delay (d2), s/veh	4.5	0.9	0.0	0.0	0.8	0.5	0.5	0.5	0.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.0	7.3	0.0	0.0	1.4	0.6	1.7	1.4	1.6			
LnGrp Delay(d),s/veh	37.2	25.0	0.0	0.0	27.1	26.4	14.8	14.6	14.6			
LnGrp LOS	D	C			C	C	B	B	B			
Approach Vol, veh/h		870			205			327				
Approach Delay, s/veh		27.3			26.9			14.7				
Approach LOS		C			C			B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		38.0		42.0			21.5	20.5
Change Period (Y+Rc), s		5.5		5.5			3.5	5.5
Max Green Setting (Gmax), s		32.5		36.5			18.0	15.0
Max Q Clear Time (g_c+I1), s		5.5		17.2			9.9	5.0
Green Ext Time (p_c), s		0.4		1.4			0.1	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	24.3
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	375	84	39	241	97	59	269	22	44	229	128
Future Volume (veh/h)	260	375	84	39	241	97	59	269	22	44	229	128
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.92	0.99		0.96	0.99		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1676	1676	1676	1676	1676	1676
Adj Flow Rate, veh/h	260	375	84	39	241	97	59	269	10	44	229	61
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	305	817	181	66	370	142	490	837	683	478	837	659
Arrive On Green	0.19	0.32	0.32	0.01	0.06	0.06	0.50	0.50	0.50	0.50	0.50	0.50
Sat Flow, veh/h	1597	2567	567	1597	2190	843	966	1676	1368	976	1676	1319
Grp Volume(v), veh/h	260	231	228	39	172	166	59	269	10	44	229	61
Grp Sat Flow(s),veh/h/ln	1597	1593	1542	1597	1593	1441	966	1676	1368	976	1676	1319
Q Serve(g_s), s	13.4	9.8	10.1	2.1	9.0	9.6	3.2	8.1	0.3	2.4	6.7	2.1
Cycle Q Clear(g_c), s	13.4	9.8	10.1	2.1	9.0	9.6	9.9	8.1	0.3	10.5	6.7	2.1
Prop In Lane	1.00		0.37	1.00		0.59	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	305	507	491	66	269	243	490	837	683	478	837	659
V/C Ratio(X)	0.85	0.45	0.47	0.59	0.64	0.68	0.12	0.32	0.01	0.09	0.27	0.09
Avail Cap(c_a), veh/h	376	507	491	376	412	373	490	837	683	478	837	659
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.57	0.57	0.57	0.89	0.89	0.89	0.97	0.97	0.97	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	23.1	23.1	41.2	37.6	37.8	15.2	12.7	10.7	15.8	12.3	11.2
Incr Delay (d2), s/veh	7.6	0.1	0.1	2.8	0.9	1.1	0.5	1.0	0.0	0.4	0.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	4.3	4.3	1.0	4.0	3.9	0.9	4.0	0.1	0.7	3.3	0.8
LnGrp Delay(d),s/veh	40.8	23.2	23.2	44.0	38.5	39.0	15.7	13.7	10.8	16.2	13.2	11.5
LnGrp LOS	D	C	C	D	D	D	B	B	B	B	B	B
Approach Vol, veh/h		719			377			338			334	
Approach Delay, s/veh		29.6			39.3			14.0			13.2	
Approach LOS		C			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		46.4	7.5	31.1		46.4	20.2	18.4
Change Period (Y+Rc), s		5.5	4.5	3.5		5.5	4.5	3.5
Max Green Setting (Gmax), s		29.5	19.5	22.5		29.5	19.5	22.5
Max Q Clear Time (g_c+I1), s		11.9	4.1	12.1		12.5	15.4	11.6
Green Ext Time (p_c), s		2.9	0.1	2.5		2.9	0.4	1.1

Intersection Summary		
HCM 2010 Ctrl Delay		25.6
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	171	187	54	232	215	74	442	29	93	469	100
Future Volume (veh/h)	143	171	187	54	232	215	74	442	29	93	469	100
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.94	0.97		1.00	0.98		0.94	0.98		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1710	1676	1676	1676	1676	1710	1676	1676	1710
Adj Flow Rate, veh/h	143	171	55	54	232	0	74	442	26	93	469	87
Adj No. of Lanes	1	2	0	0	2	1	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	346	780	240	199	798	471	420	1576	92	526	1440	264
Arrive On Green	0.55	0.55	0.54	0.33	0.33	0.00	1.00	1.00	1.00	0.55	0.55	0.54
Sat Flow, veh/h	999	2358	725	427	2412	1425	752	2889	169	809	2638	485
Grp Volume(v), veh/h	143	113	113	149	137	0	74	243	225	93	281	275
Grp Sat Flow(s),veh/h/ln	999	1593	1490	1390	1449	1425	752	1593	1466	809	1593	1530
Q Serve(g_s), s	9.0	3.1	3.3	2.6	5.9	0.0	1.9	0.0	0.0	5.0	8.3	8.5
Cycle Q Clear(g_c), s	14.9	3.1	3.3	6.1	5.9	0.0	10.3	0.0	0.0	5.0	8.3	8.5
Prop In Lane	1.00		0.49	0.36		1.00	1.00		0.12	1.00		0.32
Lane Grp Cap(c), veh/h	346	527	493	517	479	471	420	869	800	526	869	835
V/C Ratio(X)	0.41	0.21	0.23	0.29	0.29	0.00	0.18	0.28	0.28	0.18	0.32	0.33
Avail Cap(c_a), veh/h	438	675	631	642	614	604	420	869	800	526	869	835
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.91	0.71	0.71	0.00	0.99	0.99	0.99	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.3	13.4	13.6	21.0	21.0	0.0	0.9	0.0	0.0	9.9	10.7	10.7
Incr Delay (d2), s/veh	0.3	0.1	0.1	0.1	0.1	0.0	0.9	0.8	0.9	0.7	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	1.3	1.4	2.6	2.4	0.0	0.5	0.2	0.2	1.2	3.8	3.8
LnGrp Delay(d),s/veh	18.5	13.5	13.7	21.0	21.1	0.0	1.9	0.8	0.9	10.6	11.6	11.8
LnGrp LOS	B	B	B	C	C		A	A	A	B	B	B
Approach Vol, veh/h		369			286			542			649	
Approach Delay, s/veh		15.5			21.1			1.0			11.6	
Approach LOS		B			C			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		51.9		33.1		51.9		33.1
Change Period (Y+Rc), s		6.0		5.5		6.0		5.5
Max Green Setting (Gmax), s		38.0		35.5		38.0		35.5
Max Q Clear Time (g_c+I1), s		12.3		16.9		10.5		8.1
Green Ext Time (p_c), s		6.4		2.8		6.5		3.0

Intersection Summary	
HCM 2010 Ctrl Delay	10.7
HCM 2010 LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	13	335	21	20	326
Future Volume (veh/h)	8	13	335	21	20	326
Number	7	14	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.95	0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1676	1676	1676	1676
Adj Flow Rate, veh/h	8	3	335	15	20	326
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	21	19	1506	1222	883	1506
Arrive On Green	0.01	0.01	0.90	0.90	1.00	1.00
Sat Flow, veh/h	1597	1425	1676	1360	915	1676
Grp Volume(v), veh/h	8	3	335	15	20	326
Grp Sat Flow(s),veh/h/ln	1597	1425	1676	1360	915	1676
Q Serve(g_s), s	0.4	0.2	2.2	0.1	0.1	0.0
Cycle Q Clear(g_c), s	0.4	0.2	2.2	0.1	2.2	0.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	21	19	1506	1222	883	1506
V/C Ratio(X)	0.37	0.16	0.22	0.01	0.02	0.22
Avail Cap(c_a), veh/h	423	377	1506	1222	883	1506
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.97	0.97	0.97	0.97
Uniform Delay (d), s/veh	41.6	41.5	0.5	0.4	0.0	0.0
Incr Delay (d2), s/veh	3.9	1.4	0.3	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	1.1	0.0	0.0	0.1
LnGrp Delay(d),s/veh	45.5	42.8	0.9	0.5	0.1	0.3
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	11		350			346
Approach Delay, s/veh	44.8		0.9			0.3
Approach LOS	D		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		79.9		5.1		79.9		
Change Period (Y+Rc), s		3.5		4.0		3.5		
Max Green Setting (Gmax), s		55.0		22.5		55.0		
Max Q Clear Time (g_c+I1), s		4.2		2.4		4.2		
Green Ext Time (p_c), s		1.7		0.0		1.7		

Intersection Summary		
HCM 2010 Ctrl Delay		1.3
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	2	10	0	0	0	16	521	23	19	679	17
Future Volume (veh/h)	1	2	10	0	0	0	16	521	23	19	679	17
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				0.98		0.91	0.97		0.87
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710				1676	1676	1710	1676	1676	1710
Adj Flow Rate, veh/h	1	2	0				16	521	22	19	679	16
Adj No. of Lanes	0	1	0				1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	0				2	2	2	2	2	2
Cap, veh/h	65	130	0				582	2352	99	654	2403	57
Arrive On Green	0.12	0.12	0.00				1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	550	1099	0				656	3101	131	751	3169	75
Grp Volume(v), veh/h	3	0	0				16	267	276	19	341	354
Grp Sat Flow(s),veh/h/ln	1649	0	0				656	1593	1639	751	1593	1651
Q Serve(g_s), s	0.1	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.33		0.00				1.00		0.08	1.00		0.05
Lane Grp Cap(c), veh/h	195	0	0				582	1208	1243	654	1208	1252
V/C Ratio(X)	0.02	0.00	0.00				0.03	0.22	0.22	0.03	0.28	0.28
Avail Cap(c_a), veh/h	708	0	0				582	1208	1243	654	1208	1252
HCM Platoon Ratio	1.00	1.00	1.00				2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00				0.98	0.98	0.98	0.97	0.97	0.97
Uniform Delay (d), s/veh	33.1	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0				0.1	0.4	0.4	0.1	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0				0.0	0.1	0.1	0.0	0.2	0.2
LnGrp Delay(d),s/veh	33.1	0.0	0.0				0.1	0.4	0.4	0.1	0.6	0.5
LnGrp LOS	C						A	A	A	A	A	A
Approach Vol, veh/h		3						559			714	
Approach Delay, s/veh		33.1						0.4			0.5	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		69.5		15.5		69.5		
Change Period (Y+Rc), s		5.0		5.5		5.0		
Max Green Setting (Gmax), s		38.0		36.5		18.0		
Max Q Clear Time (g_c+I1), s		2.0		2.1		2.0		
Green Ext Time (p_c), s		3.4		0.0		3.1		

Intersection Summary			
HCM 2010 Ctrl Delay			0.6
HCM 2010 LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	9	23	0	0	53	11	473	5	248	427	16
Future Volume (vph)	0	9	23	0	0	53	11	473	5	248	427	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5				4.5		5.0		2.0	5.0	
Lane Util. Factor		1.00				1.00		0.95		1.00	0.95	
Frpb, ped/bikes		0.95				1.00		1.00		1.00	0.99	
Flpb, ped/bikes		1.00				1.00		1.00		1.00	1.00	
Frt		0.90				0.86		1.00		1.00	0.99	
Flt Protected		1.00				1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1439				1450		3162		1593	3136	
Flt Permitted		1.00				1.00		0.94		0.95	1.00	
Satd. Flow (perm)		1439				1450		2990		1593	3136	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	9	23	0	0	53	11	473	5	248	427	16
RTOR Reduction (vph)	0	22	0	0	0	39	0	1	0	0	3	0
Lane Group Flow (vph)	0	10	0	0	0	14	0	488	0	248	440	0
Confl. Peds. (#/hr)			16	16			121		82			121
Confl. Bikes (#/hr)									8			61
Turn Type		NA				Prot	Perm	NA		Prot	NA	
Protected Phases		4				8		2		3	6	
Permitted Phases							2					
Actuated Green, G (s)		3.7				22.3		53.2		16.6	53.2	
Effective Green, g (s)		3.7				22.3		53.2		16.6	53.2	
Actuated g/C Ratio		0.04				0.26		0.63		0.20	0.63	
Clearance Time (s)		4.5				4.5		5.0		2.0	5.0	
Vehicle Extension (s)		2.0				2.0		2.0		2.0	2.0	
Lane Grp Cap (vph)		62				380		1871		311	1962	
v/s Ratio Prot		c0.01				0.01				c0.16	0.14	
v/s Ratio Perm								c0.16				
v/c Ratio		0.16				0.04		0.26		0.80	0.22	
Uniform Delay, d1		39.2				23.3		7.1		32.6	6.9	
Progression Factor		1.00				1.00		0.85		0.84	1.35	
Incremental Delay, d2		0.4				0.0		0.3		12.3	0.3	
Delay (s)		39.6				23.4		6.4		39.7	9.6	
Level of Service		D				C		A		D	A	
Approach Delay (s)		39.6			23.4			6.4			20.4	
Approach LOS		D			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	22	62	18	348	310	24		
Future Volume (veh/h)	22	62	18	348	310	24		
Number	7	14	5	2	6	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	0.97			0.89		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1676	1676	1676	1676	1676	1710		
Adj Flow Rate, veh/h	22	12	18	348	310	24		
Adj No. of Lanes	1	1	1	1	1	0		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	52	46	884	1474	1337	104		
Arrive On Green	0.03	0.03	1.00	1.00	1.00	1.00		
Sat Flow, veh/h	1597	1425	909	1676	1521	118		
Grp Volume(v), veh/h	22	12	18	348	0	334		
Grp Sat Flow(s),veh/h/ln	1597	1425	909	1676	0	1639		
Q Serve(g_s), s	1.1	0.7	0.0	0.0	0.0	0.0		
Cycle Q Clear(g_c), s	1.1	0.7	0.0	0.0	0.0	0.0		
Prop In Lane	1.00	1.00	1.00			0.07		
Lane Grp Cap(c), veh/h	52	46	884	1474	0	1441		
V/C Ratio(X)	0.42	0.26	0.02	0.24	0.00	0.23		
Avail Cap(c_a), veh/h	441	394	884	1474	0	1441		
HCM Platoon Ratio	1.00	1.00	2.00	2.00	2.00	2.00		
Upstream Filter(I)	1.00	1.00	0.97	0.97	0.00	0.97		
Uniform Delay (d), s/veh	40.3	40.1	0.0	0.0	0.0	0.0		
Incr Delay (d2), s/veh	2.0	1.1	0.0	0.4	0.0	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.5	0.3	0.0	0.1	0.0	0.1		
LnGrp Delay(d),s/veh	42.4	41.2	0.0	0.4	0.0	0.4		
LnGrp LOS	D	D	A	A		A		
Approach Vol, veh/h	34			366	334			
Approach Delay, s/veh	42.0			0.3	0.4			
Approach LOS	D			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		78.2		6.8		78.2		
Change Period (Y+Rc), s		3.5		4.0		3.5		
Max Green Setting (Gmax), s		54.0		23.5		54.0		
Max Q Clear Time (g_c+I1), s		2.0		3.1		2.0		
Green Ext Time (p_c), s		1.7		0.0		1.7		
Intersection Summary								
HCM 2010 Ctrl Delay			2.3					
HCM 2010 LOS			A					

Movement	EBU	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	35	107	112	86	24	53	20	189	163	263	307	60
Future Volume (vph)	35	107	112	86	24	53	20	189	163	263	307	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0			4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00	0.95	1.00			1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes		1.00	1.00	0.87			1.00	1.00	0.79	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00			1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85			1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.95	1.00	1.00			0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1593	3185	1242			1593	1676	1121	3090	3100	
Flt Permitted		0.95	1.00	1.00			0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1593	3185	1242			1593	1676	1121	3090	3100	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	35	107	112	86	24	53	20	189	163	263	307	60
RTOR Reduction (vph)	0	0	0	98	0	0	0	0	132	0	9	0
Lane Group Flow (vph)	0	142	112	12	0	0	73	189	31	263	358	0
Confl. Peds. (#/hr)				36					70			
Confl. Bikes (#/hr)				10					39			3
Turn Type	Prot	Prot	NA	Perm		Prot	Prot	NA	Perm	Prot	NA	
Protected Phases	7	7	4			3	3	8		5	2	
Permitted Phases				4					8			
Actuated Green, G (s)		17.7	13.9	13.9			7.0	25.9	25.9	16.0	63.1	
Effective Green, g (s)		18.7	14.9	14.9			8.0	26.9	26.9	17.0	64.1	
Actuated g/C Ratio		0.13	0.11	0.11			0.06	0.19	0.19	0.12	0.46	
Clearance Time (s)		5.0	5.0	5.0			5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0			3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		212	338	132			91	322	215	375	1419	
v/s Ratio Prot		c0.09	0.04				c0.05	c0.11		c0.09	c0.12	
v/s Ratio Perm				0.01					0.03			
v/c Ratio		0.67	0.33	0.09			0.80	0.59	0.15	0.70	0.25	
Uniform Delay, d1		57.7	57.9	56.4			65.2	51.5	47.0	59.1	23.3	
Progression Factor		1.00	1.00	1.00			1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		7.8	0.6	0.3			38.2	2.7	0.3	5.8	0.4	
Delay (s)		65.5	58.5	56.7			103.4	54.2	47.3	64.9	23.7	
Level of Service		E	E	E			F	D	D	E	C	
Approach Delay (s)			60.7					60.0			40.9	
Approach LOS			E					E			D	

Intersection Summary			
HCM 2000 Control Delay	46.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	91	851	92	125
Future Volume (vph)	91	851	92	125
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	0.99		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.97		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1593	3054		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1593	3054		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00
Adj. Flow (vph)	91	851	92	125
RTOR Reduction (vph)	0	7	0	0
Lane Group Flow (vph)	91	1061	0	0
Confl. Peds. (#/hr)				
Confl. Bikes (#/hr)			41	
Turn Type	Prot	NA		
Protected Phases	1	6		
Permitted Phases				
Actuated Green, G (s)	13.3	60.4		
Effective Green, g (s)	14.3	61.4		
Actuated g/C Ratio	0.10	0.44		
Clearance Time (s)	5.0	5.0		
Vehicle Extension (s)	3.0	3.0		
Lane Grp Cap (vph)	162	1339		
v/s Ratio Prot	0.06	c0.35		
v/s Ratio Perm				
v/c Ratio	0.56	0.79		
Uniform Delay, d1	59.9	33.8		
Progression Factor	1.00	1.00		
Incremental Delay, d2	4.4	4.9		
Delay (s)	64.3	38.7		
Level of Service	E	D		
Approach Delay (s)		40.7		
Approach LOS		D		

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	143	460	449	115	619	198
Future Volume (veh/h)	143	460	449	115	619	198
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.96	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1676	1710	1676	1676
Adj Flow Rate, veh/h	143	460	449	90	619	67
Adj No. of Lanes	1	2	2	0	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	423	2078	888	176	791	353
Arrive On Green	0.53	1.00	0.34	0.33	0.25	0.25
Sat Flow, veh/h	1597	3269	2714	523	3193	1425
Grp Volume(v), veh/h	143	460	270	269	619	67
Grp Sat Flow(s),veh/h/ln	1597	1593	1593	1561	1597	1425
Q Serve(g_s), s	4.1	0.0	10.8	11.0	14.5	3.0
Cycle Q Clear(g_c), s	4.1	0.0	10.8	11.0	14.5	3.0
Prop In Lane	1.00			0.34	1.00	1.00
Lane Grp Cap(c), veh/h	423	2078	538	527	791	353
V/C Ratio(X)	0.34	0.22	0.50	0.51	0.78	0.19
Avail Cap(c_a), veh/h	423	2078	538	527	1158	517
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.96	0.96	1.00	1.00
Uniform Delay (d), s/veh	14.8	0.0	21.1	21.3	28.1	23.8
Incr Delay (d2), s/veh	0.2	0.2	3.2	3.4	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.1	5.2	5.2	6.5	2.6
LnGrp Delay(d),s/veh	14.9	0.2	24.4	24.7	29.3	23.9
LnGrp LOS	B	A	C	C	C	C
Approach Vol, veh/h		603	539		686	
Approach Delay, s/veh		3.7	24.5		28.7	
Approach LOS		A	C		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		56.2		23.8	25.2	31.0		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		42.5		28.5	11.5	26.5		
Max Q Clear Time (g_c+I1), s		2.0		16.5	6.1	13.0		
Green Ext Time (p_c), s		3.0		2.8	1.4	2.0		

Intersection Summary	
HCM 2010 Ctrl Delay	19.2
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	636	326	51	361	39	129	214	43	50	295	70
Future Volume (veh/h)	102	636	326	51	361	39	129	214	43	50	295	70
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.92	1.00		0.92	0.98		0.96	0.97		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1676	1676	1676	1676	1676	1676
Adj Flow Rate, veh/h	102	636	326	51	361	39	129	214	22	50	295	26
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	421	822	421	157	1199	128	463	820	667	451	614	472
Arrive On Green	0.42	0.42	0.41	0.83	0.83	0.82	0.08	0.49	0.49	0.73	0.73	0.73
Sat Flow, veh/h	865	1971	1010	523	2877	308	1597	1676	1364	998	1676	1287
Grp Volume(v), veh/h	102	514	448	51	198	202	129	214	22	50	295	26
Grp Sat Flow(s),veh/h/ln	865	1593	1389	523	1593	1593	1597	1676	1364	998	1676	1287
Q Serve(g_s), s	6.9	23.6	23.7	7.4	2.3	2.4	4.1	6.4	0.7	1.3	6.2	0.5
Cycle Q Clear(g_c), s	9.4	23.6	23.7	31.1	2.3	2.4	4.1	6.4	0.7	1.3	6.2	0.5
Prop In Lane	1.00		0.73	1.00		0.19	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	421	664	579	157	664	664	463	820	667	451	614	472
V/C Ratio(X)	0.24	0.77	0.77	0.32	0.30	0.30	0.28	0.26	0.03	0.11	0.48	0.06
Avail Cap(c_a), veh/h	432	684	596	164	684	684	511	820	667	451	614	472
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.84	0.84	0.84	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.97	0.97
Uniform Delay (d), s/veh	18.0	21.3	21.5	17.3	4.3	4.4	14.6	12.7	11.3	7.4	8.0	7.3
Incr Delay (d2), s/veh	0.1	4.1	4.7	0.4	0.1	0.1	0.1	0.8	0.1	0.5	2.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	11.0	9.7	1.1	1.0	1.0	1.8	3.1	0.3	0.4	3.1	0.2
LnGrp Delay(d),s/veh	18.1	25.4	26.2	17.8	4.4	4.5	14.7	13.5	11.4	7.8	10.6	7.5
LnGrp LOS	B	C	C	B	A	A	B	B	B	A	B	A
Approach Vol, veh/h		1064			451			365			371	
Approach Delay, s/veh		25.0			6.0			13.8			10.0	
Approach LOS		C			A			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		45.6		39.4	10.4	35.1		39.4
Change Period (Y+Rc), s		6.0		4.5	4.5	6.0		4.5
Max Green Setting (Gmax), s		38.5		36.0	8.5	25.5		36.0
Max Q Clear Time (g_c+I1), s		8.4		25.7	6.1	8.2		33.1
Green Ext Time (p_c), s		2.8		4.8	0.1	2.5		1.8

Intersection Summary		
HCM 2010 Ctrl Delay		16.9
HCM 2010 LOS		B

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	656	15	20	462	9	2	4	8	3	4	20
Future Vol, veh/h	27	656	15	20	462	9	2	4	8	3	4	20
Conflicting Peds, #/hr	20	0	36	36	0	20	22	0	35	35	0	22
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	656	15	20	462	9	2	4	8	3	4	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	491	0	0	707	0	0	1049	1285	407	946	1288	278
Stage 1	-	-	-	-	-	-	754	754	-	527	527	-
Stage 2	-	-	-	-	-	-	295	531	-	419	761	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1069	-	-	887	-	-	182	163	593	216	163	719
Stage 1	-	-	-	-	-	-	367	415	-	502	527	-
Stage 2	-	-	-	-	-	-	689	524	-	582	412	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1047	-	-	857	-	-	155	143	554	187	143	691
Mov Cap-2 Maneuver	-	-	-	-	-	-	155	143	-	187	143	-
Stage 1	-	-	-	-	-	-	340	384	-	472	500	-
Stage 2	-	-	-	-	-	-	629	498	-	526	382	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.5	20.1	15.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	253	1047	-	-	857	-	-	370
HCM Lane V/C Ratio	0.055	0.026	-	-	0.023	-	-	0.073
HCM Control Delay (s)	20.1	8.5	0.2	-	9.3	0.1	-	15.5
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0.1	-	-	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	529	75	101	344	25	99	358	124	50	307	55
Future Volume (veh/h)	57	529	75	101	344	25	99	358	124	50	307	55
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	0.99		0.92	0.97		0.88	0.94		0.89
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1710	1676	1710	1676	1676	1676	1676	1676	1710
Adj Flow Rate, veh/h	57	529	58	101	344	19	99	358	78	50	307	43
Adj No. of Lanes	1	2	0	0	2	0	1	2	1	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	241	959	105	181	628	37	511	1823	719	545	1581	218
Arrive On Green	0.67	0.67	0.66	0.11	0.11	0.11	1.00	1.00	1.00	0.19	0.19	0.18
Sat Flow, veh/h	910	2874	314	355	1883	111	894	3185	1256	805	2764	380
Grp Volume(v), veh/h	57	292	295	207	0	257	99	358	78	50	175	175
Grp Sat Flow(s),veh/h/ln	910	1593	1595	854	0	1495	894	1593	1256	805	1593	1552
Q Serve(g_s), s	4.0	8.2	8.3	13.2	0.0	13.8	1.9	0.0	0.0	4.4	7.8	8.1
Cycle Q Clear(g_c), s	17.8	8.2	8.3	21.5	0.0	13.8	10.1	0.0	0.0	4.4	7.8	8.1
Prop In Lane	1.00		0.20	0.49		0.07	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	241	531	532	348	0	499	511	1823	719	545	911	888
V/C Ratio(X)	0.24	0.55	0.55	0.60	0.00	0.51	0.19	0.20	0.11	0.09	0.19	0.20
Avail Cap(c_a), veh/h	323	675	675	441	0	633	511	1823	719	545	911	888
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	2.00	2.00	2.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.98	0.00	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Uniform Delay (d), s/veh	17.5	10.8	10.9	36.1	0.0	31.3	0.8	0.0	0.0	16.5	17.9	18.1
Incr Delay (d2), s/veh	0.2	0.3	0.3	0.6	0.0	0.3	0.8	0.2	0.3	0.3	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	3.5	3.6	4.8	0.0	5.8	0.6	0.1	0.1	1.0	3.6	3.6
LnGrp Delay(d),s/veh	17.7	11.1	11.2	36.6	0.0	31.6	1.7	0.2	0.3	16.9	18.4	18.5
LnGrp LOS	B	B	B	D		C	A	A	A	B	B	B
Approach Vol, veh/h		644			464			535			400	
Approach Delay, s/veh		11.7			33.9			0.5			18.3	
Approach LOS		B			C			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		52.6		32.4		52.6		32.4
Change Period (Y+Rc), s		5.0		4.5		5.0		4.5
Max Green Setting (Gmax), s		40.0		35.5		40.0		35.5
Max Q Clear Time (g_c+I1), s		12.1		19.8		10.1		23.5
Green Ext Time (p_c), s		5.1		4.9		5.2		4.3

Intersection Summary	
HCM 2010 Ctrl Delay	15.1
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	348	283	121	457	48	0	0	0	33	187	21
Future Volume (veh/h)	59	348	283	121	457	48	0	0	0	33	187	21
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	0.95		0.88	1.00		0.88				1.00		0.73
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710	1676	1676	1710				1710	1676	1710
Adj Flow Rate, veh/h	59	348	184	121	457	40				33	187	17
Adj No. of Lanes	0	2	0	1	2	0				0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2				0	2	0
Cap, veh/h	147	791	403	159	1839	160				62	350	32
Arrive On Green	0.16	0.16	0.15	0.10	0.63	0.61				0.28	0.28	0.28
Sat Flow, veh/h	201	1644	838	1597	2929	255				222	1260	115
Grp Volume(v), veh/h	318	0	273	121	247	250				237	0	0
Grp Sat Flow(s),veh/h/ln	1440	0	1244	1597	1593	1591				1596	0	0
Q Serve(g_s), s	7.2	0.0	17.0	6.3	5.8	5.9				10.7	0.0	0.0
Cycle Q Clear(g_c), s	15.8	0.0	17.0	6.3	5.8	5.9				10.7	0.0	0.0
Prop In Lane	0.19		0.67	1.00		0.16				0.14		0.07
Lane Grp Cap(c), veh/h	743	0	599	159	1000	999				444	0	0
V/C Ratio(X)	0.43	0.00	0.46	0.76	0.25	0.25				0.53	0.00	0.00
Avail Cap(c_a), veh/h	743	0	599	263	1000	999				488	0	0
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.81	0.00	0.81	0.95	0.95	0.95				1.00	0.00	0.00
Uniform Delay (d), s/veh	24.9	0.0	25.8	37.3	7.0	7.0				26.0	0.0	0.0
Incr Delay (d2), s/veh	1.5	0.0	2.0	2.7	0.6	0.6				0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	0.0	6.2	2.9	2.7	2.7				4.7	0.0	0.0
LnGrp Delay(d),s/veh	26.3	0.0	27.8	40.0	7.5	7.6				26.4	0.0	0.0
LnGrp LOS	C		C	D	A	A				C		
Approach Vol, veh/h		591			618						237	
Approach Delay, s/veh		27.0			13.9						26.4	
Approach LOS		C			B						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	12.5	44.9		27.6		57.4		
Change Period (Y+Rc), s	4.5	5.5		3.5		5.5		
Max Green Setting (Gmax), s	13.5	31.5		26.5		49.5		
Max Q Clear Time (g_c+I1), s	8.3	19.0		12.7		7.9		
Green Ext Time (p_c), s	0.2	4.3		0.8		5.9		

Intersection Summary	
HCM 2010 Ctrl Delay	21.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	324	0	11	680	25	7	1	3	13	0	38
Future Volume (veh/h)	41	324	0	11	680	25	7	1	3	13	0	38
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		1.00	0.93		0.83	0.89		0.88	0.88		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	41	324	0	11	680	22	7	1	1	13	0	10
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	389	1857	0	600	1823	59	365	51	43	268	15	167
Arrive On Green	1.00	1.00	0.00	0.58	0.58	0.58	0.32	0.32	0.32	0.32	0.00	0.32
Sat Flow, veh/h	652	3269	0	883	3126	101	898	158	132	625	46	516
Grp Volume(v), veh/h	41	324	0	11	346	356	9	0	0	23	0	0
Grp Sat Flow(s),veh/h/ln	652	1593	0	883	1593	1634	1188	0	0	1187	0	0
Q Serve(g_s), s	1.2	0.0	0.0	0.4	9.8	9.9	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.1	0.0	0.0	0.4	9.8	9.9	0.3	0.0	0.0	0.9	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.06	0.78		0.11	0.57		0.43
Lane Grp Cap(c), veh/h	389	1857	0	600	929	953	459	0	0	449	0	0
V/C Ratio(X)	0.11	0.17	0.00	0.02	0.37	0.37	0.02	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	389	1857	0	600	929	953	522	0	0	512	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.00	0.89	0.89	0.89	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.1	0.0	0.0	7.5	9.4	9.5	19.6	0.0	0.0	19.9	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.2	0.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.1	4.6	4.7	0.1	0.0	0.0	0.4	0.0	0.0
LnGrp Delay(d),s/veh	1.5	0.2	0.0	7.5	10.5	10.4	19.6	0.0	0.0	19.9	0.0	0.0
LnGrp LOS	A	A		A	B	B	B			B		
Approach Vol, veh/h		365			713			9			23	
Approach Delay, s/veh		0.3			10.4			19.6			19.9	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		53.6		31.4		53.6		31.4
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		44.5		31.5		44.5		31.5
Max Q Clear Time (g_c+I1), s		13.1		2.9		11.9		2.3
Green Ext Time (p_c), s		5.8		0.1		5.8		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	7.4
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	168	109	453	548	120	53	599	253	9	791	80
Future Volume (veh/h)	56	168	109	453	548	120	53	599	253	9	791	80
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.82	1.00		0.83	0.96		0.78	0.95		0.77
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1676	1676	1710	1676	1710
Adj Flow Rate, veh/h	56	168	99	453	548	102	53	599	183	9	791	66
Adj No. of Lanes	2	2	0	2	2	0	0	3	1	0	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	130	644	337	544	1286	238	113	1066	404	46	1327	109
Arrive On Green	0.04	0.34	0.33	0.18	0.50	0.48	0.66	0.66	0.62	0.33	0.33	0.31
Sat Flow, veh/h	3097	1871	979	3097	2593	479	176	3243	1109	16	4036	330
Grp Volume(v), veh/h	56	140	127	453	335	315	138	514	183	324	272	269
Grp Sat Flow(s),veh/h/ln	1549	1593	1257	1549	1593	1479	642	1388	1109	1646	1388	1348
Q Serve(g_s), s	1.6	5.7	6.7	12.7	12.1	12.4	4.9	9.1	7.9	0.0	14.7	15.1
Cycle Q Clear(g_c), s	1.6	5.7	6.7	12.7	12.1	12.4	20.1	9.1	7.9	14.5	14.7	15.1
Prop In Lane	1.00		0.78	1.00		0.32	0.38		1.00	0.03		0.24
Lane Grp Cap(c), veh/h	130	549	433	544	790	734	266	913	404	582	456	443
V/C Ratio(X)	0.43	0.25	0.29	0.83	0.42	0.43	0.52	0.56	0.45	0.56	0.60	0.61
Avail Cap(c_a), veh/h	379	549	433	551	790	734	281	956	422	607	478	464
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.99	0.91	0.91	0.91	0.99	0.99	0.99	0.57	0.57	0.57
Uniform Delay (d), s/veh	42.1	21.2	22.0	35.8	14.5	14.7	13.1	11.9	11.7	25.1	25.2	25.5
Incr Delay (d2), s/veh	2.2	1.1	1.7	9.6	1.5	1.7	1.5	0.7	0.8	0.6	1.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.7	2.5	6.1	5.6	5.4	1.5	3.4	2.4	6.8	5.8	5.8
LnGrp Delay(d),s/veh	44.3	22.3	23.7	45.4	16.0	16.4	14.7	12.6	12.5	25.7	26.3	26.7
LnGrp LOS	D	C	C	D	B	B	B	B	B	C	C	C
Approach Vol, veh/h		323			1103			835			866	
Approach Delay, s/veh		26.7			28.2			12.9			26.2	
Approach LOS		C			C			B			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		33.6	7.8	48.7		33.6	21.4	35.0				
Change Period (Y+Rc), s		5.6	4.0	5.6		5.6	5.6	* 5.6				
Max Green Setting (Gmax), s		29.4	11.0	34.4		29.4	16.0	* 29				
Max Q Clear Time (g_c+I1), s		22.1	3.6	14.4		17.1	14.7	8.7				
Green Ext Time (p_c), s		5.6	0.1	7.8		8.6	0.4	1.7				
Intersection Summary												
HCM 2010 Ctrl Delay			23.4									
HCM 2010 LOS			C									
Notes												

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	56	414	927	267	104	85
Future Volume (veh/h)	56	414	927	267	104	85
Number	7	4	8	18	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.89	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1676	1676	1676	1710
Adj Flow Rate, veh/h	56	414	927	183	122	0
Adj No. of Lanes	1	2	2	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	358	2688	2688	1058	214	89
Arrive On Green	1.00	1.00	0.28	0.28	0.07	0.00
Sat Flow, veh/h	455	3269	3269	1262	3193	1454
Grp Volume(v), veh/h	56	414	927	183	122	0
Grp Sat Flow(s),veh/h/ln	455	1593	1593	1262	1597	1454
Q Serve(g_s), s	3.6	0.0	20.9	9.9	3.3	0.0
Cycle Q Clear(g_c), s	24.5	0.0	20.9	9.9	3.3	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	358	2688	2688	1058	214	89
V/C Ratio(X)	0.16	0.15	0.34	0.17	0.57	0.00
Avail Cap(c_a), veh/h	358	2688	2688	1058	993	444
HCM Platoon Ratio	2.00	2.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.83	0.83	1.00	0.00
Uniform Delay (d), s/veh	3.4	0.0	12.6	8.8	40.7	0.0
Incr Delay (d2), s/veh	0.9	0.1	0.3	0.3	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	9.4	3.6	1.5	0.0
LnGrp Delay(d),s/veh	4.3	0.1	12.9	9.1	41.6	0.0
LnGrp LOS	A	A	B	A	D	
Approach Vol, veh/h		470	1110		122	
Approach Delay, s/veh		0.6	12.3		41.6	
Approach LOS		A	B		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		10.0		80.0				80.0
Change Period (Y+Rc), s		4.5		4.5				4.5
Max Green Setting (Gmax), s		27.5		53.5				53.5
Max Q Clear Time (g_c+I1), s		5.3		26.5				22.9
Green Ext Time (p_c), s		0.5		10.4				10.8

Intersection Summary	
HCM 2010 Ctrl Delay	11.2
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	461	30	42	1117	13	0	0	0	20	2	49
Future Volume (veh/h)	19	461	30	42	1117	13	0	0	0	20	2	49
Number	3	8	18	7	4	14				5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.88	0.95		0.77				1.00		0.81
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710				1710	1676	1710
Adj Flow Rate, veh/h	19	461	26	42	1117	12				20	2	27
Adj No. of Lanes	1	2	0	1	2	0				0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2				0	2	0
Cap, veh/h	343	1854	104	551	1961	21				159	16	215
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00				0.30	0.30	0.29
Sat Flow, veh/h	431	3041	171	772	3216	35				538	54	726
Grp Volume(v), veh/h	19	240	247	42	553	576				49	0	0
Grp Sat Flow(s),veh/h/ln	431	1593	1619	772	1593	1658				1318	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0				2.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0				2.5	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.02				0.41		0.55
Lane Grp Cap(c), veh/h	343	971	987	551	971	1011				390	0	0
V/C Ratio(X)	0.06	0.25	0.25	0.08	0.57	0.57				0.13	0.00	0.00
Avail Cap(c_a), veh/h	343	971	987	551	971	1011				432	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98	0.84	0.84	0.84				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				23.3	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.6	0.6	0.2	2.0	2.0				0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.2	0.0	0.6	0.6				0.9	0.0	0.0
LnGrp Delay(d),s/veh	0.3	0.6	0.6	0.2	2.0	2.0				23.3	0.0	0.0
LnGrp LOS	A	A	A	A	A	A				C		
Approach Vol, veh/h		506			1171						49	
Approach Delay, s/veh		0.6			1.9						23.3	
Approach LOS		A			A						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		31.1		58.9				58.9
Change Period (Y+Rc), s		5.0		4.5				4.5
Max Green Setting (Gmax), s		29.0		51.5				51.5
Max Q Clear Time (g_c+I1), s		4.5		2.0				2.0
Green Ext Time (p_c), s		0.1		2.5				2.5

Intersection Summary		
HCM 2010 Ctrl Delay		2.2
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	396	27	31	994	28	40	10	8	47	7	108
Future Volume (veh/h)	33	396	27	31	994	28	40	10	8	47	7	108
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.87	0.94		0.84	0.96		0.95	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	33	396	23	31	994	26	40	10	2	47	7	66
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	404	2033	117	624	2114	55	292	66	11	161	38	175
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	484	3033	175	819	3153	82	918	275	48	436	160	728
Grp Volume(v), veh/h	33	207	212	31	502	518	52	0	0	120	0	0
Grp Sat Flow(s),veh/h/ln	484	1593	1615	819	1593	1643	1240	0	0	1323	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	6.5	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.05	0.77		0.04	0.39		0.55
Lane Grp Cap(c), veh/h	404	1068	1083	624	1068	1102	362	0	0	374	0	0
V/C Ratio(X)	0.08	0.19	0.20	0.05	0.47	0.47	0.14	0.00	0.00	0.32	0.00	0.00
Avail Cap(c_a), veh/h	404	1068	1083	624	1068	1102	503	0	0	523	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98	0.78	0.78	0.78	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	27.1	0.0	0.0	28.4	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.4	0.4	0.1	1.2	1.1	0.1	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.1	0.0	0.3	0.3	1.0	0.0	0.0	2.5	0.0	0.0
LnGrp Delay(d),s/veh	0.4	0.4	0.4	0.1	1.2	1.1	27.2	0.0	0.0	28.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C			C		
Approach Vol, veh/h		452			1051			52			120	
Approach Delay, s/veh		0.4			1.1			27.2			28.6	
Approach LOS		A			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		25.7		64.3		25.7		64.3
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		31.5		49.5		31.5		49.5
Max Q Clear Time (g_c+I1), s		8.5		2.0		4.8		2.0
Green Ext Time (p_c), s		0.2		2.3		0.2		2.3

Intersection Summary	
HCM 2010 Ctrl Delay	3.7
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	436	8	29	1050	32	11	2	16	22	1	21
Future Volume (veh/h)	12	436	8	29	1050	32	11	2	16	22	1	21
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.87	0.95		0.82	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	12	436	7	29	1050	30	11	2	5	22	1	7
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	350	1884	30	554	1850	53	311	61	119	364	23	97
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	458	3200	51	805	3141	90	766	191	368	914	72	300
Grp Volume(v), veh/h	12	217	226	29	532	548	18	0	0	30	0	0
Grp Sat Flow(s),veh/h/ln	458	1593	1659	805	1593	1638	1325	0	0	1287	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	1.3	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.05	0.61		0.28	0.73		0.23
Lane Grp Cap(c), veh/h	350	938	977	554	938	964	484	0	0	484	0	0
V/C Ratio(X)	0.03	0.23	0.23	0.05	0.57	0.57	0.04	0.00	0.00	0.06	0.00	0.00
Avail Cap(c_a), veh/h	350	938	977	554	938	964	484	0	0	484	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98	0.76	0.76	0.76	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	21.1	0.0	0.0	21.1	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.6	0.5	0.1	1.9	1.8	0.1	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.1	0.0	0.5	0.5	0.3	0.0	0.0	0.6	0.0	0.0
LnGrp Delay(d),s/veh	0.2	0.6	0.5	0.1	1.9	1.8	21.2	0.0	0.0	21.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C			C		
Approach Vol, veh/h		455			1109			18			30	
Approach Delay, s/veh		0.5			1.8			21.2			21.4	
Approach LOS		A			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		33.0		57.0		33.0		57.0
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		28.5		52.5		28.5		52.5
Max Q Clear Time (g_c+I1), s		3.3		2.0		2.7		2.0
Green Ext Time (p_c), s		0.2		16.6		0.2		16.6

Intersection Summary	
HCM 2010 Ctrl Delay	2.0
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	484	0	1	1095	104	0	0	0	31	0	28
Future Volume (veh/h)	24	484	0	1	1095	104	0	0	0	31	0	28
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	0.97		0.84	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	0	1710	1676	1710	0	1676	0	1710	1676	1710
Adj Flow Rate, veh/h	24	484	0	1	1095	98	0	0	0	31	0	0
Adj No. of Lanes	1	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	0	2	2	2	0	2	0	2	2	2
Cap, veh/h	599	2576	0	40	1329	119	0	162	0	203	0	0
Arrive On Green	0.60	1.00	0.00	0.46	0.47	0.46	0.00	0.00	0.00	0.10	0.00	0.00
Sat Flow, veh/h	1597	3269	0	0	2847	254	0	1676	0	1271	0	0
Grp Volume(v), veh/h	24	484	0	644	0	550	0	0	0	31	0	0
Grp Sat Flow(s),veh/h/ln	1597	1593	0	1676	0	1426	0	1676	0	1271	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	30.1	0.0	0.0	0.0	2.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	30.2	0.0	30.1	0.0	0.0	0.0	2.0	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.18	0.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	599	2576	0	813	0	665	0	162	0	210	0	0
V/C Ratio(X)	0.04	0.19	0.00	0.79	0.00	0.83	0.00	0.00	0.00	0.15	0.00	0.00
Avail Cap(c_a), veh/h	599	2576	0	813	0	665	0	512	0	475	0	0
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.00	0.81	0.00	0.81	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.6	0.0	0.0	20.8	0.0	20.9	0.0	0.0	0.0	37.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	6.4	0.0	9.3	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.0	15.5	0.0	13.5	0.0	0.0	0.0	0.7	0.0	0.0
LnGrp Delay(d),s/veh	9.6	0.2	0.0	27.2	0.0	30.1	0.0	0.0	0.0	37.5	0.0	0.0
LnGrp LOS	A	A		C		C				D		
Approach Vol, veh/h		508			1194			0			31	
Approach Delay, s/veh		0.6			28.6			0.0			37.5	
Approach LOS		A			C						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6		8
Phs Duration (G+Y+Rc), s		13.2	30.8	46.0		13.2		76.8
Change Period (Y+Rc), s		4.5	4.5	* 4.5		4.5		4.5
Max Green Setting (Gmax), s		27.5	8.0	* 42		27.5		53.5
Max Q Clear Time (g_c+I1), s		4.0	2.0	32.2		0.0		2.0
Green Ext Time (p_c), s		0.0	0.5	1.5		0.0		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	20.5
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	359	153	95	791	418	146
Future Volume (veh/h)	359	153	95	791	418	146
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.92	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1710	1676	1676	1676	1676
Adj Flow Rate, veh/h	359	118	95	791	418	44
Adj No. of Lanes	2	0	1	2	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1179	379	125	1990	464	407
Arrive On Green	0.51	0.50	0.16	1.00	0.29	0.29
Sat Flow, veh/h	2403	746	1597	3269	1597	1425
Grp Volume(v), veh/h	244	233	95	791	418	44
Grp Sat Flow(s),veh/h/ln	1593	1473	1597	1593	1597	1425
Q Serve(g_s), s	9.4	9.8	6.0	0.0	26.7	2.4
Cycle Q Clear(g_c), s	9.4	9.8	6.0	0.0	26.7	2.4
Prop In Lane		0.51	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	810	749	125	1990	464	407
V/C Ratio(X)	0.30	0.31	0.76	0.40	0.90	0.11
Avail Cap(c_a), veh/h	810	749	301	1990	603	531
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.93	0.93	1.00	1.00
Uniform Delay (d), s/veh	15.1	15.3	43.7	0.0	36.2	27.9
Incr Delay (d2), s/veh	0.9	1.1	8.4	0.6	12.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	4.2	2.9	0.2	13.3	1.0
LnGrp Delay(d),s/veh	16.1	16.4	52.1	0.6	48.4	28.0
LnGrp LOS	B	B	D	A	D	C
Approach Vol, veh/h	477			886	462	
Approach Delay, s/veh	16.2			6.1	46.4	
Approach LOS	B			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	12.3	58.9				71.2		34.8
Change Period (Y+Rc), s	4.5	5.5				5.5		4.5
Max Green Setting (Gmax), s	19.5	32.5				56.5		39.5
Max Q Clear Time (g_c+I1), s	8.0	11.8				2.0		28.7
Green Ext Time (p_c), s	0.3	8.2				10.6		1.6

Intersection Summary		
HCM 2010 Ctrl Delay		18.9
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	649	285	0	0	0	0	296	199	177	747	0
Future Volume (veh/h)	155	649	285	0	0	0	0	296	199	177	747	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.85				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710				0	1676	1676	1676	1676	0
Adj Flow Rate, veh/h	155	649	221				0	296	0	177	747	0
Adj No. of Lanes	0	3	0				0	2	1	1	2	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	183	812	281				0	1521	674	206	2037	0
Arrive On Green	0.29	0.29	0.28				0.00	0.48	0.00	0.26	1.00	0.00
Sat Flow, veh/h	641	2847	986				0	3269	1425	1597	3269	0
Grp Volume(v), veh/h	398	335	292				0	296	0	177	747	0
Grp Sat Flow(s),veh/h/ln	1644	1526	1305				0	1593	1425	1597	1593	0
Q Serve(g_s), s	24.2	21.3	21.9				0.0	5.7	0.0	11.2	0.0	0.0
Cycle Q Clear(g_c), s	24.2	21.3	21.9				0.0	5.7	0.0	11.2	0.0	0.0
Prop In Lane	0.39		0.76				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	469	435	372				0	1521	674	206	2037	0
V/C Ratio(X)	0.85	0.77	0.79				0.00	0.19	0.00	0.86	0.37	0.00
Avail Cap(c_a), veh/h	566	525	449				0	1521	674	414	2037	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.95	0.00	0.72	0.72	0.00
Uniform Delay (d), s/veh	35.7	34.7	35.1				0.0	16.0	0.0	38.4	0.0	0.0
Incr Delay (d2), s/veh	8.6	4.4	6.0				0.0	0.3	0.0	2.9	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.1	9.5	8.5				0.0	2.5	0.0	5.1	0.1	0.0
LnGrp Delay(d),s/veh	44.3	39.2	41.1				0.0	16.2	0.0	41.4	0.4	0.0
LnGrp LOS	D	D	D					B		D	A	
Approach Vol, veh/h		1025						296			924	
Approach Delay, s/veh		41.7						16.2			8.2	
Approach LOS		D						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	17.2	54.1		34.7		71.3		
Change Period (Y+Rc), s	3.5	4.0		5.0		4.0		
Max Green Setting (Gmax), s	27.5	30.0		36.0		61.0		
Max Q Clear Time (g_c+I1), s	13.2	7.7		26.2		2.0		
Green Ext Time (p_c), s	0.5	5.5		3.6		6.1		

Intersection Summary	
HCM 2010 Ctrl Delay	24.6
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	35	2	44	35	301	0	0	608	38
Future Vol, veh/h	0	0	0	35	2	44	35	301	0	0	608	38
Conflicting Peds, #/hr	1	0	20	20	0	1	71	0	68	68	0	71
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	100	-	0	50	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	35	2	44	35	301	0	0	608	38

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	1018	1088	302	717	0	-	-	-	0
Stage 1	371	371	-	-	-	-	-	-	-
Stage 2	647	717	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1	5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver	263	216	738	884	-	0	0	-	-
Stage 1	698	620	-	-	-	0	0	-	-
Stage 2	521	434	-	-	-	0	0	-	-
Platoon blocked, %					-			-	-
Mov Cap-1 Maneuver	248	0	737	867	-	-	-	-	-
Mov Cap-2 Maneuver	248	0	-	-	-	-	-	-	-
Stage 1	670	0	-	-	-	-	-	-	-
Stage 2	511	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.6	1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	867	-	248	737	-	-
HCM Lane V/C Ratio	0.04	-	0.149	0.06	-	-
HCM Control Delay (s)	9.3	-	22	10.2	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	0.2	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	59	17	0	19
Future Vol, veh/h	0	0	59	17	0	19
Conflicting Peds, #/hr	15	0	0	15	20	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	59	17	0	19

Major/Minor	Major2		Minor2	
Conflicting Flow All	-	0	-	85
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	974
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-		
Mov Cap-1 Maneuver	-	-	-	960
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	SB
HCM Control Delay, s	0	8.8
HCM LOS		A

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	960
HCM Lane V/C Ratio	-	-	0.02
HCM Control Delay (s)	-	-	8.8
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	13	25	206	16	375	0	0	473	11
Future Volume (veh/h)	0	0	0	13	25	206	16	375	0	0	473	11
Number				7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.83	0.93		1.00	1.00		0.82
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1676	1676	1710	1676	0	0	1676	1710
Adj Flow Rate, veh/h				13	25	57	16	375	0	0	473	9
Adj No. of Lanes				0	1	2	0	2	0	0	2	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				99	190	367	102	2160	0	0	2324	44
Arrive On Green				0.18	0.18	0.18	0.72	0.73	0.00	0.00	1.00	1.00
Sat Flow, veh/h				564	1084	2092	77	3034	0	0	3266	60
Grp Volume(v), veh/h				38	0	57	206	185	0	0	236	246
Grp Sat Flow(s),veh/h/ln				1648	0	1046	1585	1449	0	0	1593	1650
Q Serve(g_s), s				1.7	0.0	2.0	0.0	3.3	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				1.7	0.0	2.0	3.2	3.3	0.0	0.0	0.0	0.0
Prop In Lane				0.34		1.00	0.08		0.00	0.00		0.04
Lane Grp Cap(c), veh/h				289	0	367	1184	1058	0	0	1163	1205
V/C Ratio(X)				0.13	0.00	0.16	0.17	0.17	0.00	0.00	0.20	0.20
Avail Cap(c_a), veh/h				543	0	689	1184	1058	0	0	1163	1205
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.98	0.98	0.00	0.00	0.99	0.99
Uniform Delay (d), s/veh				29.6	0.0	29.7	3.5	3.5	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh				0.1	0.0	0.1	0.3	0.4	0.0	0.0	0.4	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.8	0.0	0.6	1.7	1.4	0.0	0.0	0.1	0.1
LnGrp Delay(d),s/veh				29.6	0.0	29.8	3.9	3.9	0.0	0.0	0.4	0.4
LnGrp LOS				C		C	A	A			A	A
Approach Vol, veh/h					95			391			482	
Approach Delay, s/veh					29.7			3.9			0.4	
Approach LOS					C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		66.1		18.9		66.1		
Change Period (Y+Rc), s		5.0		4.5		5.0		
Max Green Setting (Gmax), s		48.0		27.5		48.0		
Max Q Clear Time (g_c+I1), s		5.3		4.0		2.0		
Green Ext Time (p_c), s		4.0		0.4		4.0		

Intersection Summary	
HCM 2010 Ctrl Delay	4.7
HCM 2010 LOS	A

Notes

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	52	16	43	0	0	0	0	304	20	100	444	0
Future Vol, veh/h	52	16	43	0	0	0	0	304	20	100	444	0
Conflicting Peds, #/hr	22	0	30	30	0	22	81	0	97	97	0	81
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	120	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	52	16	43	0	0	0	0	304	20	100	444	0

Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	980	1065	474				-	0	0	421	0	0
Stage 1	644	644	-				-	-	-	-	-	-
Stage 2	336	421	-				-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22				-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-				-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-				-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318				-	-	-	2.218	-	-
Pot Cap-1 Maneuver	229	223	590				0	-	-	1138	-	0
Stage 1	461	468	-				0	-	-	-	-	0
Stage 2	678	589	-				0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	209	203	573				-	-	-	1114	-	-
Mov Cap-2 Maneuver	209	203	-				-	-	-	-	-	-
Stage 1	461	426	-				-	-	-	-	-	-
Stage 2	664	589	-				-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.3	0	1.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	208	446	1114	-
HCM Lane V/C Ratio	-	-	0.288	0.114	0.09	-
HCM Control Delay (s)	-	-	29.2	14.1	8.6	-
HCM Lane LOS	-	-	D	B	A	-
HCM 95th %tile Q(veh)	-	-	1.1	0.4	0.3	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	76	13	23	0	44	0	348	32	40	453	0
Future Volume (veh/h)	5	76	13	23	0	44	0	348	32	40	453	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.90		0.88	0.91		0.88	1.00		0.80	0.89		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1710	1676	1710	0	1676	1710	1710	1676	0
Adj Flow Rate, veh/h	5	76	4	23	0	14	0	348	23	40	453	0
Adj No. of Lanes	1	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	0	2	2	2	2	0
Cap, veh/h	425	428	23	261	16	118	0	1783	117	161	1660	0
Arrive On Green	0.27	0.27	0.27	0.29	0.00	0.27	0.00	1.00	1.00	0.60	0.60	0.00
Sat Flow, veh/h	1134	1566	82	617	56	410	0	3066	195	169	2852	0
Grp Volume(v), veh/h	5	0	80	37	0	0	0	184	187	255	238	0
Grp Sat Flow(s),veh/h/ln	1134	0	1648	1083	0	0	0	1593	1584	1496	1449	0
Q Serve(g_s), s	0.0	0.0	2.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0
Cycle Q Clear(g_c), s	0.2	0.0	2.6	2.7	0.0	0.0	0.0	0.0	0.0	5.0	5.5	0.0
Prop In Lane	1.00		0.05	0.62		0.38	0.00		0.12	0.16		0.00
Lane Grp Cap(c), veh/h	425	0	451	395	0	0	0	952	947	954	867	0
V/C Ratio(X)	0.01	0.00	0.18	0.09	0.00	0.00	0.00	0.19	0.20	0.27	0.27	0.00
Avail Cap(c_a), veh/h	487	0	542	458	0	0	0	952	947	954	867	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.99	0.00	0.00	0.00	0.97	0.97	0.98	0.98	0.00
Uniform Delay (d), s/veh	18.5	0.0	19.4	18.5	0.0	0.0	0.0	0.0	0.0	6.7	6.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.4	0.5	0.7	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	1.2	0.5	0.0	0.0	0.0	0.1	0.1	2.5	2.4	0.0
LnGrp Delay(d),s/veh	18.5	0.0	19.5	18.5	0.0	0.0	0.0	0.4	0.5	7.3	7.5	0.0
LnGrp LOS	B		B	B				A	A	A	A	
Approach Vol, veh/h		85			37			371			493	
Approach Delay, s/veh		19.4			18.5			0.4			7.4	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		45.9		24.1		45.9		24.1
Change Period (Y+Rc), s		5.0		5.5		5.0		5.5
Max Green Setting (Gmax), s		37.0		22.5		37.0		22.5
Max Q Clear Time (g_c+I1), s		2.0		4.6		7.5		4.7
Green Ext Time (p_c), s		4.1		0.4		4.0		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	6.3
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	27	43	10	24	36	40	5	122	4	8	168	28
Future Volume (vph)	27	43	10	24	36	40	5	122	4	8	168	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0			4.0	4.0	
Lane Util. Factor		1.00			0.95		0.95			1.00	0.95	
Frpb, ped/bikes		0.99			1.00		1.00			1.00	1.00	
Flpb, ped/bikes		1.00			0.98		0.99			0.98	1.00	
Frt		0.96			1.00		0.89			1.00	0.98	
Flt Protected		0.99			0.95		0.99			0.95	1.00	
Satd. Flow (prot)		1557			1479		1396			1557	3117	
Flt Permitted		0.90			0.70		0.90			0.61	1.00	
Satd. Flow (perm)		1416			1082		1277			1002	3117	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	27	43	10	24	36	40	5	122	4	8	168	28
RTOR Reduction (vph)	0	17	0	0	0	0	92	0	0	0	12	0
Lane Group Flow (vph)	0	87	0	0	32	0	79	0	0	12	184	0
Confl. Peds. (#/hr)	18			31	31					17		
Confl. Bikes (#/hr)												
Turn Type	Perm	NA			Perm	Perm	NA		Perm	Perm	NA	
Protected Phases		3					3				2	
Permitted Phases	3				3	3			2	2		
Actuated Green, G (s)		18.6			18.6		18.6			37.6	37.6	
Effective Green, g (s)		19.6			19.6		19.6			39.6	39.6	
Actuated g/C Ratio		0.25			0.25		0.25			0.50	0.50	
Clearance Time (s)		5.0			5.0		5.0			6.0	6.0	
Vehicle Extension (s)		2.0			2.0		2.0			2.0	2.0	
Lane Grp Cap (vph)		346			265		312			495	1542	
v/s Ratio Prot											0.06	
v/s Ratio Perm		0.06			0.03		c0.06			0.01		
v/c Ratio		0.25			0.12		0.25			0.02	0.12	
Uniform Delay, d1		24.3			23.5		24.3			10.3	10.8	
Progression Factor		1.00			1.00		1.00			0.83	0.77	
Incremental Delay, d2		0.1			0.1		0.2			0.1	0.2	
Delay (s)		24.4			23.6		24.5			8.6	8.5	
Level of Service		C			C		C			A	A	
Approach Delay (s)		24.4					24.3				8.5	
Approach LOS		C					C				A	

Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2
Lane Configurations								
Traffic Volume (vph)	102	225	138	15	2	39	33	2
Future Volume (vph)	102	225	138	15	2	39	33	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0		
Lane Util. Factor	1.00	0.95	1.00			0.97		
Frpb, ped/bikes	1.00	1.00	0.95			1.00		
Flpb, ped/bikes	0.97	1.00	1.00			0.99		
Frt	1.00	1.00	0.85			0.93		
Flt Protected	0.95	1.00	1.00			0.97		
Satd. Flow (prot)	1546	3185	1360			2908		
Flt Permitted	0.63	1.00	1.00			0.95		
Satd. Flow (perm)	1023	3185	1360			2825		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	102	225	138	15	2	39	33	2
RTOR Reduction (vph)	0	0	11	0	0	0	0	0
Lane Group Flow (vph)	102	225	142	0	0	76	0	0
Confl. Peds. (#/hr)	21			17	17			
Confl. Bikes (#/hr)				10				
Turn Type	Perm	NA	pm+ov		D.Pm	Prot		
Protected Phases		6	4			4		
Permitted Phases	6		6		4			
Actuated Green, G (s)	37.6	37.6	45.4			7.8		
Effective Green, g (s)	39.6	39.6	47.4			8.8		
Actuated g/C Ratio	0.50	0.50	0.59			0.11		
Clearance Time (s)	6.0	6.0	5.0			5.0		
Vehicle Extension (s)	2.0	2.0	2.0			2.0		
Lane Grp Cap (vph)	506	1576	873			310		
v/s Ratio Prot		0.07	0.02					
v/s Ratio Perm	c0.10		0.09			c0.03		
v/c Ratio	0.20	0.14	0.16			0.25		
Uniform Delay, d1	11.3	11.0	7.4			32.6		
Progression Factor	1.00	1.00	1.00			1.00		
Incremental Delay, d2	0.9	0.2	0.0			0.2		
Delay (s)	12.2	11.2	7.4			32.7		
Level of Service	B	B	A			C		
Approach Delay (s)		10.2				32.7		
Approach LOS		B				C		

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	111	22	7	113	110	8	178	24	159	229	67
Future Volume (veh/h)	42	111	22	7	113	110	8	178	24	159	229	67
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.76		0.65	0.75		0.67	0.90		0.90	0.96		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1710	1676	1676	1676	1676	1710	1676	1676	1710
Adj Flow Rate, veh/h	42	111	8	7	113	27	8	178	18	159	229	55
Adj No. of Lanes	1	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	379	524	38	73	574	338	433	523	53	518	642	154
Arrive On Green	0.35	0.35	0.34	0.34	0.35	0.35	0.12	0.12	0.11	0.09	0.51	0.51
Sat Flow, veh/h	854	1484	107	26	1626	957	885	1480	150	1597	1250	300
Grp Volume(v), veh/h	42	0	119	120	0	27	8	0	196	159	0	284
Grp Sat Flow(s),veh/h/ln	854	0	1591	1652	0	957	885	0	1629	1597	0	1550
Q Serve(g_s), s	2.2	0.0	3.1	0.0	0.0	1.1	0.5	0.0	6.6	3.4	0.0	6.6
Cycle Q Clear(g_c), s	5.2	0.0	3.1	3.0	0.0	1.1	0.5	0.0	6.6	3.4	0.0	6.6
Prop In Lane	1.00		0.07	0.06		1.00	1.00		0.09	1.00		0.19
Lane Grp Cap(c), veh/h	379	0	562	633	0	338	433	0	575	518	0	796
V/C Ratio(X)	0.11	0.00	0.21	0.19	0.00	0.08	0.02	0.00	0.34	0.31	0.00	0.36
Avail Cap(c_a), veh/h	391	0	583	655	0	351	433	0	575	555	0	796
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.00	0.98	0.94	0.00	0.94	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.3	0.0	13.6	13.5	0.0	12.9	17.4	0.0	20.1	9.7	0.0	8.7
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	1.6	0.1	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	1.4	1.4	0.0	0.3	0.1	0.0	3.3	1.5	0.0	3.0
LnGrp Delay(d),s/veh	15.4	0.0	13.6	13.6	0.0	12.9	17.4	0.0	21.7	9.9	0.0	10.0
LnGrp LOS	B		B	B		B	B		C	A		A
Approach Vol, veh/h		161			147			204			443	
Approach Delay, s/veh		14.1			13.5			21.5			9.9	
Approach LOS		B			B			C			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.6	25.2		25.2		34.8		25.2				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	6.5	18.5		21.5		29.5		21.5				
Max Q Clear Time (g_c+I1), s	5.4	8.6		7.2		8.6		5.0				
Green Ext Time (p_c), s	0.1	1.6		1.2		2.1		1.3				

Intersection Summary			
HCM 2010 Ctrl Delay			13.7
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	227	60	36	138	76	61	296	53	36	353	48
Future Volume (veh/h)	19	227	60	36	138	76	61	296	53	36	353	48
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.85		0.79	0.88		0.79	1.00		0.84	0.96		0.70
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710	1710	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	19	227	24	36	138	19	61	296	40	36	353	35
Adj No. of Lanes	0	2	0	0	2	0	0	2	0	0	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	95	869	88	193	667	94	75	743	135	208	1874	178
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.18	0.18	0.18	1.00	1.00	1.00
Sat Flow, veh/h	110	2610	265	368	2002	281	8	1344	245	259	3390	322
Grp Volume(v), veh/h	144	0	126	99	0	94	163	0	234	142	140	142
Grp Sat Flow(s),veh/h/ln	1591	0	1394	1264	0	1387	167	0	1430	1280	1388	1303
Q Serve(g_s), s	0.0	0.0	4.7	0.1	0.0	3.4	5.9	0.0	9.9	0.9	0.0	0.0
Cycle Q Clear(g_c), s	4.4	0.0	4.7	4.8	0.0	3.4	5.9	0.0	9.9	10.8	0.0	0.0
Prop In Lane	0.13		0.19	0.36		0.20	0.37		0.17	0.25		0.25
Lane Grp Cap(c), veh/h	588	0	464	491	0	462	0	0	790	772	767	720
V/C Ratio(X)	0.24	0.00	0.27	0.20	0.00	0.20	0.00	0.00	0.30	0.18	0.18	0.20
Avail Cap(c_a), veh/h	635	0	508	530	0	505	0	0	790	772	767	720
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(I)	0.97	0.00	0.97	0.98	0.00	0.98	0.97	0.00	0.97	0.96	0.96	0.96
Uniform Delay (d), s/veh	17.0	0.0	17.2	16.6	0.0	16.7	0.0	0.0	16.9	0.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.9	0.5	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	1.8	1.4	0.0	1.3	0.0	0.0	4.1	0.4	0.1	0.1
LnGrp Delay(d),s/veh	17.1	0.0	17.3	16.6	0.0	16.8	0.0	0.0	17.8	0.8	0.5	0.6
LnGrp LOS	B		B	B		B			B	A	A	A
Approach Vol, veh/h		270			193			397			424	
Approach Delay, s/veh		17.2			16.7			10.5			0.6	
Approach LOS		B			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		43.2		26.8		43.2		26.8
Change Period (Y+Rc), s		5.0		4.0		5.0		4.0
Max Green Setting (Gmax), s		36.0		25.0		27.0		25.0
Max Q Clear Time (g_c+I1), s		11.9		6.7		12.8		6.8
Green Ext Time (p_c), s		3.8		1.9		3.3		1.9

Intersection Summary	
HCM 2010 Ctrl Delay	9.6
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	105	106	0	0	0	0	0	2719	198
Future Volume (veh/h)	0	0	0	105	106	0	0	0	0	0	2719	198
Number				3	8	18				1	6	16
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		0.96
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1676	1676	0				0	1676	1710
Adj Flow Rate, veh/h				105	106	0				0	2719	189
Adj No. of Lanes				1	2	0				0	4	0
Peak Hour Factor				1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %				2	2	0				0	2	2
Cap, veh/h				352	543	0				0	3537	243
Arrive On Green				0.17	0.17	0.00				0.00	0.64	0.62
Sat Flow, veh/h				1597	3269	0				0	5771	381
Grp Volume(v), veh/h				105	106	0				0	2119	789
Grp Sat Flow(s),veh/h/ln				1597	1593	0				0	1442	1592
Q Serve(g_s), s				5.3	2.6	0.0				0.0	31.2	32.2
Cycle Q Clear(g_c), s				5.3	2.6	0.0				0.0	31.2	32.2
Prop In Lane				1.00		0.00				0.00		0.24
Lane Grp Cap(c), veh/h				352	543	0				0	2763	1017
V/C Ratio(X)				0.30	0.20	0.00				0.00	0.77	0.78
Avail Cap(c_a), veh/h				515	867	0				0	2763	1017
HCM Platoon Ratio				1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)				0.92	0.92	0.00				0.00	1.00	1.00
Uniform Delay (d), s/veh				33.1	32.0	0.0				0.0	11.5	11.9
Incr Delay (d2), s/veh				0.2	0.1	0.0				0.0	2.1	5.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.3	1.1	0.0				0.0	12.7	15.5
LnGrp Delay(d),s/veh				33.3	32.1	0.0				0.0	13.6	17.7
LnGrp LOS				C	C						B	B
Approach Vol, veh/h					211						2908	
Approach Delay, s/veh					32.7						14.7	
Approach LOS					C						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs						6		8
Phs Duration (G+Y+Rc), s						61.5		19.3
Change Period (Y+Rc), s						6.0		4.5
Max Green Setting (Gmax), s						55.5		24.0
Max Q Clear Time (g_c+I1), s						34.2		7.3
Green Ext Time (p_c), s						16.5		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	15.9
HCM 2010 LOS	B

Movement	WBT	WBR	WBR2	NBL2	NBL	NBT
Lane Configurations						
Traffic Volume (vph)	101	192	21	110	169	788
Future Volume (vph)	101	192	21	110	169	788
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.91	0.91		0.86	0.81	0.81
Frpb, ped/bikes	0.98	0.96		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00
Frt	0.92	0.85		1.00	1.00	1.00
Flt Protected	1.00	1.00		0.95	0.95	1.00
Satd. Flow (prot)	2761	1246		1370	1290	4070
Flt Permitted	1.00	1.00		0.95	0.95	1.00
Satd. Flow (perm)	2761	1246		1370	1290	4070
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	101	192	21	110	169	788
RTOR Reduction (vph)	0	21	0	0	0	0
Lane Group Flow (vph)	207	86	0	99	163	805
Confl. Peds. (#/hr)		8				
Confl. Bikes (#/hr)		10				
Turn Type	NA	Perm		Split	Split	NA
Protected Phases	8			2	2	2
Permitted Phases		8				
Actuated Green, G (s)	12.0	12.0		68.5	68.5	68.5
Effective Green, g (s)	12.5	12.5		69.5	69.5	69.5
Actuated g/C Ratio	0.14	0.14		0.77	0.77	0.77
Clearance Time (s)	4.5	4.5		5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	383	173		1057	996	3142
v/s Ratio Prot	c0.07			0.07	0.13	c0.20
v/s Ratio Perm		0.07				
v/c Ratio	0.54	0.50		0.09	0.16	0.26
Uniform Delay, d1	36.1	35.9		2.5	2.7	2.9
Progression Factor	1.00	1.00		0.30	0.54	0.24
Incremental Delay, d2	0.8	0.8		0.1	0.3	0.2
Delay (s)	36.9	36.7		0.9	1.8	0.9
Level of Service	D	D		A	A	A
Approach Delay (s)	36.8					1.0
Approach LOS	D					A

Intersection Summary			
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	17	252	3	29	76	0	0	141	58
Future Volume (veh/h)	0	0	0	17	252	3	29	76	0	0	141	58
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.97	0.99		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1676	1676	1710	1710	1676	0	0	1676	1710
Adj Flow Rate, veh/h				17	252	1	29	76	0	0	141	28
Adj No. of Lanes				1	3	0	0	2	0	0	2	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				639	1882	7	384	1022	0	0	1263	244
Arrive On Green				0.40	0.40	0.41	0.48	0.48	0.00	0.00	0.48	0.49
Sat Flow, veh/h				1597	4705	19	629	2220	0	0	2732	512
Grp Volume(v), veh/h				17	163	90	56	49	0	0	83	86
Grp Sat Flow(s),veh/h/ln				1597	1526	1672	1323	1449	0	0	1593	1567
Q Serve(g_s), s				0.4	2.2	2.2	0.0	1.2	0.0	0.0	1.9	2.0
Cycle Q Clear(g_c), s				0.4	2.2	2.2	2.0	1.2	0.0	0.0	1.9	2.0
Prop In Lane				1.00		0.01	0.51		0.00	0.00		0.33
Lane Grp Cap(c), veh/h				639	1220	669	715	691	0	0	760	747
V/C Ratio(X)				0.03	0.13	0.13	0.08	0.07	0.00	0.00	0.11	0.11
Avail Cap(c_a), veh/h				639	1220	669	715	691	0	0	760	747
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				11.8	12.4	12.4	9.2	9.2	0.0	0.0	9.4	9.3
Incr Delay (d2), s/veh				0.1	0.2	0.4	0.2	0.2	0.0	0.0	0.3	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.2	1.0	1.1	0.6	0.5	0.0	0.0	0.9	0.9
LnGrp Delay(d),s/veh				11.9	12.6	12.8	9.4	9.4	0.0	0.0	9.7	9.6
LnGrp LOS				B	B	B	A	A			A	A
Approach Vol, veh/h					270			105			169	
Approach Delay, s/veh					12.6			9.4			9.6	
Approach LOS					B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		35.0				35.0		30.0
Change Period (Y+Rc), s		3.0				3.0		3.5
Max Green Setting (Gmax), s		27.0				32.0		26.5
Max Q Clear Time (g_c+I1), s		4.0				4.0		4.2
Green Ext Time (p_c), s		1.6				1.7		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	11.1
HCM 2010 LOS	B

Notes

Movement	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	NEL2	NEL
Lane Configurations												
Traffic Volume (vph)	43	18	231	54	4	12	77	197	46	23	13	53
Future Volume (vph)	43	18	231	54	4	12	77	197	46	23	13	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0			4.0	4.0	4.0				4.0
Lane Util. Factor			0.95			1.00	1.00	0.95				0.97
Frpb, ped/bikes			0.99			1.00	1.00	0.98				1.00
Flpb, ped/bikes			1.00			0.97	1.00	1.00				1.00
Frt			0.98			1.00	1.00	0.96				1.00
Flt Protected			0.99			0.95	1.00	1.00				0.95
Satd. Flow (prot)			3055			1550	1676	3006				3088
Flt Permitted			0.99			0.59	1.00	1.00				0.95
Satd. Flow (perm)			3055			959	1676	3006				3088
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	43	18	231	54	4	12	77	197	46	23	13	53
RTOR Reduction (vph)	0	0	21	0	0	0	0	7	0	0	0	0
Lane Group Flow (vph)	0	0	325	0	0	16	77	259	0	0	0	68
Confl. Peds. (#/hr)		17		30		24			24			
Confl. Bikes (#/hr)				4					48			
Turn Type	Perm	Perm	NA		Perm	Perm	NA	NA			Perm	Prot
Protected Phases			4				2	6				3
Permitted Phases	4	4			2	2					3	
Actuated Green, G (s)			20.1			38.1	38.1	38.1				5.3
Effective Green, g (s)			21.1			40.6	40.6	40.6				6.3
Actuated g/C Ratio			0.26			0.51	0.51	0.51				0.08
Clearance Time (s)			5.0			6.5	6.5	6.5				5.0
Vehicle Extension (s)			2.0			2.0	2.0	2.0				2.0
Lane Grp Cap (vph)			805			486	850	1525				243
v/s Ratio Prot							0.05	c0.09				
v/s Ratio Perm			0.11			0.02						0.02
v/c Ratio			0.40			0.03	0.09	0.17				0.28
Uniform Delay, d1			24.3			9.9	10.2	10.6				34.7
Progression Factor			1.00			1.00	1.00	0.48				1.00
Incremental Delay, d2			0.1			0.1	0.2	0.2				0.2
Delay (s)			24.4			10.0	10.4	5.3				34.9
Level of Service			C			A	B	A				C
Approach Delay (s)			24.4				10.3	5.3				34.9
Approach LOS			C				B	A				C

Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	NER2
Lane Configurations	
Traffic Volume (vph)	2
Future Volume (vph)	2
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	2
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	24	140	105	100	91	0	0	135	90
Future Volume (veh/h)	0	0	0	24	140	105	100	91	0	0	135	90
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.78	0.96		1.00	1.00		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	0	0	1710	1676	1710	1676	1676	0	0	1676	1710
Adj Flow Rate, veh/h	0	0	0	24	140	28	100	91	0	0	135	64
Adj No. of Lanes	1	0	0	0	2	0	1	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	0	0	2	2	2	2	2	0	0	2	2
Cap, veh/h	0	0	0	133	777	156	545	670	0	0	414	196
Arrive On Green	0.00	0.00	0.00	0.34	0.34	0.33	0.40	0.40	0.00	0.00	0.40	0.34
Sat Flow, veh/h		0		386	2261	454	1023	1676	0	0	1036	491
Grp Volume(v), veh/h		0.0		103	0	89	100	91	0	0	0	199
Grp Sat Flow(s),veh/h/ln				1657	0	1444	1023	1676	0	0	0	1527
Q Serve(g_s), s				1.4	0.0	1.4	2.3	1.1	0.0	0.0	0.0	2.9
Cycle Q Clear(g_c), s				1.4	0.0	1.4	5.2	1.1	0.0	0.0	0.0	2.9
Prop In Lane				0.23		0.31	1.00		0.00	0.00		0.32
Lane Grp Cap(c), veh/h				570	0	496	545	670	0	0	0	610
V/C Ratio(X)				0.18	0.00	0.18	0.18	0.14	0.00	0.00	0.00	0.33
Avail Cap(c_a), veh/h				1091	0	950	1352	1991	0	0	0	1814
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				7.2	0.0	7.2	8.3	5.9	0.0	0.0	0.0	6.7
Incr Delay (d2), s/veh				0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.6	0.0	0.5	0.6	0.5	0.0	0.0	0.0	1.2
LnGrp Delay(d),s/veh				7.2	0.0	7.3	8.3	6.0	0.0	0.0	0.0	6.8
LnGrp LOS				A		A	A	A				A
Approach Vol, veh/h					192			191			199	
Approach Delay, s/veh					7.2			7.2			6.8	
Approach LOS					A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		16.4				16.4		14.7
Change Period (Y+Rc), s		6.0				6.0		4.5
Max Green Setting (Gmax), s		35.0				35.0		20.0
Max Q Clear Time (g_c+I1), s		7.2				4.9		3.4
Green Ext Time (p_c), s		1.9				1.9		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	7.1
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	18	159	51	82	355	0	0	423	27
Future Volume (veh/h)	0	0	0	18	159	51	82	355	0	0	423	27
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.80	0.97		1.00	1.00		0.89
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1676	1710	1710	1676	0	0	1676	1710
Adj Flow Rate, veh/h				18	159	13	82	355	0	0	423	20
Adj No. of Lanes				0	2	0	0	2	0	0	3	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				0	2	0	2	2	0	0	2	2
Cap, veh/h				97	885	75	306	1265	0	0	2486	116
Arrive On Green				0.33	0.33	0.32	1.00	1.00	0.00	0.00	0.74	0.73
Sat Flow, veh/h				298	2704	228	421	2341	0	0	4603	208
Grp Volume(v), veh/h				100	0	90	214	223	0	0	288	155
Grp Sat Flow(s),veh/h/ln				1662	0	1568	1237	1449	0	0	1526	1609
Q Serve(g_s), s				3.0	0.0	2.9	0.0	0.0	0.0	0.0	1.9	2.0
Cycle Q Clear(g_c), s				3.0	0.0	2.9	0.0	0.0	0.0	0.0	1.9	2.0
Prop In Lane				0.18		0.15	0.38		0.00	0.00		0.13
Lane Grp Cap(c), veh/h				544	0	513	762	809	0	0	1704	898
V/C Ratio(X)				0.18	0.00	0.17	0.28	0.28	0.00	0.00	0.17	0.17
Avail Cap(c_a), veh/h				653	0	616	762	809	0	0	1704	898
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.33	1.33
Upstream Filter(I)				1.00	0.00	1.00	0.95	0.95	0.00	0.00	0.99	0.99
Uniform Delay (d), s/veh				16.9	0.0	16.8	0.0	0.0	0.0	0.0	4.2	4.3
Incr Delay (d2), s/veh				0.1	0.0	0.1	0.9	0.8	0.0	0.0	0.2	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.4	0.0	1.2	0.2	0.2	0.0	0.0	0.8	0.9
LnGrp Delay(d),s/veh				16.9	0.0	16.9	0.9	0.8	0.0	0.0	4.4	4.7
LnGrp LOS				B		B	A	A			A	A
Approach Vol, veh/h					190			437			443	
Approach Delay, s/veh					16.9			0.8			4.5	
Approach LOS					B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		43.6				43.6		26.4
Change Period (Y+Rc), s		5.0				5.0		4.0
Max Green Setting (Gmax), s		34.0				34.0		27.0
Max Q Clear Time (g_c+I1), s		2.0				4.0		5.0
Green Ext Time (p_c), s		4.4				4.4		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	5.2
HCM 2010 LOS	A

Movement	EBT	EBR	EBR2	SBL2	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	180	30	64	1317	478	1029
Future Volume (vph)	180	30	64	1317	478	1029
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.91	0.86	0.86
Frpb, ped/bikes	0.99			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.95			1.00	1.00	1.00
Flt Protected	1.00			0.95	0.95	0.99
Satd. Flow (prot)	3001			1449	1370	2857
Flt Permitted	1.00			0.95	0.95	0.99
Satd. Flow (perm)	3001			1449	1370	2857
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	180	30	64	1317	478	1029
RTOR Reduction (vph)	35	0	0	90	72	0
Lane Group Flow (vph)	239	0	0	634	760	1268
Confl. Bikes (#/hr)		5				
Turn Type	NA			Split	Split	NA
Protected Phases	4			6	6	6
Permitted Phases						
Actuated Green, G (s)	12.1			68.4	68.4	68.4
Effective Green, g (s)	12.6			69.4	69.4	69.4
Actuated g/C Ratio	0.14			0.77	0.77	0.77
Clearance Time (s)	4.5			5.0	5.0	5.0
Vehicle Extension (s)	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)	420			1117	1056	2203
v/s Ratio Prot	c0.08			0.44	c0.56	0.44
v/s Ratio Perm						
v/c Ratio	0.57			0.57	0.72	0.58
Uniform Delay, d1	36.2			4.2	5.3	4.2
Progression Factor	1.00			0.31	0.71	0.13
Incremental Delay, d2	1.1			1.5	3.2	0.8
Delay (s)	37.2			2.8	6.9	1.4
Level of Service	D			A	A	A
Approach Delay (s)	37.2					3.4
Approach LOS	D					A

Intersection Summary			
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	234	1263	382	35	451	114
Future Volume (vph)	234	1263	382	35	451	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	0.91	0.91		0.97	
Frpb, ped/bikes	1.00	1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.97	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1593	4577	4512		3033	
Flt Permitted	0.95	1.00	1.00		0.96	
Satd. Flow (perm)	1593	4577	4512		3033	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	234	1263	382	35	451	114
RTOR Reduction (vph)	80	0	14	0	0	0
Lane Group Flow (vph)	154	1263	403	0	565	0
Confl. Peds. (#/hr)				6		
Confl. Bikes (#/hr)						
Turn Type	Split	NA	NA		Prot	
Protected Phases	4	4	2		1	
Permitted Phases						
Actuated Green, G (s)	42.9	42.9	13.4		19.2	
Effective Green, g (s)	43.4	43.4	14.4		20.2	
Actuated g/C Ratio	0.48	0.48	0.16		0.22	
Clearance Time (s)	4.5	4.5	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	768	2207	721		680	
v/s Ratio Prot	0.10	c0.28	c0.09		c0.19	
v/s Ratio Perm						
v/c Ratio	0.20	0.57	0.56		0.83	
Uniform Delay, d1	13.4	16.7	34.9		33.3	
Progression Factor	0.62	0.83	1.00		1.00	
Incremental Delay, d2	0.5	0.8	0.5		8.2	
Delay (s)	8.8	14.7	35.4		41.4	
Level of Service	A	B	D		D	
Approach Delay (s)		13.8	35.4		41.4	
Approach LOS		B	D		D	

Intersection Summary			
HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	459	38	17	258	0	0	0	0	552	430	261
Future Volume (veh/h)	0	459	38	17	258	0	0	0	0	552	430	261
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1710	1676	1676	0				1676	1676	1676
Adj Flow Rate, veh/h	0	459	30	17	258	0				552	430	132
Adj No. of Lanes	0	2	0	1	2	0				2	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1192	78	320	1254	0				1617	849	721
Arrive On Green	0.00	0.39	0.36	0.39	0.39	0.00				0.51	0.51	0.51
Sat Flow, veh/h	0	3111	197	808	3269	0				3193	1676	1425
Grp Volume(v), veh/h	0	241	248	17	258	0				552	430	132
Grp Sat Flow(s),veh/h/ln	0	1593	1632	808	1593	0				1597	1676	1425
Q Serve(g_s), s	0.0	8.6	8.7	1.2	4.3	0.0				8.3	13.6	4.0
Cycle Q Clear(g_c), s	0.0	8.6	8.7	10.0	4.3	0.0				8.3	13.6	4.0
Prop In Lane	0.00		0.12	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	627	643	320	1254	0				1617	849	721
V/C Ratio(X)	0.00	0.38	0.39	0.05	0.21	0.00				0.34	0.51	0.18
Avail Cap(c_a), veh/h	0	627	643	320	1254	0				1617	849	721
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	17.3	17.5	20.9	16.0	0.0				11.8	13.1	10.7
Incr Delay (d2), s/veh	0.0	1.8	1.8	0.3	0.4	0.0				0.6	2.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.1	4.3	0.3	1.9	0.0				3.7	6.7	1.7
LnGrp Delay(d),s/veh	0.0	19.1	19.2	21.2	16.4	0.0				12.4	15.3	11.3
LnGrp LOS		B	B	C	B					B	B	B
Approach Vol, veh/h		489			275						1114	
Approach Delay, s/veh		19.2			16.7						13.4	
Approach LOS		B			B						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				35.5		44.5		35.5
Change Period (Y+Rc), s				6.5		5.5		6.5
Max Green Setting (Gmax), s				29.0		39.0		29.0
Max Q Clear Time (g_c+I1), s				10.7		15.6		12.0
Green Ext Time (p_c), s				4.6		8.5		4.5

Intersection Summary			
HCM 2010 Ctrl Delay			15.4
HCM 2010 LOS			B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	836	0	0	238	448	37	544	91	0	0	0
Future Volume (veh/h)	175	836	0	0	238	448	37	544	91	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1676	1676	0	0	1676	1676	1710	1676	1710			
Adj Flow Rate, veh/h	175	836	0	0	238	248	37	544	65			
Adj No. of Lanes	1	2	0	0	2	2	0	3	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	2	2	0	0	2	2	0	2	0			
Cap, veh/h	230	1823	0	0	1115	850	92	1435	175			
Arrive On Green	0.29	1.00	0.00	0.00	0.35	0.35	0.36	0.36	0.34			
Sat Flow, veh/h	1597	3353	0	0	3269	2428	259	4027	492			
Grp Volume(v), veh/h	175	836	0	0	238	248	238	198	210			
Grp Sat Flow(s),veh/h/ln	1597	1676	0	0	1593	1214	1664	1526	1589			
Q Serve(g_s), s	8.0	0.0	0.0	0.0	4.2	5.9	8.6	7.7	7.9			
Cycle Q Clear(g_c), s	8.0	0.0	0.0	0.0	4.2	5.9	8.6	7.7	7.9			
Prop In Lane	1.00		0.00	0.00		1.00	0.16		0.31			
Lane Grp Cap(c), veh/h	230	1823	0	0	1115	850	593	543	566			
V/C Ratio(X)	0.76	0.46	0.00	0.00	0.21	0.29	0.40	0.36	0.37			
Avail Cap(c_a), veh/h	230	1823	0	0	1115	850	593	543	566			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	27.3	0.0	0.0	0.0	18.3	18.8	19.3	19.1	19.3			
Incr Delay (d2), s/veh	21.0	0.8	0.0	0.0	0.4	0.9	2.0	1.9	1.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.8	0.2	0.0	0.0	1.9	2.1	4.2	3.5	3.8			
LnGrp Delay(d),s/veh	48.3	0.8	0.0	0.0	18.7	19.7	21.4	20.9	21.1			
LnGrp LOS	D	A			B	B	C	C	C			
Approach Vol, veh/h		1011			486			646				
Approach Delay, s/veh		9.0			19.2			21.2				
Approach LOS		A			B			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		32.5		47.5			15.5	32.0				
Change Period (Y+Rc), s		5.5		5.5			3.5	5.5				
Max Green Setting (Gmax), s		27.0		42.0			12.0	26.5				
Max Q Clear Time (g_c+I1), s		10.6		2.0			10.0	7.9				
Green Ext Time (p_c), s		0.8		2.2			0.0	2.1				
Intersection Summary												
HCM 2010 Ctrl Delay			15.0									
HCM 2010 LOS			B									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	529	99	51	348	88	107	343	49	90	345	246
Future Volume (veh/h)	128	529	99	51	348	88	107	343	49	90	345	246
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.91	1.00		0.91	0.99		0.92	0.98		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1676	1676	1676	1676	1676	1676
Adj Flow Rate, veh/h	128	529	99	51	348	88	107	343	24	90	345	121
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	699	130	75	517	128	437	917	719	506	917	734
Arrive On Green	0.10	0.26	0.27	0.02	0.07	0.07	0.73	0.73	0.73	0.55	0.55	0.55
Sat Flow, veh/h	1597	2637	490	1597	2478	613	821	1676	1314	896	1676	1342
Grp Volume(v), veh/h	128	318	310	51	221	215	107	343	24	90	345	121
Grp Sat Flow(s),veh/h/ln	1597	1593	1535	1597	1593	1498	821	1676	1314	896	1676	1342
Q Serve(g_s), s	6.6	15.6	15.8	2.7	11.5	11.9	5.7	6.5	0.4	5.0	10.0	3.8
Cycle Q Clear(g_c), s	6.6	15.6	15.8	2.7	11.5	11.9	15.7	6.5	0.4	11.5	10.0	3.8
Prop In Lane	1.00		0.32	1.00		0.41	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	165	422	407	75	332	313	437	917	719	506	917	734
V/C Ratio(X)	0.78	0.75	0.76	0.68	0.67	0.69	0.24	0.37	0.03	0.18	0.38	0.16
Avail Cap(c_a), veh/h	207	422	407	207	412	388	437	917	719	506	917	734
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	0.16	0.16	0.16	0.94	0.94	0.94	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.1	28.7	28.7	41.2	36.7	36.8	10.0	6.1	5.3	13.3	11.0	9.6
Incr Delay (d2), s/veh	1.7	1.1	1.2	3.7	1.5	2.1	1.3	1.1	0.1	0.8	1.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	6.9	6.8	1.3	5.2	5.1	1.5	3.2	0.2	1.4	4.9	1.5
LnGrp Delay(d),s/veh	38.9	29.8	29.9	44.9	38.2	39.0	11.3	7.3	5.4	14.0	12.2	10.1
LnGrp LOS	D	C	C	D	D	D	B	A	A	B	B	B
Approach Vol, veh/h		756			487			474			556	
Approach Delay, s/veh		31.4			39.2			8.1			12.0	
Approach LOS		C			D			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		50.5	8.0	26.5		50.5	12.8	21.7
Change Period (Y+Rc), s		5.5	4.5	3.5		5.5	4.5	3.5
Max Green Setting (Gmax), s		38.5	10.5	22.5		38.5	10.5	22.5
Max Q Clear Time (g_c+I1), s		17.7	4.7	17.8		13.5	8.6	13.9
Green Ext Time (p_c), s		5.3	0.0	2.1		5.6	0.1	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	23.5
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	178	315	153	49	236	205	134	636	26	149	580	109
Future Volume (veh/h)	178	315	153	49	236	205	134	636	26	149	580	109
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.96	0.99		1.00	0.99		0.91	0.98		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1710	1676	1676	1676	1676	1710	1676	1676	1710
Adj Flow Rate, veh/h	178	315	76	49	236	0	134	636	23	149	580	93
Adj No. of Lanes	1	2	0	0	2	1	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	355	877	208	167	743	494	367	1692	61	455	1475	236
Arrive On Green	0.11	0.11	0.11	0.35	0.35	0.00	1.00	1.00	1.00	0.54	0.54	0.53
Sat Flow, veh/h	1010	2532	600	314	2146	1425	678	3123	113	683	2721	435
Grp Volume(v), veh/h	178	196	195	129	156	0	134	324	335	149	339	334
Grp Sat Flow(s),veh/h/ln	1010	1593	1539	1010	1449	1425	678	1593	1643	683	1593	1563
Q Serve(g_s), s	14.5	9.7	10.0	2.7	6.7	0.0	6.1	0.0	0.0	10.9	10.5	10.7
Cycle Q Clear(g_c), s	21.2	9.7	10.0	12.6	6.7	0.0	16.8	0.0	0.0	10.9	10.5	10.7
Prop In Lane	1.00		0.39	0.38		1.00	1.00		0.07	1.00		0.28
Lane Grp Cap(c), veh/h	355	552	533	408	502	494	367	863	890	455	863	847
V/C Ratio(X)	0.50	0.36	0.37	0.32	0.31	0.00	0.37	0.38	0.38	0.33	0.39	0.39
Avail Cap(c_a), veh/h	403	628	607	468	571	562	367	863	890	455	863	847
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.78	0.78	0.78	0.80	0.80	0.00	0.97	0.97	0.97	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.2	28.9	29.1	21.5	20.4	0.0	1.9	0.0	0.0	11.4	11.3	11.4
Incr Delay (d2), s/veh	0.3	0.1	0.1	0.1	0.1	0.0	2.7	1.2	1.2	1.9	1.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	4.3	4.3	2.4	2.7	0.0	1.4	0.3	0.3	2.3	4.9	4.9
LnGrp Delay(d),s/veh	37.6	29.0	29.2	21.6	20.5	0.0	4.6	1.2	1.2	13.3	12.7	12.8
LnGrp LOS	D	C	C	C	C		A	A	A	B	B	B
Approach Vol, veh/h		569			285			793			822	
Approach Delay, s/veh		31.7			21.0			1.8			12.8	
Approach LOS		C			C			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		51.1		33.9		51.1		33.9
Change Period (Y+Rc), s		6.0		5.5		6.0		5.5
Max Green Setting (Gmax), s		41.0		32.5		41.0		32.5
Max Q Clear Time (g_c+I1), s		18.8		23.2		12.9		14.6
Green Ext Time (p_c), s		9.6		2.8		10.5		3.7

Intersection Summary	
HCM 2010 Ctrl Delay	14.6
HCM 2010 LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	31	465	26	18	466
Future Volume (veh/h)	12	31	465	26	18	466
Number	7	14	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.91	0.98	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1676	1676	1676	1676
Adj Flow Rate, veh/h	12	1	465	23	18	466
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	34	22	1512	1159	806	1512
Arrive On Green	0.02	0.02	1.00	1.00	1.00	1.00
Sat Flow, veh/h	1597	1425	1676	1293	800	1676
Grp Volume(v), veh/h	12	1	465	23	18	466
Grp Sat Flow(s),veh/h/ln	1597	1425	1676	1293	800	1676
Q Serve(g_s), s	0.6	0.1	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.6	0.1	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	34	22	1512	1159	806	1512
V/C Ratio(X)	0.35	0.05	0.31	0.02	0.02	0.31
Avail Cap(c_a), veh/h	432	377	1512	1159	806	1512
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.33	1.33
Upstream Filter(I)	1.00	1.00	0.94	0.94	0.92	0.92
Uniform Delay (d), s/veh	41.0	41.2	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.3	0.5	0.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.2	0.0	0.0	0.2
LnGrp Delay(d),s/veh	43.3	41.5	0.5	0.0	0.0	0.5
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	13		488			484
Approach Delay, s/veh	43.1		0.5			0.5
Approach LOS	D		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		79.7		5.3		79.7		
Change Period (Y+Rc), s		3.5		4.0		3.5		
Max Green Setting (Gmax), s		55.0		22.5		55.0		
Max Q Clear Time (g_c+I1), s		2.0		2.6		2.0		
Green Ext Time (p_c), s		2.6		0.0		2.6		

Intersection Summary		
HCM 2010 Ctrl Delay		1.0
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	10	21	0	0	0	33	786	20	30	737	24
Future Volume (veh/h)	6	10	21	0	0	0	33	786	20	30	737	24
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93				0.98		0.89	0.98		0.92
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710				1676	1676	1710	1676	1676	1710
Adj Flow Rate, veh/h	6	10	1				33	786	19	30	737	23
Adj No. of Lanes	0	1	0				1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	0				2	2	2	2	2	2
Cap, veh/h	52	87	9				580	2526	61	560	2506	78
Arrive On Green	0.09	0.09	0.08				1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	573	955	95				621	3167	77	596	3143	98
Grp Volume(v), veh/h	17	0	0				33	395	410	30	373	387
Grp Sat Flow(s),veh/h/ln	1623	0	0				621	1593	1651	596	1593	1649
Q Serve(g_s), s	0.8	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.8	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.35		0.06				1.00		0.05	1.00		0.06
Lane Grp Cap(c), veh/h	147	0	0				580	1270	1317	560	1270	1315
V/C Ratio(X)	0.12	0.00	0.00				0.06	0.31	0.31	0.05	0.29	0.29
Avail Cap(c_a), veh/h	706	0	0				580	1270	1317	560	1270	1315
HCM Platoon Ratio	1.00	1.00	1.00				1.33	1.33	1.33	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00				0.94	0.94	0.94	0.92	0.92	0.92
Uniform Delay (d), s/veh	35.5	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0				0.2	0.6	0.6	0.2	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0				0.0	0.2	0.2	0.0	0.2	0.2
LnGrp Delay(d),s/veh	35.6	0.0	0.0				0.2	0.6	0.6	0.2	0.5	0.5
LnGrp LOS	D						A	A	A	A	A	A
Approach Vol, veh/h		17						838			790	
Approach Delay, s/veh		35.6						0.6			0.5	
Approach LOS		D						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		72.3		12.7		72.3		
Change Period (Y+Rc), s		5.0		5.5		5.0		
Max Green Setting (Gmax), s		38.0		36.5		38.0		
Max Q Clear Time (g_c+I1), s		2.0		2.8		2.0		
Green Ext Time (p_c), s		4.9		0.0		4.9		

Intersection Summary		
HCM 2010 Ctrl Delay		0.9
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	21	21	0	0	151	21	675	17	235	513	27
Future Volume (vph)	0	21	21	0	0	151	21	675	17	235	513	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.5				4.0		4.5		1.5	4.5	
Lane Util. Factor		1.00				1.00		0.95		1.00	0.95	
Frpb, ped/bikes		0.91				1.00		0.99		1.00	0.99	
Flpb, ped/bikes		1.00				1.00		1.00		1.00	1.00	
Frt		0.93				0.86		1.00		1.00	0.99	
Flt Protected		1.00				1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1416				1450		3143		1593	3126	
Flt Permitted		1.00				1.00		0.93		0.95	1.00	
Satd. Flow (perm)		1416				1450		2936		1593	3126	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	21	21	0	0	151	21	675	17	235	513	27
RTOR Reduction (vph)	0	20	0	0	0	114	0	2	0	0	4	0
Lane Group Flow (vph)	0	22	0	0	0	37	0	711	0	235	536	0
Confl. Peds. (#/hr)	1		34	34		1	102		92			102
Confl. Bikes (#/hr)			2						81			20
Turn Type		NA				Prot	Perm	NA		Prot	NA	
Protected Phases		4				8		2		3	6	
Permitted Phases							2					
Actuated Green, G (s)		3.7				20.3		55.2		16.1	55.2	
Effective Green, g (s)		4.2				20.8		55.7		16.6	55.7	
Actuated g/C Ratio		0.05				0.24		0.66		0.20	0.66	
Clearance Time (s)		3.0				4.5		5.0		2.0	5.0	
Vehicle Extension (s)		2.0				2.0		2.0		2.0	2.0	
Lane Grp Cap (vph)		69				354		1923		311	2048	
v/s Ratio Prot		c0.02				0.03				c0.15	0.17	
v/s Ratio Perm								c0.24				
v/c Ratio		0.32				0.10		0.37		0.76	0.26	
Uniform Delay, d1		39.0				24.9		6.7		32.3	6.1	
Progression Factor		1.00				1.00		0.50		0.98	0.64	
Incremental Delay, d2		1.0				0.0		0.5		8.8	0.3	
Delay (s)		40.0				24.9		3.8		40.4	4.2	
Level of Service		D				C		A		D	A	
Approach Delay (s)		40.0			24.9			3.8			15.2	
Approach LOS		D			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	22	22	469	426	12
Future Volume (veh/h)	16	22	22	469	426	12
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	0.96			0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1676	1676	1676	1710
Adj Flow Rate, veh/h	16	4	22	469	426	11
Adj No. of Lanes	1	1	1	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	45	32	820	1501	1452	37
Arrive On Green	0.03	0.02	1.00	1.00	1.00	1.00
Sat Flow, veh/h	1597	1425	821	1676	1622	42
Grp Volume(v), veh/h	16	4	22	469	0	437
Grp Sat Flow(s),veh/h/ln	1597	1425	821	1676	0	1663
Q Serve(g_s), s	0.8	0.2	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.8	0.2	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00	1.00			0.03
Lane Grp Cap(c), veh/h	45	32	820	1501	0	1490
V/C Ratio(X)	0.36	0.13	0.03	0.31	0.00	0.29
Avail Cap(c_a), veh/h	451	394	820	1501	0	1490
HCM Platoon Ratio	1.00	1.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.91	0.91	0.00	0.96
Uniform Delay (d), s/veh	40.6	40.8	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.7	0.1	0.5	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.1	0.0	0.2	0.0	0.2
LnGrp Delay(d),s/veh	42.3	41.4	0.1	0.5	0.0	0.5
LnGrp LOS	D	D	A	A		A
Approach Vol, veh/h	20			491	437	
Approach Delay, s/veh	42.2			0.5	0.5	
Approach LOS	D			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		79.1		5.9		79.1		
Change Period (Y+Rc), s		3.5		4.0		3.5		
Max Green Setting (Gmax), s		54.0		23.5		54.0		
Max Q Clear Time (g_c+I1), s		2.0		2.8		2.0		
Green Ext Time (p_c), s		2.4		0.0		2.4		

Intersection Summary	
HCM 2010 Ctrl Delay	1.4
HCM 2010 LOS	A

Movement	EBU	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	13	236	366	87	24	58	19	156	183	255	816	103
Future Volume (vph)	13	236	366	87	24	58	19	156	183	255	816	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0			4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00	0.95	1.00			1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes		1.00	1.00	0.79			1.00	1.00	0.79	1.00	0.96	
Flpb, ped/bikes		1.00	1.00	1.00			1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85			1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.95	1.00	1.00			0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1593	3185	1121			1593	1676	1133	3090	3021	
Flt Permitted		0.95	1.00	1.00			0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1593	3185	1121			1593	1676	1133	3090	3021	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	13	236	366	87	24	58	19	156	183	255	816	103
RTOR Reduction (vph)	0	0	0	94	0	0	0	0	140	0	7	0
Lane Group Flow (vph)	0	249	366	17	0	0	77	156	43	255	912	0
Confl. Peds. (#/hr)				56					75			164
Confl. Bikes (#/hr)				44					18			25
Turn Type	Prot	Prot	NA	Perm		Prot	Prot	NA	Perm	Prot	NA	
Protected Phases	7	7	4			3	3	8		5	2	
Permitted Phases				4					8			
Actuated Green, G (s)		23.2	20.2	20.2			7.0	32.2	32.2	16.3	51.8	
Effective Green, g (s)		24.2	21.2	21.2			8.0	33.2	33.2	17.3	52.8	
Actuated g/C Ratio		0.17	0.15	0.15			0.06	0.24	0.24	0.12	0.38	
Clearance Time (s)		5.0	5.0	5.0			5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0			3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		275	482	169			91	397	268	381	1139	
v/s Ratio Prot		c0.16	c0.11				c0.05	0.09		0.08	c0.30	
v/s Ratio Perm				0.01					0.04			
v/c Ratio		0.91	0.76	0.10			0.85	0.39	0.16	0.67	0.80	
Uniform Delay, d1		56.8	57.0	51.2			65.4	44.9	42.4	58.6	38.9	
Progression Factor		1.00	1.00	1.00			1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		30.6	6.8	0.3			47.9	0.6	0.3	4.4	6.0	
Delay (s)		87.4	63.7	51.4			113.2	45.6	42.6	63.0	44.9	
Level of Service		F	E	D			F	D	D	E	D	
Approach Delay (s)			70.0					56.8			48.8	
Approach LOS			E					E			D	

Intersection Summary			
HCM 2000 Control Delay	55.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	131	336	46	71
Future Volume (vph)	131	336	46	71
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	0.94		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.96		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1593	2881		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1593	2881		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00
Adj. Flow (vph)	131	336	46	71
RTOR Reduction (vph)	0	10	0	0
Lane Group Flow (vph)	131	443	0	0
Confl. Peds. (#/hr)				104
Confl. Bikes (#/hr)			44	44
Turn Type	Prot	NA		
Protected Phases	1	6		
Permitted Phases				
Actuated Green, G (s)	12.8	48.3		
Effective Green, g (s)	13.8	49.3		
Actuated g/C Ratio	0.10	0.35		
Clearance Time (s)	5.0	5.0		
Vehicle Extension (s)	3.0	3.0		
Lane Grp Cap (vph)	157	1014		
v/s Ratio Prot	c0.08	0.15		
v/s Ratio Perm				
v/c Ratio	0.83	0.44		
Uniform Delay, d1	62.0	34.7		
Progression Factor	1.00	1.00		
Incremental Delay, d2	30.0	1.4		
Delay (s)	92.0	36.1		
Level of Service	F	D		
Approach Delay (s)		48.6		
Approach LOS		D		

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	175	793	600	316	204	95
Future Volume (veh/h)	175	793	600	316	204	95
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.90	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1676	1710	1676	1676
Adj Flow Rate, veh/h	175	793	600	261	204	17
Adj No. of Lanes	1	2	2	0	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	518	2457	834	362	430	192
Arrive On Green	0.65	1.00	0.80	0.79	0.13	0.13
Sat Flow, veh/h	1597	3269	2168	905	3193	1425
Grp Volume(v), veh/h	175	793	458	403	204	17
Grp Sat Flow(s),veh/h/ln	1597	1593	1593	1397	1597	1425
Q Serve(g_s), s	4.2	0.0	11.5	11.9	5.0	0.9
Cycle Q Clear(g_c), s	4.2	0.0	11.5	11.9	5.0	0.9
Prop In Lane	1.00			0.65	1.00	1.00
Lane Grp Cap(c), veh/h	518	2457	637	559	430	192
V/C Ratio(X)	0.34	0.32	0.72	0.72	0.47	0.09
Avail Cap(c_a), veh/h	518	2457	637	559	1052	469
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.64	0.64	0.86	0.86	1.00	1.00
Uniform Delay (d), s/veh	10.8	0.0	6.3	6.5	34.0	32.2
Incr Delay (d2), s/veh	0.1	0.2	5.9	6.8	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.1	5.8	5.2	2.2	0.7
LnGrp Delay(d),s/veh	10.9	0.2	12.2	13.3	34.3	32.3
LnGrp LOS	B	A	B	B	C	C
Approach Vol, veh/h		968	861		221	
Approach Delay, s/veh		2.2	12.7		34.1	
Approach LOS		A	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		69.6		15.4	31.6	38.0		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		48.5		27.5	10.5	33.5		
Max Q Clear Time (g_c+I1), s		2.0		7.0	6.2	13.9		
Green Ext Time (p_c), s		5.5		0.9	2.0	4.1		

Intersection Summary	
HCM 2010 Ctrl Delay	10.0
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	763	160	53	477	62	290	336	119	87	291	90
Future Volume (veh/h)	117	763	160	53	477	62	290	336	119	87	291	90
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.88	1.00		0.88	0.95		0.89	0.94		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1676	1676	1676	1676	1676	1676
Adj Flow Rate, veh/h	117	763	160	53	477	62	290	336	98	87	291	67
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	236	916	192	138	1001	129	543	917	692	372	598	442
Arrive On Green	0.48	0.48	0.47	0.12	0.12	0.12	0.14	0.55	0.55	0.71	0.71	0.71
Sat Flow, veh/h	763	2553	535	543	2790	360	1597	1676	1264	806	1676	1240
Grp Volume(v), veh/h	117	476	447	53	271	268	290	336	98	87	291	67
Grp Sat Flow(s),veh/h/ln	763	1593	1496	543	1593	1557	1597	1676	1264	806	1676	1240
Q Serve(g_s), s	12.1	22.0	22.1	8.3	13.5	13.7	9.3	9.7	3.2	3.4	6.5	1.5
Cycle Q Clear(g_c), s	25.8	22.0	22.1	30.4	13.5	13.7	9.3	9.7	3.2	3.4	6.5	1.5
Prop In Lane	1.00		0.36	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	236	571	537	138	571	559	543	917	692	372	598	442
V/C Ratio(X)	0.50	0.83	0.83	0.38	0.47	0.48	0.53	0.37	0.14	0.23	0.49	0.15
Avail Cap(c_a), veh/h	236	571	537	138	571	559	596	917	692	372	598	442
HCM Platoon Ratio	1.33	1.33	1.33	0.33	0.33	0.33	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.94	0.94	0.94	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	27.3	20.0	20.1	48.4	30.0	30.1	13.3	10.9	9.5	8.3	8.8	8.0
Incr Delay (d2), s/veh	0.6	9.1	9.7	0.6	0.2	0.2	0.3	1.1	0.4	1.4	2.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	10.9	10.4	1.3	6.0	6.0	4.1	4.7	1.2	0.8	3.3	0.6
LnGrp Delay(d),s/veh	27.9	29.1	29.8	49.1	30.2	30.3	13.6	12.0	9.9	9.7	11.4	8.7
LnGrp LOS	C	C	C	D	C	C	B	B	A	A	B	A
Approach Vol, veh/h		1040			592			724			445	
Approach Delay, s/veh		29.3			31.9			12.4			10.7	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		50.5		34.5	16.2	34.3		34.5
Change Period (Y+Rc), s		6.0		4.5	4.5	6.0		4.5
Max Green Setting (Gmax), s		44.5		30.0	14.5	25.5		30.0
Max Q Clear Time (g_c+I1), s		11.7		27.8	11.3	8.5		32.4
Green Ext Time (p_c), s		4.7		1.5	0.4	4.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	22.5
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	884	25	17	627	29	10	3	12	15	1	35
Future Vol, veh/h	39	884	25	17	627	29	10	3	12	15	1	35
Conflicting Peds, #/hr	54	0	57	57	0	54	30	0	30	30	0	30
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	39	884	25	17	627	29	10	3	12	15	1	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	710	0	0	966	0	0	1410	1776	542	1282	1774	412
Stage 1	-	-	-	-	-	-	1032	1032	-	730	730	-
Stage 2	-	-	-	-	-	-	378	744	-	552	1044	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	885	-	-	709	-	-	98	82	485	122	82	589
Stage 1	-	-	-	-	-	-	249	308	-	380	426	-
Stage 2	-	-	-	-	-	-	616	420	-	486	304	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	860	-	-	689	-	-	75	64	446	95	64	543
Mov Cap-2 Maneuver	-	-	-	-	-	-	75	64	-	95	64	-
Stage 1	-	-	-	-	-	-	214	264	-	327	388	-
Stage 2	-	-	-	-	-	-	537	383	-	412	261	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.4	42.3	27
HCM LOS			E	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	121	860	-	-	689	-	-	214
HCM Lane V/C Ratio	0.207	0.045	-	-	0.025	-	-	0.238
HCM Control Delay (s)	42.3	9.4	0.4	-	10.4	0.2	-	27
HCM Lane LOS	E	A	A	-	B	A	-	D
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0.1	-	-	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	698	96	63	347	53	192	650	192	91	337	140
Future Volume (veh/h)	126	698	96	63	347	53	192	650	192	91	337	140
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.94		0.86	0.98		0.86	0.95		0.81	0.95		0.84
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1710	1676	1710	1676	1676	1676	1676	1676	1710
Adj Flow Rate, veh/h	126	698	82	63	347	40	192	650	171	91	337	94
Adj No. of Lanes	1	2	0	0	2	0	1	2	1	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	347	1062	125	114	669	87	447	1684	613	386	1255	339
Arrive On Green	0.38	0.38	0.37	0.75	0.75	0.74	1.00	1.00	1.00	0.53	0.53	0.52
Sat Flow, veh/h	842	2818	330	155	1775	231	811	3185	1158	570	2373	641
Grp Volume(v), veh/h	126	394	386	200	0	250	192	650	171	91	223	208
Grp Sat Flow(s),veh/h/ln	842	1593	1555	718	0	1442	811	1593	1158	570	1593	1421
Q Serve(g_s), s	10.3	17.4	17.5	7.7	0.0	5.6	5.6	0.0	0.0	7.6	6.5	6.9
Cycle Q Clear(g_c), s	15.9	17.4	17.5	25.2	0.0	5.6	12.6	0.0	0.0	7.6	6.5	6.9
Prop In Lane	1.00		0.21	0.32		0.16	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	347	601	586	326	0	544	447	1684	613	386	842	752
V/C Ratio(X)	0.36	0.66	0.66	0.61	0.00	0.46	0.43	0.39	0.28	0.24	0.26	0.28
Avail Cap(c_a), veh/h	386	675	659	376	0	611	447	1684	613	386	842	752
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.00	0.99	0.90	0.90	0.90	0.98	0.98	0.98
Uniform Delay (d), s/veh	23.7	21.9	22.0	10.1	0.0	7.3	1.0	0.0	0.0	11.2	11.0	11.2
Incr Delay (d2), s/veh	0.2	1.3	1.4	1.2	0.0	0.2	2.7	0.6	1.0	1.4	0.7	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	7.9	7.7	2.2	0.0	2.2	1.4	0.1	0.2	1.3	3.0	2.9
LnGrp Delay(d),s/veh	23.9	23.2	23.4	11.3	0.0	7.5	3.7	0.6	1.0	12.6	11.7	12.1
LnGrp LOS	C	C	C	B		A	A	A	A	B	B	B
Approach Vol, veh/h		906			450			1013			522	
Approach Delay, s/veh		23.4			9.2			1.3			12.0	
Approach LOS		C			A			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		49.0		36.0		49.0		36.0
Change Period (Y+Rc), s		5.0		4.5		5.0		4.5
Max Green Setting (Gmax), s		40.0		35.5		40.0		35.5
Max Q Clear Time (g_c+I1), s		14.6		19.5		9.6		27.2
Green Ext Time (p_c), s		10.3		6.4		11.0		4.3

Intersection Summary	
HCM 2010 Ctrl Delay	11.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	746	181	106	379	31	0	0	0	73	203	80
Future Volume (veh/h)	35	746	181	106	379	31	0	0	0	73	203	80
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	0.93		0.86	1.00		0.88				1.00		0.73
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710	1676	1676	1710				1710	1676	1710
Adj Flow Rate, veh/h	35	746	160	106	379	24				73	203	67
Adj No. of Lanes	0	2	0	1	2	0				0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2				0	2	0
Cap, veh/h	76	1145	242	147	1869	118				90	251	83
Arrive On Green	0.96	0.96	0.93	0.09	0.62	0.60				0.29	0.29	0.29
Sat Flow, veh/h	64	2382	502	1597	3015	190				316	878	290
Grp Volume(v), veh/h	515	0	426	106	199	204				343	0	0
Grp Sat Flow(s),veh/h/ln	1610	0	1339	1597	1593	1612				1483	0	0
Q Serve(g_s), s	0.0	0.0	3.8	5.5	4.6	4.7				18.3	0.0	0.0
Cycle Q Clear(g_c), s	2.6	0.0	3.8	5.5	4.6	4.7				18.3	0.0	0.0
Prop In Lane	0.07		0.38	1.00		0.12				0.21		0.20
Lane Grp Cap(c), veh/h	819	0	644	147	987	1000				424	0	0
V/C Ratio(X)	0.63	0.00	0.66	0.72	0.20	0.20				0.81	0.00	0.00
Avail Cap(c_a), veh/h	819	0	644	225	987	1000				454	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.75	0.00	0.75	0.98	0.98	0.98				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.9	0.0	1.2	37.5	7.0	7.1				28.1	0.0	0.0
Incr Delay (d2), s/veh	2.7	0.0	4.0	2.4	0.4	0.5				9.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	1.7	2.5	2.1	2.2				8.5	0.0	0.0
LnGrp Delay(d),s/veh	3.7	0.0	5.3	39.9	7.5	7.5				37.1	0.0	0.0
LnGrp LOS	A		A	D	A	A				D		
Approach Vol, veh/h		941			509						343	
Approach Delay, s/veh		4.4			14.2						37.1	
Approach LOS		A			B						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.8	44.9		28.3		56.7		
Change Period (Y+Rc), s	4.5	5.5		3.5		5.5		
Max Green Setting (Gmax), s	11.5	33.5		26.5		49.5		
Max Q Clear Time (g_c+I1), s	7.5	5.8		20.3		6.7		
Green Ext Time (p_c), s	0.1	3.9		0.5		3.9		

Intersection Summary	
HCM 2010 Ctrl Delay	13.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	807	5	5	442	23	3	2	4	78	0	59
Future Volume (veh/h)	33	807	5	5	442	23	3	2	4	78	0	59
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		0.84	0.97		0.86	0.90		0.87	0.89		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	33	807	5	5	442	20	3	2	1	78	0	20
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	491	1884	12	376	1789	81	262	163	72	367	8	77
Arrive On Green	0.77	0.77	0.77	0.58	0.58	0.58	0.32	0.32	0.32	0.32	0.00	0.32
Sat Flow, veh/h	795	3241	20	586	3078	139	611	503	223	897	23	236
Grp Volume(v), veh/h	33	397	415	5	228	234	6	0	0	98	0	0
Grp Sat Flow(s),veh/h/ln	795	1593	1668	586	1593	1624	1338	0	0	1156	0	0
Q Serve(g_s), s	1.2	7.2	7.2	0.4	5.9	6.0	0.0	0.0	0.0	4.6	0.0	0.0
Cycle Q Clear(g_c), s	7.2	7.2	7.2	7.6	5.9	6.0	0.2	0.0	0.0	5.2	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.09	0.50		0.17	0.80		0.20
Lane Grp Cap(c), veh/h	491	926	970	376	926	944	498	0	0	451	0	0
V/C Ratio(X)	0.07	0.43	0.43	0.01	0.25	0.25	0.01	0.00	0.00	0.22	0.00	0.00
Avail Cap(c_a), veh/h	491	926	970	376	926	944	625	0	0	565	0	0
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.63	0.94	0.94	0.94	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.9	4.9	4.9	10.9	8.7	8.7	19.5	0.0	0.0	21.1	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.9	0.9	0.1	0.6	0.6	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.3	3.4	0.1	2.7	2.8	0.1	0.0	0.0	1.7	0.0	0.0
LnGrp Delay(d),s/veh	6.0	5.8	5.7	10.9	9.3	9.3	19.5	0.0	0.0	21.2	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	B			C		
Approach Vol, veh/h		845			467			6			98	
Approach Delay, s/veh		5.8			9.3			19.5			21.2	
Approach LOS		A			A			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		53.4		31.6		53.4		31.6
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		40.5		35.5		40.5		35.5
Max Q Clear Time (g_c+I1), s		9.2		7.2		9.6		2.2
Green Ext Time (p_c), s		6.8		0.4		6.8		0.5

Intersection Summary			
HCM 2010 Ctrl Delay			8.1
HCM 2010 LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	636	129	232	343	22	14	1038	694	2	394	97
Future Volume (veh/h)	126	636	129	232	343	22	14	1038	694	2	394	97
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.76	1.00		0.81	0.96		0.91	0.99		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1676	1676	1710	1676	1710
Adj Flow Rate, veh/h	126	636	114	232	343	18	14	1038	666	2	394	58
Adj No. of Lanes	2	2	0	2	2	0	0	3	1	0	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	183	745	133	293	1036	54	46	2160	699	35	1887	265
Arrive On Green	0.06	0.29	0.28	0.09	0.34	0.33	0.98	0.98	0.95	0.49	0.49	0.48
Sat Flow, veh/h	3097	2560	457	3097	3039	158	25	4401	1290	3	3844	539
Grp Volume(v), veh/h	126	395	355	232	178	183	393	659	666	169	141	144
Grp Sat Flow(s),veh/h/ln	1549	1593	1424	1549	1593	1605	1649	1388	1290	1658	1388	1340
Q Serve(g_s), s	4.4	25.7	26.0	8.1	9.1	9.3	0.0	0.9	52.4	0.0	6.3	6.8
Cycle Q Clear(g_c), s	4.4	25.7	26.0	8.1	9.1	9.3	0.9	0.9	52.4	6.3	6.3	6.8
Prop In Lane	1.00		0.32	1.00		0.10	0.04		1.00	0.01		0.40
Lane Grp Cap(c), veh/h	183	463	414	293	543	547	843	1363	699	847	682	658
V/C Ratio(X)	0.69	0.85	0.86	0.79	0.33	0.33	0.47	0.48	0.95	0.20	0.21	0.22
Avail Cap(c_a), veh/h	310	463	414	338	543	547	843	1363	699	847	682	658
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.91	0.99	0.99	0.99	0.92	0.92	0.92	0.91	0.91	0.91
Uniform Delay (d), s/veh	50.8	36.8	37.1	48.7	26.9	27.0	0.5	0.5	4.2	15.9	15.9	16.2
Incr Delay (d2), s/veh	4.2	16.3	18.6	10.6	1.6	1.6	0.4	0.2	21.8	0.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	13.4	12.3	3.9	4.3	4.4	0.3	0.2	24.5	2.9	2.4	2.5
LnGrp Delay(d),s/veh	54.9	53.1	55.7	59.3	28.5	28.6	0.9	0.8	26.0	16.0	16.0	16.3
LnGrp LOS	D	D	E	E	C	C	A	A	C	B	B	B
Approach Vol, veh/h		876			593			1718			454	
Approach Delay, s/veh		54.4			40.6			10.6			16.1	
Approach LOS		D			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		58.0	10.5	41.5		58.0	16.0	36.0
Change Period (Y+Rc), s		5.6	4.0	5.6		5.6	5.6	* 5.6
Max Green Setting (Gmax), s		52.4	11.0	31.4		52.4	12.0	* 30
Max Q Clear Time (g_c+I1), s		54.4	6.4	11.3		8.8	10.1	28.0
Green Ext Time (p_c), s		0.0	0.2	3.8		26.3	0.3	1.2

Intersection Summary		
HCM 2010 Ctrl Delay		26.7
HCM 2010 LOS		C

Notes

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	162	1259	463	229	294	85
Future Volume (veh/h)	162	1259	463	229	294	85
Number	7	4	8	18	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97			0.90	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1676	1676	1676	1710
Adj Flow Rate, veh/h	162	1259	463	155	343	0
Adj No. of Lanes	1	2	2	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	591	2441	2441	985	462	202
Arrive On Green	0.77	0.77	0.77	0.77	0.14	0.00
Sat Flow, veh/h	704	3269	3269	1286	3193	1454
Grp Volume(v), veh/h	162	1259	463	155	343	0
Grp Sat Flow(s),veh/h/ln	704	1593	1593	1286	1597	1454
Q Serve(g_s), s	7.4	13.7	3.6	2.9	9.3	0.0
Cycle Q Clear(g_c), s	10.9	13.7	3.6	2.9	9.3	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	591	2441	2441	985	462	202
V/C Ratio(X)	0.27	0.52	0.19	0.16	0.74	0.00
Avail Cap(c_a), veh/h	591	2441	2441	985	834	371
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.36	0.36	0.97	0.97	1.00	0.00
Uniform Delay (d), s/veh	4.4	4.1	2.9	2.8	36.9	0.0
Incr Delay (d2), s/veh	0.4	0.3	0.2	0.3	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	6.0	1.6	1.1	4.2	0.0
LnGrp Delay(d),s/veh	4.8	4.3	3.0	3.1	37.8	0.0
LnGrp LOS	A	A	A	A	D	
Approach Vol, veh/h		1421	618		343	
Approach Delay, s/veh		4.4	3.1		37.8	
Approach LOS		A	A		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		17.0		73.0				73.0
Change Period (Y+Rc), s		4.5		4.5				4.5
Max Green Setting (Gmax), s		23.0		58.0				58.0
Max Q Clear Time (g_c+I1), s		11.3		15.7				5.6
Green Ext Time (p_c), s		1.3		17.6				18.8

Intersection Summary		
HCM 2010 Ctrl Delay		8.9
HCM 2010 LOS		A

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	1437	52	23	656	20	0	0	0	29	0	29
Future Volume (veh/h)	49	1437	52	23	656	20	0	0	0	29	0	29
Number	3	8	18	7	4	14				5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.85	1.00		0.79				1.00		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710				1710	1676	1710
Adj Flow Rate, veh/h	49	1437	50	23	656	18				29	0	6
Adj No. of Lanes	1	2	0	1	2	0				0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2				0	2	0
Cap, veh/h	443	2308	80	229	2324	64				238	0	49
Arrive On Green	0.74	0.74	0.74	0.24	0.24	0.24				0.19	0.00	0.18
Sat Flow, veh/h	662	3119	108	316	3141	86				1270	0	263
Grp Volume(v), veh/h	49	731	756	23	332	342				35	0	0
Grp Sat Flow(s),veh/h/ln	662	1593	1634	316	1593	1634				1533	0	0
Q Serve(g_s), s	3.8	24.3	24.6	6.8	18.6	18.7				2.1	0.0	0.0
Cycle Q Clear(g_c), s	22.5	24.3	24.6	31.4	18.6	18.7				2.1	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.05				0.83		0.17
Lane Grp Cap(c), veh/h	443	1179	1210	229	1179	1209				287	0	0
V/C Ratio(X)	0.11	0.62	0.62	0.10	0.28	0.28				0.12	0.00	0.00
Avail Cap(c_a), veh/h	443	1179	1210	229	1179	1209				404	0	0
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33				1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.80	0.97	0.97	0.97				1.00	0.00	0.00
Uniform Delay (d), s/veh	11.0	6.9	6.9	33.1	17.8	17.9				37.3	0.0	0.0
Incr Delay (d2), s/veh	0.4	2.0	2.0	0.8	0.6	0.6				0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	11.2	11.6	0.6	8.4	8.7				0.9	0.0	0.0
LnGrp Delay(d),s/veh	11.4	8.8	8.9	34.0	18.4	18.4				37.3	0.0	0.0
LnGrp LOS	B	A	A	C	B	B				D		
Approach Vol, veh/h		1536			697						35	
Approach Delay, s/veh		8.9			18.9						37.3	
Approach LOS		A			B						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		24.6		85.4				85.4
Change Period (Y+Rc), s		5.0		4.5				4.5
Max Green Setting (Gmax), s		28.0		72.5				72.5
Max Q Clear Time (g_c+I1), s		4.1		33.4				26.6
Green Ext Time (p_c), s		0.0		4.0				4.0

Intersection Summary	
HCM 2010 Ctrl Delay	12.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	1283	33	34	571	56	37	5	36	94	13	67
Future Volume (veh/h)	75	1283	33	34	571	56	37	5	36	94	13	67
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.94		0.80	1.00		0.84	0.94		0.90	0.92		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	75	1283	32	34	571	51	37	5	18	94	13	45
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	524	2131	53	182	1963	175	233	37	93	240	38	95
Arrive On Green	0.22	0.22	0.22	1.00	1.00	1.00	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	678	3153	79	374	2906	258	717	145	369	744	151	376
Grp Volume(v), veh/h	75	647	668	34	312	310	60	0	0	152	0	0
Grp Sat Flow(s),veh/h/ln	678	1593	1639	374	1593	1571	1231	0	0	1271	0	0
Q Serve(g_s), s	9.8	40.1	40.2	6.2	0.0	0.0	0.0	0.0	0.0	6.6	0.0	0.0
Cycle Q Clear(g_c), s	9.8	40.1	40.2	46.5	0.0	0.0	3.9	0.0	0.0	10.5	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.16	0.62		0.30	0.62		0.30
Lane Grp Cap(c), veh/h	524	1076	1108	182	1076	1062	363	0	0	373	0	0
V/C Ratio(X)	0.14	0.60	0.60	0.19	0.29	0.29	0.17	0.00	0.00	0.41	0.00	0.00
Avail Cap(c_a), veh/h	524	1076	1108	182	1076	1062	410	0	0	421	0	0
HCM Platoon Ratio	0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.71	0.71	0.71	0.94	0.94	0.94	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.7	29.4	29.5	12.6	0.0	0.0	32.3	0.0	0.0	34.6	0.0	0.0
Incr Delay (d2), s/veh	0.4	1.8	1.7	2.1	0.6	0.7	0.1	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	18.2	18.8	0.8	0.2	0.2	1.4	0.0	0.0	3.9	0.0	0.0
LnGrp Delay(d),s/veh	18.1	31.2	31.2	14.7	0.6	0.7	32.3	0.0	0.0	34.8	0.0	0.0
LnGrp LOS	B	C	C	B	A	A	C			C		
Approach Vol, veh/h		1390			656			60			152	
Approach Delay, s/veh		30.5			1.4			32.3			34.8	
Approach LOS		C			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		31.7		78.3		31.7		78.3
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		31.5		69.5		31.5		69.5
Max Q Clear Time (g_c+I1), s		12.5		48.5		5.9		42.2
Green Ext Time (p_c), s		0.3		3.6		0.3		3.7

Intersection Summary	
HCM 2010 Ctrl Delay	22.4
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	1310	11	26	620	49	24	4	36	24	7	33
Future Volume (veh/h)	36	1310	11	26	620	49	24	4	36	24	7	33
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		0.80	1.00		0.83	0.95		0.95	0.96		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	36	1310	11	26	620	44	24	4	21	24	7	10
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	464	1967	17	230	1810	128	238	48	178	284	83	102
Arrive On Green	0.81	0.81	0.80	1.00	1.00	1.00	0.32	0.32	0.31	0.32	0.32	0.31
Sat Flow, veh/h	654	3229	27	372	2972	210	594	151	559	730	262	320
Grp Volume(v), veh/h	36	646	675	26	331	333	49	0	0	41	0	0
Grp Sat Flow(s),veh/h/ln	654	1593	1663	372	1593	1589	1304	0	0	1312	0	0
Q Serve(g_s), s	1.2	18.4	18.4	2.4	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.2	18.4	18.4	20.8	0.0	0.0	2.6	0.0	0.0	2.0	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.13	0.49		0.43	0.59		0.24
Lane Grp Cap(c), veh/h	464	970	1013	230	970	968	464	0	0	469	0	0
V/C Ratio(X)	0.08	0.67	0.67	0.11	0.34	0.34	0.11	0.00	0.00	0.09	0.00	0.00
Avail Cap(c_a), veh/h	464	970	1013	230	970	968	464	0	0	469	0	0
HCM Platoon Ratio	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.76	0.76	0.90	0.90	0.90	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.2	5.8	5.8	2.9	0.0	0.0	26.5	0.0	0.0	26.3	0.0	0.0
Incr Delay (d2), s/veh	0.2	2.8	2.7	0.9	0.9	0.9	0.5	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	8.5	8.9	0.3	0.2	0.2	1.1	0.0	0.0	0.9	0.0	0.0
LnGrp Delay(d),s/veh	4.5	8.6	8.5	3.8	0.9	0.9	27.0	0.0	0.0	26.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C			C		
Approach Vol, veh/h		1357			690			49			41	
Approach Delay, s/veh		8.4			1.0			27.0			26.7	
Approach LOS		A			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		39.0		71.0		39.0		71.0
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		34.5		66.5		34.5		66.5
Max Q Clear Time (g_c+I1), s		4.0		22.8		4.6		20.4
Green Ext Time (p_c), s		0.5		24.3		0.5		25.0

Intersection Summary	
HCM 2010 Ctrl Delay	6.8
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	1396	0	3	681	141	0	0	0	83	0	36
Future Volume (veh/h)	32	1396	0	3	681	141	0	0	0	83	0	36
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	0.98		0.85	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	0	1710	1676	1710	0	1676	0	1710	1676	1710
Adj Flow Rate, veh/h	32	1396	0	3	681	129	0	0	0	83	0	0
Adj No. of Lanes	1	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	0	2	2	2	0	2	0	2	2	2
Cap, veh/h	538	2370	0	34	1358	256	0	307	0	298	0	0
Arrive On Green	0.33	1.00	0.00	0.53	0.54	0.53	0.00	0.00	0.00	0.18	0.00	0.00
Sat Flow, veh/h	1597	3269	0	2	2531	477	0	1676	0	1271	0	0
Grp Volume(v), veh/h	32	1396	0	450	0	363	0	0	0	83	0	0
Grp Sat Flow(s),veh/h/ln	1597	1593	0	1669	0	1341	0	1676	0	1271	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	19.0	0.0	0.0	0.0	6.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	18.8	0.0	19.0	0.0	0.0	0.0	6.3	0.0	0.0
Prop In Lane	1.00		0.00	0.01		0.36	0.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	538	2370	0	920	0	719	0	307	0	298	0	0
V/C Ratio(X)	0.06	0.59	0.00	0.49	0.00	0.50	0.00	0.00	0.00	0.28	0.00	0.00
Avail Cap(c_a), veh/h	538	2370	0	920	0	719	0	457	0	412	0	0
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.67	0.67	0.00	0.94	0.00	0.94	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.1	0.0	0.0	16.2	0.0	16.3	0.0	0.0	0.0	39.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.0	1.7	0.0	2.4	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.2	0.0	9.2	0.0	7.4	0.0	0.0	0.0	2.2	0.0	0.0
LnGrp Delay(d),s/veh	11.1	0.7	0.0	17.9	0.0	18.6	0.0	0.0	0.0	39.4	0.0	0.0
LnGrp LOS	B	A		B		B				D		
Approach Vol, veh/h		1428			813			0			83	
Approach Delay, s/veh		1.0			18.2			0.0			39.4	
Approach LOS		A			B						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6		8
Phs Duration (G+Y+Rc), s		24.2	22.8	63.0		24.2		85.8
Change Period (Y+Rc), s		4.5	4.5	* 4.5		4.5		4.5
Max Green Setting (Gmax), s		29.5	9.0	* 59		29.5		71.5
Max Q Clear Time (g_c+I1), s		8.3	2.0	21.0		0.0		2.0
Green Ext Time (p_c), s		0.0	2.0	1.1		0.0		2.9

Intersection Summary		
HCM 2010 Ctrl Delay		8.4
HCM 2010 LOS		A

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Volume (veh/h)	980	497	179	609	217	92		
Future Volume (veh/h)	980	497	179	609	217	92		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		0.87	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1676	1710	1676	1676	1676	1676		
Adj Flow Rate, veh/h	980	454	179	609	217	20		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	1202	538	213	2423	262	234		
Arrive On Green	0.59	0.58	0.27	1.00	0.16	0.16		
Sat Flow, veh/h	2123	913	1597	3269	1597	1425		
Grp Volume(v), veh/h	758	676	179	609	217	20		
Grp Sat Flow(s),veh/h/ln	1593	1359	1597	1593	1597	1425		
Q Serve(g_s), s	39.5	43.3	11.2	0.0	13.9	1.3		
Cycle Q Clear(g_c), s	39.5	43.3	11.2	0.0	13.9	1.3		
Prop In Lane		0.67	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	939	801	213	2423	262	234		
V/C Ratio(X)	0.81	0.84	0.84	0.25	0.83	0.09		
Avail Cap(c_a), veh/h	939	801	301	2423	603	538		
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00		
Upstream Filter(I)	0.78	0.78	0.95	0.95	1.00	1.00		
Uniform Delay (d), s/veh	17.0	18.2	37.8	0.0	42.9	37.6		
Incr Delay (d2), s/veh	5.9	8.4	13.1	0.2	2.6	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	18.8	18.1	5.6	0.1	6.3	0.5		
LnGrp Delay(d),s/veh	22.9	26.6	50.9	0.2	45.5	37.6		
LnGrp LOS	C	C	D	A	D	D		
Approach Vol, veh/h	1434			788	237			
Approach Delay, s/veh	24.7			11.7	44.8			
Approach LOS	C			B	D			
Timer	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	18.1	66.5				84.6		21.4
Change Period (Y+Rc), s	4.5	5.5				5.5		4.5
Max Green Setting (Gmax), s	19.5	32.5				56.5		39.5
Max Q Clear Time (g_c+I1), s	13.2	45.3				2.0		15.9
Green Ext Time (p_c), s	0.5	0.0				20.7		1.0

Intersection Summary			
HCM 2010 Ctrl Delay			22.5
HCM 2010 LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	284	763	163	0	0	0	0	469	586	253	616	0
Future Volume (veh/h)	284	763	163	0	0	0	0	469	586	253	616	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.80				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710				0	1676	1676	1676	1676	0
Adj Flow Rate, veh/h	284	763	143				0	469	0	253	616	0
Adj No. of Lanes	0	3	0				0	2	1	1	2	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	327	945	180				0	1262	565	275	1932	0
Arrive On Green	0.32	0.32	0.31				0.00	0.40	0.00	0.35	1.00	0.00
Sat Flow, veh/h	1027	2970	566				0	3269	1425	1597	3269	0
Grp Volume(v), veh/h	449	384	357				0	469	0	253	616	0
Grp Sat Flow(s),veh/h/ln	1625	1526	1412				0	1593	1425	1597	1593	0
Q Serve(g_s), s	27.6	24.3	24.5				0.0	11.0	0.0	16.1	0.0	0.0
Cycle Q Clear(g_c), s	27.6	24.3	24.5				0.0	11.0	0.0	16.1	0.0	0.0
Prop In Lane	0.63		0.40				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	517	485	449				0	1262	565	275	1932	0
V/C Ratio(X)	0.87	0.79	0.79				0.00	0.37	0.00	0.92	0.32	0.00
Avail Cap(c_a), veh/h	567	533	493				0	1262	565	407	1932	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.10	0.00	0.61	0.61	0.00
Uniform Delay (d), s/veh	34.1	32.9	33.2				0.0	22.7	0.0	34.0	0.0	0.0
Incr Delay (d2), s/veh	11.9	6.4	7.1				0.0	0.1	0.0	10.6	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.1	11.1	10.4				0.0	4.8	0.0	7.8	0.1	0.0
LnGrp Delay(d),s/veh	46.0	39.3	40.3				0.0	22.7	0.0	44.6	0.3	0.0
LnGrp LOS	D	D	D					C		D	A	
Approach Vol, veh/h		1190						469			869	
Approach Delay, s/veh		42.1						22.7			13.2	
Approach LOS		D						C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	22.3	46.0		37.7		68.3		
Change Period (Y+Rc), s	3.5	4.0		5.0		4.0		
Max Green Setting (Gmax), s	27.5	30.0		36.0		61.0		
Max Q Clear Time (g_c+I1), s	18.1	13.0		29.6		2.0		
Green Ext Time (p_c), s	0.7	5.1		3.1		6.4		

Intersection Summary	
HCM 2010 Ctrl Delay	28.6
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	30	10	159	32	540	0	0	437	39
Future Vol, veh/h	0	0	0	30	10	159	32	540	0	0	437	39
Conflicting Peds, #/hr	0	0	32	32	0	0	99	0	130	130	0	99
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	100	-	0	50	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	30	10	159	32	540	0	0	437	39

Major/Minor				Minor1			Major1			Major2		
Conflicting Flow All				1093	1179	540	575	0	-	-	-	0
Stage 1				604	604	-	-	-	-	-	-	-
Stage 2				489	575	-	-	-	-	-	-	-
Critical Hdwy				6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1				5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy				3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver				237	190	542	998	-	0	0	-	-
Stage 1				546	488	-	-	-	0	0	-	-
Stage 2				616	503	-	-	-	0	0	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver				222	0	542	968	-	-	-	-	-
Mov Cap-2 Maneuver				222	0	-	-	-	-	-	-	-
Stage 1				528	0	-	-	-	-	-	-	-
Stage 2				597	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.5	0.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	968	-	222	542	-	-
HCM Lane V/C Ratio	0.033	-	0.18	0.293	-	-
HCM Control Delay (s)	8.8	-	24.7	14.4	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	1.2	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	165	19	0	37
Future Vol, veh/h	0	0	165	19	0	37
Conflicting Peds, #/hr	32	0	0	32	22	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	165	19	0	37

Major/Minor	Major2		Minor2	
Conflicting Flow All	-	0	-	210
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	830
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-		
Mov Cap-1 Maneuver	-	-	-	805
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	SB
HCM Control Delay, s	0	9.7
HCM LOS		A

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	805
HCM Lane V/C Ratio	-	-	0.046
HCM Control Delay (s)	-	-	9.7
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	19	122	452	35	591	0	0	473	33
Future Volume (veh/h)	0	0	0	19	122	452	35	591	0	0	473	33
Number				7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.86	0.93		1.00	1.00		0.83
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1676	1676	1710	1676	0	0	1676	1710
Adj Flow Rate, veh/h				19	122	308	35	591	0	0	473	29
Adj No. of Lanes				0	1	2	0	2	0	0	2	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				51	328	492	125	1944	0	0	2041	124
Arrive On Green				0.23	0.23	0.23	0.68	0.68	0.00	0.00	1.00	1.00
Sat Flow, veh/h				224	1441	2162	116	2942	0	0	3092	183
Grp Volume(v), veh/h				141	0	308	324	302	0	0	249	253
Grp Sat Flow(s),veh/h/ln				1665	0	1081	1532	1449	0	0	1593	1599
Q Serve(g_s), s				6.1	0.0	10.9	0.0	7.2	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				6.1	0.0	10.9	6.6	7.2	0.0	0.0	0.0	0.0
Prop In Lane				0.13		1.00	0.11		0.00	0.00		0.11
Lane Grp Cap(c), veh/h				379	0	492	1086	983	0	0	1081	1085
V/C Ratio(X)				0.37	0.00	0.63	0.30	0.31	0.00	0.00	0.23	0.23
Avail Cap(c_a), veh/h				549	0	712	1086	983	0	0	1081	1085
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.97	0.97	0.00	0.00	0.96	0.96
Uniform Delay (d), s/veh				27.7	0.0	29.6	5.4	5.6	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh				0.2	0.0	0.5	0.7	0.8	0.0	0.0	0.5	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.8	0.0	3.3	3.2	3.1	0.0	0.0	0.1	0.1
LnGrp Delay(d),s/veh				27.9	0.0	30.1	6.1	6.3	0.0	0.0	0.5	0.5
LnGrp LOS				C		C	A	A			A	A
Approach Vol, veh/h					449			626			502	
Approach Delay, s/veh					29.4			6.2			0.5	
Approach LOS					C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		61.7		23.3		61.7		
Change Period (Y+Rc), s		5.0		4.5		5.0		
Max Green Setting (Gmax), s		48.0		27.5		48.0		
Max Q Clear Time (g_c+I1), s		9.2		12.9		2.0		
Green Ext Time (p_c), s		5.7		2.1		5.7		

Intersection Summary	
HCM 2010 Ctrl Delay	11.0
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	14	36	0	0	0	0	434	21	46	425	0
Future Vol, veh/h	48	14	36	0	0	0	0	434	21	46	425	0
Conflicting Peds, #/hr	23	0	33	33	0	23	101	0	182	182	0	101
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	120	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	48	14	36	0	0	0	0	434	21	46	425	0

Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	985	1154	458				-	0	0	637	0	0
Stage 1	517	517	-				-	-	-	-	-	-
Stage 2	468	637	-				-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22				-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-				-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318				-	-	-	2.218	-	-
Pot Cap-1 Maneuver	275	197	603				0	-	-	947	-	0
Stage 1	598	534	-				0	-	-	-	-	0
Stage 2	630	471	-				0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	261	0	584				-	-	-	926	-	-
Mov Cap-2 Maneuver	261	0	-				-	-	-	-	-	-
Stage 1	568	0	-				-	-	-	-	-	-
Stage 2	630	0	-				-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.7	0	0.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	261	584	926	-
HCM Lane V/C Ratio	-	-	0.211	0.074	0.05	-
HCM Control Delay (s)	-	-	22.4	11.7	9.1	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.8	0.2	0.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	58	38	30	0	90	0	490	28	42	453	0
Future Volume (veh/h)	27	58	38	30	0	90	0	490	28	42	453	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.89		0.86	0.90		0.86	1.00		0.76	0.91		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1710	1676	1710	0	1676	1710	1710	1676	0
Adj Flow Rate, veh/h	27	58	12	30	0	29	0	490	22	42	453	0
Adj No. of Lanes	1	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	0	2	2	2	2	0
Cap, veh/h	446	392	81	233	20	169	0	1791	80	162	1595	0
Arrive On Green	0.30	0.30	0.28	0.30	0.00	0.28	0.00	1.00	1.00	0.59	0.59	0.00
Sat Flow, veh/h	1104	1307	270	517	66	564	0	3142	137	174	2799	0
Grp Volume(v), veh/h	27	0	70	59	0	0	0	254	258	253	242	0
Grp Sat Flow(s),veh/h/ln	1104	0	1577	1148	0	0	0	1593	1603	1448	1449	0
Q Serve(g_s), s	0.0	0.0	2.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	5.8	0.0
Cycle Q Clear(g_c), s	0.9	0.0	2.3	2.6	0.0	0.0	0.0	0.0	0.0	5.2	5.8	0.0
Prop In Lane	1.00		0.17	0.51		0.49	0.00		0.09	0.17		0.00
Lane Grp Cap(c), veh/h	446	0	473	422	0	0	0	933	938	908	849	0
V/C Ratio(X)	0.06	0.00	0.15	0.14	0.00	0.00	0.00	0.27	0.28	0.28	0.29	0.00
Avail Cap(c_a), veh/h	477	0	518	455	0	0	0	933	938	908	849	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.92	0.00	0.00	0.00	0.95	0.95	0.98	0.98	0.00
Uniform Delay (d), s/veh	17.5	0.0	18.0	18.2	0.0	0.0	0.0	0.0	0.0	7.1	7.2	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.7	0.7	0.7	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	1.0	0.9	0.0	0.0	0.0	0.2	0.2	2.6	2.5	0.0
LnGrp Delay(d),s/veh	17.5	0.0	18.1	18.2	0.0	0.0	0.0	0.7	0.7	7.8	8.0	0.0
LnGrp LOS	B		B	B				A	A	A	A	
Approach Vol, veh/h		97			59			512			495	
Approach Delay, s/veh		17.9			18.2			0.7			7.9	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		45.0		25.0		45.0		25.0
Change Period (Y+Rc), s		5.0		5.5		5.0		5.5
Max Green Setting (Gmax), s		38.0		21.5		38.0		21.5
Max Q Clear Time (g_c+I1), s		2.0		4.3		7.8		4.6
Green Ext Time (p_c), s		4.9		0.6		4.9		0.6

Intersection Summary		
HCM 2010 Ctrl Delay		6.1
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	36	19	13	42	41	81	4	155	2	5	377	59
Future Volume (vph)	36	19	13	42	41	81	4	155	2	5	377	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0			4.0	4.0	
Lane Util. Factor		1.00			0.95		0.95			1.00	0.95	
Frpb, ped/bikes		0.98			1.00		1.00			1.00	0.99	
Flpb, ped/bikes		1.00			0.99		1.00			0.99	1.00	
Frt		0.93			1.00		0.90			1.00	0.98	
Flt Protected		0.98			0.95		0.98			0.95	1.00	
Satd. Flow (prot)		1507			1491		1409			1572	3087	
Flt Permitted		0.68			0.67		0.84			0.57	1.00	
Satd. Flow (perm)		1039			1046		1209			949	3087	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	36	19	13	42	41	81	4	155	2	5	377	59
RTOR Reduction (vph)	0	32	0	0	0	0	90	0	0	0	11	0
Lane Group Flow (vph)	0	78	0	0	37	0	154	0	0	7	425	0
Confl. Peds. (#/hr)	23			19	19					10		32
Confl. Bikes (#/hr)				2								
Turn Type	Perm	NA			Perm	Perm	NA		Perm	Perm	NA	
Protected Phases		3					3				2	
Permitted Phases	3				3	3			2	2		
Actuated Green, G (s)		16.7			16.7		16.7			44.0	44.0	
Effective Green, g (s)		17.7			17.7		17.7			46.0	46.0	
Actuated g/C Ratio		0.21			0.21		0.21			0.54	0.54	
Clearance Time (s)		5.0			5.0		5.0			6.0	6.0	
Vehicle Extension (s)		2.0			2.0		2.0			2.0	2.0	
Lane Grp Cap (vph)		216			217		251			513	1670	
v/s Ratio Prot											c0.14	
v/s Ratio Perm		0.08			0.04		c0.13			0.01		
v/c Ratio		0.36			0.17		0.61			0.01	0.25	
Uniform Delay, d1		28.8			27.6		30.5			9.0	10.4	
Progression Factor		1.00			1.00		1.00			1.21	1.05	
Incremental Delay, d2		0.4			0.1		3.1			0.0	0.4	
Delay (s)		29.2			27.8		33.6			11.0	11.3	
Level of Service		C			C		C			B	B	
Approach Delay (s)		29.2					32.9				11.3	
Approach LOS		C					C				B	

Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2
Lane Configurations								
Traffic Volume (vph)	106	292	120	8	1	99	46	2
Future Volume (vph)	106	292	120	8	1	99	46	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0		
Lane Util. Factor	1.00	0.95	1.00			0.97		
Frpb, ped/bikes	1.00	1.00	0.97			1.00		
Flpb, ped/bikes	0.97	1.00	1.00			1.00		
Frt	1.00	1.00	0.85			0.95		
Flt Protected	0.95	1.00	1.00			0.97		
Satd. Flow (prot)	1541	3185	1376			2993		
Flt Permitted	0.48	1.00	1.00			0.95		
Satd. Flow (perm)	779	3185	1376			2949		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	106	292	120	8	1	99	46	2
RTOR Reduction (vph)	0	0	9	0	0	0	0	0
Lane Group Flow (vph)	106	292	119	0	0	148	0	0
Confl. Peds. (#/hr)	32			10				
Confl. Bikes (#/hr)				5				
Turn Type	Perm	NA	pm+ov		D.Pm	Prot		
Protected Phases		6	4			4		
Permitted Phases	6		6		4			
Actuated Green, G (s)	44.0	44.0	52.3			8.3		
Effective Green, g (s)	46.0	46.0	54.3			9.3		
Actuated g/C Ratio	0.54	0.54	0.64			0.11		
Clearance Time (s)	6.0	6.0	5.0			5.0		
Vehicle Extension (s)	2.0	2.0	2.0			2.0		
Lane Grp Cap (vph)	421	1723	943			322		
v/s Ratio Prot		0.09	0.01					
v/s Ratio Perm	0.14		0.07			c0.05		
v/c Ratio	0.25	0.17	0.13			0.46		
Uniform Delay, d1	10.4	9.9	6.0			35.5		
Progression Factor	1.00	1.00	1.00			1.00		
Incremental Delay, d2	1.4	0.2	0.0			0.4		
Delay (s)	11.8	10.1	6.1			35.9		
Level of Service	B	B	A			D		
Approach Delay (s)		9.4				35.9		
Approach LOS		A				D		

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	132	26	20	145	205	11	235	40	97	271	76
Future Volume (veh/h)	68	132	26	20	145	205	11	235	40	97	271	76
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.86		0.76	0.84		0.76	0.87		0.83	0.97		0.82
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1710	1676	1676	1676	1676	1710	1676	1676	1710
Adj Flow Rate, veh/h	68	132	12	20	145	55	11	235	32	97	271	62
Adj No. of Lanes	1	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	368	507	46	98	523	374	431	534	73	457	658	150
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.13	0.13	0.12	0.08	0.52	0.51
Sat Flow, veh/h	909	1471	134	90	1517	1085	817	1406	191	1597	1260	288
Grp Volume(v), veh/h	68	0	144	165	0	55	11	0	267	97	0	333
Grp Sat Flow(s),veh/h/ln	909	0	1604	1606	0	1085	817	0	1598	1597	0	1549
Q Serve(g_s), s	3.5	0.0	3.9	0.0	0.0	2.1	0.7	0.0	9.3	2.0	0.0	7.9
Cycle Q Clear(g_c), s	7.8	0.0	3.9	4.3	0.0	2.1	0.7	0.0	9.3	2.0	0.0	7.9
Prop In Lane	1.00		0.08	0.12		1.00	1.00		0.12	1.00		0.19
Lane Grp Cap(c), veh/h	368	0	553	621	0	374	431	0	607	457	0	808
V/C Ratio(X)	0.18	0.00	0.26	0.27	0.00	0.15	0.03	0.00	0.44	0.21	0.00	0.41
Avail Cap(c_a), veh/h	388	0	588	655	0	398	431	0	607	524	0	808
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.00	0.95	0.88	0.00	0.88	0.99	0.00	0.99	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.1	0.0	14.2	14.3	0.0	13.6	16.6	0.0	20.3	9.5	0.0	8.8
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	2.3	0.1	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	1.7	2.0	0.0	0.6	0.2	0.0	4.5	0.9	0.0	3.7
LnGrp Delay(d),s/veh	17.2	0.0	14.3	14.4	0.0	13.6	16.7	0.0	22.6	9.6	0.0	10.3
LnGrp LOS	B		B	B		B	B		C	A		B
Approach Vol, veh/h		212			220			278			430	
Approach Delay, s/veh		15.2			14.2			22.4			10.2	
Approach LOS		B			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	8.5	26.8		24.7		35.3		24.7
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s	6.5	18.5		21.5		29.5		21.5
Max Q Clear Time (g_c+I1), s	4.0	11.3		9.8		9.9		6.3
Green Ext Time (p_c), s	0.1	1.7		1.6		2.7		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	14.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	189	94	54	192	56	73	414	63	48	442	58
Future Volume (veh/h)	29	189	94	54	192	56	73	414	63	48	442	58
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.84		0.75	0.84		0.75	1.00		0.84	0.93		0.70
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710	1710	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	29	189	23	54	192	24	73	414	52	48	442	45
Adj No. of Lanes	0	2	0	0	2	0	0	2	0	0	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	138	765	91	201	645	82	70	776	140	222	1906	188
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	1.00	1.00	1.00	0.18	0.18	0.18
Sat Flow, veh/h	228	2335	276	395	1970	251	6	1389	250	282	3414	337
Grp Volume(v), veh/h	127	0	114	138	0	132	243	0	296	187	174	173
Grp Sat Flow(s),veh/h/ln	1471	0	1369	1234	0	1382	221	0	1425	1347	1388	1298
Q Serve(g_s), s	0.0	0.0	4.3	1.7	0.0	5.0	8.4	0.0	0.0	1.1	7.5	8.0
Cycle Q Clear(g_c), s	3.9	0.0	4.3	6.0	0.0	5.0	8.4	0.0	0.0	6.9	7.5	8.0
Prop In Lane	0.23		0.20	0.39		0.18	0.30		0.18	0.26		0.26
Lane Grp Cap(c), veh/h	545	0	448	476	0	453	0	0	796	816	775	724
V/C Ratio(X)	0.23	0.00	0.25	0.29	0.00	0.29	0.00	0.00	0.37	0.23	0.23	0.24
Avail Cap(c_a), veh/h	566	0	469	495	0	474	0	0	796	816	775	724
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33
Upstream Filter(I)	0.97	0.00	0.97	0.98	0.00	0.98	0.92	0.00	0.92	0.96	0.96	0.96
Uniform Delay (d), s/veh	17.1	0.0	17.3	17.5	0.0	17.5	0.0	0.0	0.0	15.3	15.7	15.9
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	1.2	0.6	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	1.6	2.0	0.0	1.9	0.0	0.0	0.3	3.2	3.0	3.0
LnGrp Delay(d),s/veh	17.2	0.0	17.4	17.7	0.0	17.6	0.0	0.0	1.2	16.0	16.3	16.6
LnGrp LOS	B		B	B		B			A	B	B	B
Approach Vol, veh/h		241			270			539			535	
Approach Delay, s/veh		17.3			17.6			0.7			16.3	
Approach LOS		B			B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		43.1		26.9		43.1		26.9
Change Period (Y+Rc), s		5.0		4.0		5.0		4.0
Max Green Setting (Gmax), s		37.0		24.0		28.0		24.0
Max Q Clear Time (g_c+I1), s		10.4		6.3		10.0		8.0
Green Ext Time (p_c), s		5.5		2.2		5.0		2.1

Intersection Summary		
HCM 2010 Ctrl Delay		11.4
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	133	139	0	0	0	0	0	1215	146
Future Volume (veh/h)	0	0	0	133	139	0	0	0	0	0	1215	146
Number				3	8	18				1	6	16
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1676	1676	0				0	1676	1710
Adj Flow Rate, veh/h				133	139	0				0	1215	131
Adj No. of Lanes				1	2	0				0	4	0
Peak Hour Factor				1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %				2	2	0				0	2	2
Cap, veh/h				387	604	0				0	3126	335
Arrive On Green				0.06	0.06	0.00				0.00	0.59	0.56
Sat Flow, veh/h				1597	3269	0				0	5559	571
Grp Volume(v), veh/h				133	139	0				0	986	360
Grp Sat Flow(s),veh/h/ln				1597	1593	0				0	1442	1570
Q Serve(g_s), s				6.8	3.5	0.0				0.0	10.4	10.6
Cycle Q Clear(g_c), s				6.8	3.5	0.0				0.0	10.4	10.6
Prop In Lane				1.00		0.00				0.00		0.36
Lane Grp Cap(c), veh/h				387	604	0				0	2539	922
V/C Ratio(X)				0.34	0.23	0.00				0.00	0.39	0.39
Avail Cap(c_a), veh/h				594	1016	0				0	2539	922
HCM Platoon Ratio				0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)				0.82	0.82	0.00				0.00	1.00	1.00
Uniform Delay (d), s/veh				35.5	33.9	0.0				0.0	9.4	9.6
Incr Delay (d2), s/veh				0.2	0.1	0.0				0.0	0.4	1.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.0	1.6	0.0				0.0	4.2	4.9
LnGrp Delay(d),s/veh				35.6	34.0	0.0				0.0	9.8	10.9
LnGrp LOS				D	C						A	B
Approach Vol, veh/h					272						1346	
Approach Delay, s/veh					34.8						10.1	
Approach LOS					C						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs						6		8
Phs Duration (G+Y+Rc), s						53.9		20.1
Change Period (Y+Rc), s						6.0		4.5
Max Green Setting (Gmax), s						47.9		26.6
Max Q Clear Time (g_c+I1), s						12.6		8.8
Green Ext Time (p_c), s						7.7		1.0

Intersection Summary		
HCM 2010 Ctrl Delay		14.3
HCM 2010 LOS		B

Movement	WBT	WBR	WBR2	NBL2	NBL	NBT
Lane Configurations						
Traffic Volume (vph)	166	265	85	106	1029	343
Future Volume (vph)	166	265	85	106	1029	343
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.91	0.91		0.86	0.81	0.81
Frpb, ped/bikes	0.98	0.94		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00
Frt	0.92	0.85		1.00	1.00	1.00
Flt Protected	1.00	1.00		0.95	0.95	0.97
Satd. Flow (prot)	2767	1224		1370	1290	3954
Flt Permitted	1.00	1.00		0.95	0.95	0.97
Satd. Flow (perm)	2767	1224		1370	1290	3954
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	166	265	85	106	1029	343
RTOR Reduction (vph)	0	44	0	0	0	0
Lane Group Flow (vph)	341	131	0	95	515	868
Confl. Peds. (#/hr)		8	8			
Confl. Bikes (#/hr)		10	10			
Turn Type	NA	Perm		Split	Split	NA
Protected Phases	8			2	2	2
Permitted Phases		8				
Actuated Green, G (s)	15.3	15.3		60.2	60.2	60.2
Effective Green, g (s)	15.8	15.8		61.2	61.2	61.2
Actuated g/C Ratio	0.19	0.19		0.72	0.72	0.72
Clearance Time (s)	4.5	4.5		5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	514	227		986	928	2846
v/s Ratio Prot	c0.12			0.07	c0.40	0.22
v/s Ratio Perm		0.11				
v/c Ratio	0.66	0.58		0.10	0.55	0.30
Uniform Delay, d1	32.1	31.6		3.6	5.5	4.3
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.5	2.2		0.2	2.4	0.3
Delay (s)	34.6	33.8		3.8	7.9	4.5
Level of Service	C	C		A	A	A
Approach Delay (s)	34.3					5.7
Approach LOS	C					A

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	14	305	9	40	139	0	0	141	109
Future Volume (veh/h)	0	0	0	14	305	9	40	139	0	0	141	109
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.97	0.99		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1676	1676	1710	1710	1676	0	0	1676	1710
Adj Flow Rate, veh/h				14	305	4	40	139	0	0	141	52
Adj No. of Lanes				1	3	0	0	2	0	0	2	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				639	1862	24	325	1099	0	0	1093	385
Arrive On Green				0.40	0.40	0.41	0.48	0.48	0.00	0.00	0.48	0.49
Sat Flow, veh/h				1597	4654	61	517	2381	0	0	2376	807
Grp Volume(v), veh/h				14	200	109	95	84	0	0	96	97
Grp Sat Flow(s),veh/h/ln				1597	1526	1663	1372	1449	0	0	1593	1507
Q Serve(g_s), s				0.3	2.7	2.7	0.0	2.1	0.0	0.0	2.2	2.3
Cycle Q Clear(g_c), s				0.3	2.7	2.7	2.0	2.1	0.0	0.0	2.2	2.3
Prop In Lane				1.00		0.04	0.42		0.00	0.00		0.54
Lane Grp Cap(c), veh/h				639	1220	665	733	691	0	0	760	719
V/C Ratio(X)				0.02	0.16	0.16	0.13	0.12	0.00	0.00	0.13	0.14
Avail Cap(c_a), veh/h				639	1220	665	733	691	0	0	760	719
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				11.8	12.5	12.5	9.4	9.4	0.0	0.0	9.5	9.3
Incr Delay (d2), s/veh				0.1	0.3	0.5	0.4	0.4	0.0	0.0	0.3	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.2	1.2	1.3	1.0	0.9	0.0	0.0	1.0	1.0
LnGrp Delay(d),s/veh				11.9	12.8	13.0	9.8	9.8	0.0	0.0	9.8	9.7
LnGrp LOS				B	B	B	A	A			A	A
Approach Vol, veh/h					323			179			193	
Approach Delay, s/veh					12.8			9.8			9.8	
Approach LOS					B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		35.0				35.0		30.0
Change Period (Y+Rc), s		3.0				3.0		3.5
Max Green Setting (Gmax), s		27.0				32.0		26.5
Max Q Clear Time (g_c+I1), s		4.1				4.3		4.7
Green Ext Time (p_c), s		2.3				2.4		2.0

Intersection Summary	
HCM 2010 Ctrl Delay	11.2
HCM 2010 LOS	B

Notes

Movement	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	NEL2	NEL
Lane Configurations												
Traffic Volume (vph)	53	26	255	141	11	30	187	265	56	27	16	101
Future Volume (vph)	53	26	255	141	11	30	187	265	56	27	16	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0			4.0	4.0	4.0				4.0
Lane Util. Factor			0.95			1.00	1.00	0.95				0.97
Frpb, ped/bikes			0.98			1.00	1.00	0.98				1.00
Flpb, ped/bikes			0.99			0.94	1.00	1.00				1.00
Frt			0.96			1.00	1.00	0.96				1.00
Flt Protected			0.99			0.95	1.00	1.00				0.95
Satd. Flow (prot)			2944			1498	1676	3024				3087
Flt Permitted			0.99			0.53	1.00	1.00				0.95
Satd. Flow (perm)			2944			842	1676	3024				3087
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	53	26	255	141	11	30	187	265	56	27	16	101
RTOR Reduction (vph)	0	0	63	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	0	412	0	0	41	187	342	0	0	0	121
Confl. Peds. (#/hr)	20	20		54	29	29			29			
Confl. Bikes (#/hr)				1					12			
Turn Type	Perm	Perm	NA		Perm	Perm	NA	NA			Perm	Prot
Protected Phases			4				2	6				3
Permitted Phases	4	4			2	2					3	
Actuated Green, G (s)			21.1			40.7	40.7	40.7				6.7
Effective Green, g (s)			22.1			43.2	43.2	43.2				7.7
Actuated g/C Ratio			0.26			0.51	0.51	0.51				0.09
Clearance Time (s)			5.0			6.5	6.5	6.5				5.0
Vehicle Extension (s)			2.0			2.0	2.0	2.0				2.0
Lane Grp Cap (vph)			765			427	851	1536				279
v/s Ratio Prot							0.11	c0.11				
v/s Ratio Perm			0.14			0.05						0.04
v/c Ratio			0.54			0.10	0.22	0.22				0.43
Uniform Delay, d1			27.1			10.8	11.6	11.6				36.6
Progression Factor			1.00			1.00	1.00	0.65				1.00
Incremental Delay, d2			0.4			0.4	0.6	0.3				0.4
Delay (s)			27.4			11.3	12.2	7.8				37.0
Level of Service			C			B	B	A				D
Approach Delay (s)			27.4				12.0	7.8				37.0
Approach LOS			C				B	A				D

Intersection Summary			
HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	NER2
Lane Configurations	
Traffic Volume (vph)	4
Future Volume (vph)	4
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	4
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	38	307	173	84	113	0	0	189	112
Future Volume (veh/h)	0	0	0	38	307	173	84	113	0	0	189	112
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.79	0.95		1.00	1.00		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	0	0	1710	1676	1710	1676	1676	0	0	1676	1710
Adj Flow Rate, veh/h	0	0	0	38	307	106	84	113	0	0	189	84
Adj No. of Lanes	1	0	0	0	2	0	1	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	0	0	2	2	2	2	2	0	0	2	2
Cap, veh/h	0	0	0	93	762	269	450	664	0	0	414	184
Arrive On Green	0.00	0.00	0.00	0.38	0.38	0.36	0.40	0.40	0.00	0.00	0.40	0.34
Sat Flow, veh/h		0		248	2026	717	942	1676	0	0	1046	465
Grp Volume(v), veh/h		0.0		255	0	196	84	113	0	0	0	273
Grp Sat Flow(s),veh/h/ln				1664	0	1327	942	1676	0	0	0	1511
Q Serve(g_s), s				4.0	0.0	3.8	2.5	1.5	0.0	0.0	0.0	4.8
Cycle Q Clear(g_c), s				4.0	0.0	3.8	7.3	1.5	0.0	0.0	0.0	4.8
Prop In Lane				0.15		0.54	1.00		0.00	0.00		0.31
Lane Grp Cap(c), veh/h				626	0	499	450	664	0	0	0	598
V/C Ratio(X)				0.41	0.00	0.39	0.19	0.17	0.00	0.00	0.00	0.46
Avail Cap(c_a), veh/h				972	0	775	1071	1768	0	0	0	1593
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				8.1	0.0	8.1	10.5	6.9	0.0	0.0	0.0	8.1
Incr Delay (d2), s/veh				0.2	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.8	0.0	1.4	0.7	0.7	0.0	0.0	0.0	2.0
LnGrp Delay(d),s/veh				8.2	0.0	8.3	10.6	6.9	0.0	0.0	0.0	8.3
LnGrp LOS				A		A	B	A				A
Approach Vol, veh/h					451			197			273	
Approach Delay, s/veh					8.3			8.5			8.3	
Approach LOS					A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		17.9				17.9		17.2
Change Period (Y+Rc), s		6.0				6.0		4.5
Max Green Setting (Gmax), s		35.0				35.0		20.0
Max Q Clear Time (g_c+I1), s		9.3				6.8		6.0
Green Ext Time (p_c), s		2.3				2.3		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	8.3
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	61	349	89	110	455	0	0	545	57
Future Volume (veh/h)	0	0	0	61	349	89	110	455	0	0	545	57
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.80	0.94		1.00	1.00		0.85
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1676	1710	1710	1676	0	1710	1676	1710
Adj Flow Rate, veh/h				61	349	60	110	455	0	0	545	42
Adj No. of Lanes				0	2	0	0	2	0	0	3	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				0	2	0	2	2	0	2	2	2
Cap, veh/h				132	777	139	303	1174	0	0	2360	178
Arrive On Green				0.33	0.33	0.33	1.00	1.00	0.00	0.00	1.00	1.00
Sat Flow, veh/h				395	2327	415	416	2203	0	0	4429	323
Grp Volume(v), veh/h				256	0	214	258	307	0	0	386	201
Grp Sat Flow(s),veh/h/ln				1657	0	1480	1094	1449	0	0	1526	1550
Q Serve(g_s), s				8.5	0.0	7.9	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				8.5	0.0	7.9	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane				0.24		0.28	0.43		0.00	0.00		0.21
Lane Grp Cap(c), veh/h				553	0	494	677	800	0	0	1684	855
V/C Ratio(X)				0.46	0.00	0.43	0.38	0.38	0.00	0.00	0.23	0.24
Avail Cap(c_a), veh/h				615	0	550	677	800	0	0	1684	855
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	2.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.96	0.96	0.00	0.00	0.98	0.98
Uniform Delay (d), s/veh				18.4	0.0	18.2	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh				0.2	0.0	0.2	1.6	1.3	0.0	0.0	0.3	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.9	0.0	3.2	0.3	0.3	0.0	0.0	0.1	0.2
LnGrp Delay(d),s/veh				18.6	0.0	18.4	1.6	1.3	0.0	0.0	0.3	0.6
LnGrp LOS				B		B	A	A			A	A
Approach Vol, veh/h					470			565			587	
Approach Delay, s/veh					18.5			1.4			0.4	
Approach LOS					B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		42.6				42.6		27.4
Change Period (Y+Rc), s		5.0				5.0		4.0
Max Green Setting (Gmax), s		35.0				35.0		26.0
Max Q Clear Time (g_c+I1), s		2.0				2.0		10.5
Green Ext Time (p_c), s		6.5				6.5		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	6.0
HCM 2010 LOS	A

Movement	EBT	EBR	EBR2	SBL2	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	200	88	31	461	659	228
Future Volume (vph)	200	88	31	461	659	228
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.91	0.86	0.86
Frpb, ped/bikes	0.99			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.94			1.00	1.00	1.00
Flt Protected	1.00			0.95	0.95	0.98
Satd. Flow (prot)	2986			1449	1370	2833
Flt Permitted	1.00			0.95	0.95	0.98
Satd. Flow (perm)	2986			1449	1370	2833
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	200	88	31	461	659	228
RTOR Reduction (vph)	11	0	0	65	13	0
Lane Group Flow (vph)	308	0	0	189	728	353
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)		5				
Turn Type	NA			Split	Split	NA
Protected Phases	4			6	6	6
Permitted Phases						
Actuated Green, G (s)	13.4			62.1	62.1	62.1
Effective Green, g (s)	13.9			63.1	63.1	63.1
Actuated g/C Ratio	0.16			0.74	0.74	0.74
Clearance Time (s)	4.5			5.0	5.0	5.0
Vehicle Extension (s)	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)	488			1075	1017	2103
v/s Ratio Prot	c0.10			0.13	c0.53	0.12
v/s Ratio Perm						
v/c Ratio	0.63			0.18	0.72	0.17
Uniform Delay, d1	33.2			3.2	6.0	3.2
Progression Factor	1.00			0.07	1.02	0.21
Incremental Delay, d2	2.0			0.3	4.2	0.2
Delay (s)	35.1			0.6	10.3	0.8
Level of Service	D			A	B	A
Approach Delay (s)	35.1					6.0
Approach LOS	D					A

Intersection Summary			
HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	193	468	919	66	366	38
Future Volume (vph)	193	468	919	66	366	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	0.91	0.91		0.97	
Frpb, ped/bikes	1.00	1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.99	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1593	4577	4525		3068	
Flt Permitted	0.95	1.00	1.00		0.96	
Satd. Flow (perm)	1593	4577	4525		3068	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	193	468	919	66	366	38
RTOR Reduction (vph)	64	0	12	0	0	0
Lane Group Flow (vph)	129	468	973	0	404	0
Confl. Peds. (#/hr)				6		
Confl. Bikes (#/hr)						
Turn Type	Split	NA	NA		Prot	
Protected Phases	4	4	2		1	
Permitted Phases						
Actuated Green, G (s)	28.5	28.5	19.5		7.5	
Effective Green, g (s)	29.0	29.0	20.5		8.5	
Actuated g/C Ratio	0.41	0.41	0.29		0.12	
Clearance Time (s)	4.5	4.5	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	659	1896	1325		372	
v/s Ratio Prot	0.08	c0.10	c0.22		c0.13	
v/s Ratio Perm						
v/c Ratio	0.20	0.25	0.73		1.09	
Uniform Delay, d1	13.1	13.4	22.3		30.8	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.7	0.3	1.8		71.7	
Delay (s)	13.7	13.7	24.1		102.4	
Level of Service	B	B	C		F	
Approach Delay (s)		13.7	24.1		102.4	
Approach LOS		B	C		F	

Intersection Summary			
HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	226	16	13	143	0	0	0	0	663	1191	363
Future Volume (veh/h)	0	226	16	13	143	0	0	0	0	663	1191	363
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1710	1676	1676	0				1676	1676	1676
Adj Flow Rate, veh/h	0	226	10	13	143	0				618	1254	247
Adj No. of Lanes	0	2	0	1	2	0				1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	670	29	258	728	0				1074	2256	959
Arrive On Green	0.00	0.22	0.21	0.23	0.23	0.00				0.67	0.67	0.67
Sat Flow, veh/h	0	3184	136	1014	3269	0				1597	3353	1425
Grp Volume(v), veh/h	0	115	121	13	143	0				618	1254	247
Grp Sat Flow(s),veh/h/ln	0	1593	1644	1014	1593	0				1597	1676	1425
Q Serve(g_s), s	0.0	5.0	5.0	0.9	2.9	0.0				16.7	15.8	5.6
Cycle Q Clear(g_c), s	0.0	5.0	5.0	5.9	2.9	0.0				16.7	15.8	5.6
Prop In Lane	0.00		0.08	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	344	355	258	728	0				1074	2256	959
V/C Ratio(X)	0.00	0.34	0.34	0.05	0.20	0.00				0.58	0.56	0.26
Avail Cap(c_a), veh/h	0	344	355	258	728	0				1074	2256	959
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	26.8	26.9	28.5	25.2	0.0				7.1	6.9	5.2
Incr Delay (d2), s/veh	0.0	2.6	2.6	0.4	0.6	0.0				2.2	1.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.4	2.5	0.3	1.4	0.0				7.9	7.5	2.3
LnGrp Delay(d),s/veh	0.0	29.5	29.5	28.9	25.9	0.0				9.3	7.9	5.9
LnGrp LOS		C	C	C	C					A	A	A
Approach Vol, veh/h		236			156						2119	
Approach Delay, s/veh		29.5			26.1						8.1	
Approach LOS		C			C						A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				22.5		58.5		22.5
Change Period (Y+Rc), s				* 5.5		6.5		5.5
Max Green Setting (Gmax), s				* 17		52.0		16.0
Max Q Clear Time (g_c+I1), s				7.0		18.7		7.9
Green Ext Time (p_c), s				1.6		22.1		1.4

Intersection Summary			
HCM 2010 Ctrl Delay			11.2
HCM 2010 LOS			B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	724	0	0	142	323	14	332	11	0	0	0
Future Volume (veh/h)	165	724	0	0	142	323	14	332	11	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1676	1676	0	0	1676	1676	1710	1676	1710			
Adj Flow Rate, veh/h	165	724	0	0	142	79	14	332	6			
Adj No. of Lanes	1	2	0	0	2	2	0	3	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	2	2	0	0	2	2	0	2	0			
Cap, veh/h	349	1593	0	0	657	495	77	1950	36			
Arrive On Green	0.07	0.16	0.00	0.00	0.21	0.21	0.43	0.43	0.41			
Sat Flow, veh/h	1597	3353	0	0	3269	2401	182	4587	85			
Grp Volume(v), veh/h	165	724	0	0	142	79	129	107	117			
Grp Sat Flow(s),veh/h/ln	1597	1676	0	0	1593	1200	1667	1526	1661			
Q Serve(g_s), s	7.9	15.7	0.0	0.0	3.0	2.2	3.8	3.5	3.5			
Cycle Q Clear(g_c), s	7.9	15.7	0.0	0.0	3.0	2.2	3.8	3.5	3.5			
Prop In Lane	1.00		0.00	0.00		1.00	0.11		0.05			
Lane Grp Cap(c), veh/h	349	1593	0	0	657	495	709	648	706			
V/C Ratio(X)	0.47	0.45	0.00	0.00	0.22	0.16	0.18	0.16	0.17			
Avail Cap(c_a), veh/h	349	1593	0	0	657	495	709	648	706			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	32.7	24.3	0.0	0.0	26.4	26.1	14.3	14.2	14.3			
Incr Delay (d2), s/veh	4.5	0.9	0.0	0.0	0.8	0.7	0.6	0.5	0.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.0	7.5	0.0	0.0	1.4	0.8	1.9	1.6	1.7			
LnGrp Delay(d),s/veh	37.2	25.3	0.0	0.0	27.1	26.7	14.9	14.8	14.8			
LnGrp LOS	D	C			C	C	B	B	B			
Approach Vol, veh/h		889			221			352				
Approach Delay, s/veh		27.5			27.0			14.8				
Approach LOS		C			C			B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		38.0		42.0			21.5	20.5
Change Period (Y+Rc), s		5.5		5.5			3.5	5.5
Max Green Setting (Gmax), s		32.5		36.5			18.0	15.0
Max Q Clear Time (g_c+I1), s		5.8		17.7			9.9	5.0
Green Ext Time (p_c), s		0.4		1.4			0.1	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	24.4
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	375	103	39	241	97	75	275	22	44	248	128
Future Volume (veh/h)	260	375	103	39	241	97	75	275	22	44	248	128
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.92	0.99		0.96	0.99		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1676	1676	1676	1676	1676	1676
Adj Flow Rate, veh/h	260	375	103	39	241	97	75	275	10	44	248	61
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	305	779	211	66	369	142	476	837	683	501	837	659
Arrive On Green	0.19	0.32	0.32	0.01	0.06	0.06	0.66	0.66	0.66	0.50	0.50	0.50
Sat Flow, veh/h	1597	2450	662	1597	2190	843	950	1676	1368	970	1676	1319
Grp Volume(v), veh/h	260	242	236	39	172	166	75	275	10	44	248	61
Grp Sat Flow(s),veh/h/ln	1597	1593	1519	1597	1593	1441	950	1676	1368	970	1676	1319
Q Serve(g_s), s	13.4	10.4	10.7	2.1	9.0	9.6	3.4	6.0	0.2	2.3	7.4	2.1
Cycle Q Clear(g_c), s	13.4	10.4	10.7	2.1	9.0	9.6	10.8	6.0	0.2	8.3	7.4	2.1
Prop In Lane	1.00		0.44	1.00		0.59	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	305	507	483	66	269	243	476	837	683	501	837	659
V/C Ratio(X)	0.85	0.48	0.49	0.59	0.64	0.68	0.16	0.33	0.01	0.09	0.30	0.09
Avail Cap(c_a), veh/h	376	507	483	376	412	373	476	837	683	501	837	659
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	0.53	0.53	0.53	0.89	0.89	0.89	0.97	0.97	0.97	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	23.3	23.3	41.2	37.6	37.8	10.8	8.2	7.2	14.5	12.5	11.2
Incr Delay (d2), s/veh	7.2	0.1	0.2	2.8	0.9	1.1	0.7	1.0	0.0	0.3	0.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	4.6	4.5	1.0	4.0	3.9	1.0	3.0	0.1	0.7	3.6	0.8
LnGrp Delay(d),s/veh	40.4	23.4	23.5	44.0	38.5	39.0	11.5	9.2	7.2	14.9	13.4	11.4
LnGrp LOS	D	C	C	D	D	D	B	A	A	B	B	B
Approach Vol, veh/h		738			377			360			353	
Approach Delay, s/veh		29.4			39.3			9.6			13.2	
Approach LOS		C			D			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		46.4	7.5	31.0		46.4	20.2	18.3
Change Period (Y+Rc), s		5.5	4.5	3.5		5.5	4.5	3.5
Max Green Setting (Gmax), s		29.5	19.5	22.5		29.5	19.5	22.5
Max Q Clear Time (g_c+I1), s		12.8	4.1	12.7		10.3	15.4	11.6
Green Ext Time (p_c), s		3.1	0.1	2.5		3.2	0.4	1.1

Intersection Summary			
HCM 2010 Ctrl Delay			24.4
HCM 2010 LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	171	187	54	232	215	74	450	29	93	493	100
Future Volume (veh/h)	143	171	187	54	232	215	74	450	29	93	493	100
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.94	0.97		1.00	0.98		0.94	0.98		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1710	1676	1676	1676	1676	1710	1676	1676	1710
Adj Flow Rate, veh/h	143	171	55	54	232	0	74	450	26	93	493	87
Adj No. of Lanes	1	2	0	0	2	1	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	346	780	240	199	798	471	409	1578	91	523	1453	254
Arrive On Green	0.55	0.55	0.54	0.33	0.33	0.00	1.00	1.00	1.00	0.55	0.55	0.54
Sat Flow, veh/h	999	2358	725	427	2412	1425	736	2892	166	803	2662	466
Grp Volume(v), veh/h	143	113	113	149	137	0	74	247	229	93	293	287
Grp Sat Flow(s),veh/h/ln	999	1593	1490	1390	1449	1425	736	1593	1466	803	1593	1536
Q Serve(g_s), s	9.0	3.1	3.3	2.6	5.9	0.0	2.0	0.0	0.0	5.1	8.7	8.9
Cycle Q Clear(g_c), s	14.9	3.1	3.3	6.1	5.9	0.0	10.9	0.0	0.0	5.1	8.7	8.9
Prop In Lane	1.00		0.49	0.36		1.00	1.00		0.11	1.00		0.30
Lane Grp Cap(c), veh/h	346	527	493	517	479	471	409	869	800	523	869	838
V/C Ratio(X)	0.41	0.21	0.23	0.29	0.29	0.00	0.18	0.28	0.29	0.18	0.34	0.34
Avail Cap(c_a), veh/h	438	675	631	642	614	604	409	869	800	523	869	838
HCM Platoon Ratio	1.67	1.67	1.67	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.90	0.71	0.71	0.00	0.99	0.99	0.99	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.3	13.4	13.6	21.0	21.0	0.0	1.0	0.0	0.0	9.9	10.8	10.8
Incr Delay (d2), s/veh	0.3	0.1	0.1	0.1	0.1	0.0	1.0	0.8	0.9	0.7	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	1.3	1.4	2.6	2.4	0.0	0.5	0.2	0.2	1.2	4.1	4.0
LnGrp Delay(d),s/veh	18.5	13.5	13.7	21.0	21.1	0.0	2.0	0.8	0.9	10.7	11.8	11.9
LnGrp LOS	B	B	B	C	C		A	A	A	B	B	B
Approach Vol, veh/h		369			286			550			673	
Approach Delay, s/veh		15.5			21.1			1.0			11.7	
Approach LOS		B			C			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		51.9		33.1		51.9		33.1
Change Period (Y+Rc), s		6.0		5.5		6.0		5.5
Max Green Setting (Gmax), s		38.0		35.5		38.0		35.5
Max Q Clear Time (g_c+I1), s		12.9		16.9		10.9		8.1
Green Ext Time (p_c), s		6.6		2.8		6.7		3.0

Intersection Summary	
HCM 2010 Ctrl Delay	10.7
HCM 2010 LOS	B

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	13	357	21	20	364
Future Volume (veh/h)	8	13	357	21	20	364
Number	7	14	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.95	0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1676	1676	1676	1676
Adj Flow Rate, veh/h	8	3	357	15	20	364
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	21	19	1506	1222	889	1506
Arrive On Green	0.01	0.01	1.00	1.00	1.00	1.00
Sat Flow, veh/h	1597	1425	1676	1360	895	1676
Grp Volume(v), veh/h	8	3	357	15	20	364
Grp Sat Flow(s),veh/h/ln	1597	1425	1676	1360	895	1676
Q Serve(g_s), s	0.4	0.2	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.2	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	21	19	1506	1222	889	1506
V/C Ratio(X)	0.37	0.16	0.24	0.01	0.02	0.24
Avail Cap(c_a), veh/h	423	377	1506	1222	889	1506
HCM Platoon Ratio	1.00	1.00	1.33	1.33	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.97	0.97	0.96	0.96
Uniform Delay (d), s/veh	41.6	41.5	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	3.9	1.4	0.4	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.2	0.0	0.0	0.2
LnGrp Delay(d),s/veh	45.5	42.8	0.4	0.0	0.0	0.4
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	11		372			384
Approach Delay, s/veh	44.8		0.3			0.4
Approach LOS	D		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		79.9		5.1		79.9		
Change Period (Y+Rc), s		3.5		4.0		3.5		
Max Green Setting (Gmax), s		55.0		22.5		55.0		
Max Q Clear Time (g_c+I1), s		2.0		2.4		2.0		
Green Ext Time (p_c), s		1.9		0.0		1.9		

Intersection Summary		
HCM 2010 Ctrl Delay		1.0
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	2	10	0	0	0	16	529	23	19	703	17
Future Volume (veh/h)	1	2	10	0	0	0	16	529	23	19	703	17
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				0.98		0.91	0.97		0.87
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710				1676	1676	1710	1676	1676	1710
Adj Flow Rate, veh/h	1	2	0				16	529	22	19	703	16
Adj No. of Lanes	0	1	0				1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	0				2	2	2	2	2	2
Cap, veh/h	65	130	0				571	2353	98	650	2406	55
Arrive On Green	0.12	0.12	0.00				1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	550	1099	0				642	3103	129	745	3172	72
Grp Volume(v), veh/h	3	0	0				16	271	280	19	353	366
Grp Sat Flow(s),veh/h/ln	1649	0	0				642	1593	1639	745	1593	1651
Q Serve(g_s), s	0.1	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.33		0.00				1.00		0.08	1.00		0.04
Lane Grp Cap(c), veh/h	195	0	0				571	1208	1243	650	1208	1252
V/C Ratio(X)	0.02	0.00	0.00				0.03	0.22	0.23	0.03	0.29	0.29
Avail Cap(c_a), veh/h	708	0	0				571	1208	1243	650	1208	1252
HCM Platoon Ratio	1.00	1.00	1.00				2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00				0.98	0.98	0.98	0.97	0.97	0.97
Uniform Delay (d), s/veh	33.1	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0				0.1	0.4	0.4	0.1	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0				0.0	0.1	0.1	0.0	0.2	0.2
LnGrp Delay(d),s/veh	33.1	0.0	0.0				0.1	0.4	0.4	0.1	0.6	0.6
LnGrp LOS	C						A	A	A	A	A	A
Approach Vol, veh/h		3						567			738	
Approach Delay, s/veh		33.1						0.4			0.6	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		69.5		15.5		69.5		
Change Period (Y+Rc), s		5.0		5.5		5.0		
Max Green Setting (Gmax), s		38.0		36.5		18.0		
Max Q Clear Time (g_c+I1), s		2.0		2.1		2.0		
Green Ext Time (p_c), s		3.5		0.0		3.2		

Intersection Summary			
HCM 2010 Ctrl Delay			0.6
HCM 2010 LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	9	23	0	0	53	11	481	5	248	451	16
Future Volume (vph)	0	9	23	0	0	53	11	481	5	248	451	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5				4.5		5.0		2.0	5.0	
Lane Util. Factor		1.00				1.00		0.95		1.00	0.95	
Frpb, ped/bikes		0.95				1.00		1.00		1.00	0.99	
Flpb, ped/bikes		1.00				1.00		1.00		1.00	1.00	
Frt		0.90				0.86		1.00		1.00	0.99	
Flt Protected		1.00				1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1439				1450		3163		1593	3139	
Flt Permitted		1.00				1.00		0.94		0.95	1.00	
Satd. Flow (perm)		1439				1450		2989		1593	3139	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	9	23	0	0	53	11	481	5	248	451	16
RTOR Reduction (vph)	0	22	0	0	0	39	0	1	0	0	2	0
Lane Group Flow (vph)	0	10	0	0	0	14	0	496	0	248	465	0
Confl. Peds. (#/hr)			16	16			121		82			121
Confl. Bikes (#/hr)									8			61
Turn Type		NA				Prot	Perm	NA		Prot	NA	
Protected Phases		4				8		2		3	6	
Permitted Phases							2					
Actuated Green, G (s)		3.7				22.3		53.2		16.6	53.2	
Effective Green, g (s)		3.7				22.3		53.2		16.6	53.2	
Actuated g/C Ratio		0.04				0.26		0.63		0.20	0.63	
Clearance Time (s)		4.5				4.5		5.0		2.0	5.0	
Vehicle Extension (s)		2.0				2.0		2.0		2.0	2.0	
Lane Grp Cap (vph)		62				380		1870		311	1964	
v/s Ratio Prot		c0.01				0.01				c0.16	0.15	
v/s Ratio Perm								c0.17				
v/c Ratio		0.16				0.04		0.27		0.80	0.24	
Uniform Delay, d1		39.2				23.3		7.1		32.6	7.0	
Progression Factor		1.00				1.00		0.72		0.84	1.37	
Incremental Delay, d2		0.4				0.0		0.3		12.3	0.3	
Delay (s)		39.6				23.4		5.5		39.6	9.8	
Level of Service		D				C		A		D	A	
Approach Delay (s)		39.6			23.4			5.5			20.1	
Approach LOS		D			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	22	62	18	370	348	24
Future Volume (veh/h)	22	62	18	370	348	24
Number	7	14	5	2	6	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	0.97			0.89
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1676	1676	1676	1710
Adj Flow Rate, veh/h	22	12	18	370	348	24
Adj No. of Lanes	1	1	1	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	52	46	858	1474	1351	93
Arrive On Green	0.03	0.03	1.00	1.00	1.00	1.00
Sat Flow, veh/h	1597	1425	879	1676	1536	106
Grp Volume(v), veh/h	22	12	18	370	0	372
Grp Sat Flow(s),veh/h/ln	1597	1425	879	1676	0	1642
Q Serve(g_s), s	1.1	0.7	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.1	0.7	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00	1.00			0.06
Lane Grp Cap(c), veh/h	52	46	858	1474	0	1444
V/C Ratio(X)	0.42	0.26	0.02	0.25	0.00	0.26
Avail Cap(c_a), veh/h	441	394	858	1474	0	1444
HCM Platoon Ratio	1.00	1.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.97	0.97	0.00	0.97
Uniform Delay (d), s/veh	40.3	40.1	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.0	1.1	0.0	0.4	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.3	0.0	0.2	0.0	0.2
LnGrp Delay(d),s/veh	42.4	41.2	0.0	0.4	0.0	0.4
LnGrp LOS	D	D	A	A		A
Approach Vol, veh/h	34			388	372	
Approach Delay, s/veh	42.0			0.4	0.4	
Approach LOS	D			A	A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		78.2		6.8		78.2		
Change Period (Y+Rc), s		3.5		4.0		3.5		
Max Green Setting (Gmax), s		54.0		23.5		54.0		
Max Q Clear Time (g_c+I1), s		2.0		3.1		2.0		
Green Ext Time (p_c), s		1.9		0.0		1.9		

Intersection Summary		
HCM 2010 Ctrl Delay		2.2
HCM 2010 LOS		A

Movement	EBU	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	35	107	112	86	24	53	20	189	163	263	318	60
Future Volume (vph)	35	107	112	86	24	53	20	189	163	263	318	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0			4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00	0.95	1.00			1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes		1.00	1.00	0.87			1.00	1.00	0.79	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00			1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85			1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.95	1.00	1.00			0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1593	3185	1242			1593	1676	1121	3090	3103	
Flt Permitted		0.95	1.00	1.00			0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1593	3185	1242			1593	1676	1121	3090	3103	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	35	107	112	86	24	53	20	189	163	263	318	60
RTOR Reduction (vph)	0	0	0	98	0	0	0	0	132	0	9	0
Lane Group Flow (vph)	0	142	112	12	0	0	73	189	31	263	369	0
Confl. Peds. (#/hr)				36					70			
Confl. Bikes (#/hr)				10					39			3
Turn Type	Prot	Prot	NA	Perm		Prot	Prot	NA	Perm	Prot	NA	
Protected Phases	7	7	4			3	3	8		5	2	
Permitted Phases				4					8			
Actuated Green, G (s)		17.7	13.9	13.9			7.0	25.9	25.9	16.0	63.1	
Effective Green, g (s)		18.7	14.9	14.9			8.0	26.9	26.9	17.0	64.1	
Actuated g/C Ratio		0.13	0.11	0.11			0.06	0.19	0.19	0.12	0.46	
Clearance Time (s)		5.0	5.0	5.0			5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0			3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		212	338	132			91	322	215	375	1420	
v/s Ratio Prot		c0.09	0.04				c0.05	c0.11		c0.09	c0.12	
v/s Ratio Perm				0.01					0.03			
v/c Ratio		0.67	0.33	0.09			0.80	0.59	0.15	0.70	0.26	
Uniform Delay, d1		57.7	57.9	56.4			65.2	51.5	47.0	59.1	23.4	
Progression Factor		1.00	1.00	1.00			1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		7.8	0.6	0.3			38.2	2.7	0.3	5.8	0.4	
Delay (s)		65.5	58.5	56.7			103.4	54.2	47.3	64.9	23.8	
Level of Service		E	E	E			F	D	D	E	C	
Approach Delay (s)			60.7					60.0			40.7	
Approach LOS			E					E			D	

Intersection Summary			
HCM 2000 Control Delay	47.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	91	887	92	125
Future Volume (vph)	91	887	92	125
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	0.99		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.97		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1593	3058		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1593	3058		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00
Adj. Flow (vph)	91	887	92	125
RTOR Reduction (vph)	0	6	0	0
Lane Group Flow (vph)	91	1098	0	0
Confl. Peds. (#/hr)				
Confl. Bikes (#/hr)			41	
Turn Type	Prot	NA		
Protected Phases	1	6		
Permitted Phases				
Actuated Green, G (s)	13.3	60.4		
Effective Green, g (s)	14.3	61.4		
Actuated g/C Ratio	0.10	0.44		
Clearance Time (s)	5.0	5.0		
Vehicle Extension (s)	3.0	3.0		
Lane Grp Cap (vph)	162	1341		
v/s Ratio Prot	0.06	c0.36		
v/s Ratio Perm				
v/c Ratio	0.56	0.82		
Uniform Delay, d1	59.9	34.4		
Progression Factor	1.00	1.00		
Incremental Delay, d2	4.4	5.7		
Delay (s)	64.3	40.1		
Level of Service	E	D		
Approach Delay (s)		41.9		
Approach LOS		D		

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	143	526	460	140	790	198
Future Volume (veh/h)	143	526	460	140	790	198
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.96	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1676	1710	1676	1676
Adj Flow Rate, veh/h	143	526	460	115	790	67
Adj No. of Lanes	1	2	2	0	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	342	1917	847	210	952	425
Arrive On Green	0.43	1.00	0.34	0.33	0.30	0.30
Sat Flow, veh/h	1597	3269	2593	622	3193	1425
Grp Volume(v), veh/h	143	526	290	285	790	67
Grp Sat Flow(s),veh/h/ln	1597	1593	1593	1539	1597	1425
Q Serve(g_s), s	5.0	0.0	11.8	12.0	18.5	2.8
Cycle Q Clear(g_c), s	5.0	0.0	11.8	12.0	18.5	2.8
Prop In Lane	1.00			0.40	1.00	1.00
Lane Grp Cap(c), veh/h	342	1917	538	519	952	425
V/C Ratio(X)	0.42	0.27	0.54	0.55	0.83	0.16
Avail Cap(c_a), veh/h	342	1917	538	519	1158	517
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	0.96	0.96	1.00	1.00
Uniform Delay (d), s/veh	19.4	0.0	21.5	21.6	26.2	20.7
Incr Delay (d2), s/veh	0.3	0.3	3.7	3.9	3.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.1	5.7	5.6	8.6	2.5
LnGrp Delay(d),s/veh	19.6	0.3	25.2	25.6	29.9	20.7
LnGrp LOS	B	A	C	C	C	C
Approach Vol, veh/h		669	575		857	
Approach Delay, s/veh		4.4	25.4		29.1	
Approach LOS		A	C		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		52.2		27.8	21.2	31.0		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		42.5		28.5	11.5	26.5		
Max Q Clear Time (g_c+I1), s		2.0		20.5	7.0	14.0		
Green Ext Time (p_c), s		3.4		2.9	1.4	2.1		

Intersection Summary		
HCM 2010 Ctrl Delay		20.2
HCM 2010 LOS		C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	766	433	116	371	48	155	227	91	69	314	70
Future Volume (veh/h)	102	766	433	116	371	48	155	227	91	69	314	70
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.92	1.00		0.93	0.98		0.96	0.97		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1676	1676	1676	1676	1676	1676
Adj Flow Rate, veh/h	102	766	433	116	371	48	155	227	70	69	314	26
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	428	817	458	101	1207	155	435	799	649	406	571	435
Arrive On Green	0.43	0.43	0.42	0.86	0.86	0.85	0.09	0.48	0.48	0.68	0.68	0.68
Sat Flow, veh/h	851	1902	1066	418	2812	360	1597	1676	1363	945	1676	1278
Grp Volume(v), veh/h	102	640	559	116	208	211	155	227	70	69	314	26
Grp Sat Flow(s),veh/h/ln	851	1593	1376	418	1593	1579	1597	1676	1363	945	1676	1278
Q Serve(g_s), s	6.9	32.6	33.2	3.3	2.1	2.2	5.2	7.0	2.4	2.3	8.1	0.6
Cycle Q Clear(g_c), s	9.1	32.6	33.2	36.5	2.1	2.2	5.2	7.0	2.4	2.3	8.1	0.6
Prop In Lane	1.00		0.78	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	428	684	591	101	684	678	435	799	649	406	571	435
V/C Ratio(X)	0.24	0.94	0.95	1.15	0.30	0.31	0.36	0.28	0.11	0.17	0.55	0.06
Avail Cap(c_a), veh/h	428	684	591	101	684	678	462	799	649	406	571	435
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.97	0.97
Uniform Delay (d), s/veh	17.2	23.1	23.5	24.0	3.6	3.6	15.7	13.5	12.3	9.3	10.2	9.0
Incr Delay (d2), s/veh	0.1	16.7	20.1	134.8	0.1	0.1	0.2	0.9	0.3	0.9	3.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	17.4	15.9	6.1	0.9	0.9	2.3	3.4	1.0	0.7	4.1	0.2
LnGrp Delay(d),s/veh	17.3	39.8	43.6	158.8	3.7	3.7	15.9	14.4	12.6	10.2	13.9	9.3
LnGrp LOS	B	D	D	F	A	A	B	B	B	B	B	A
Approach Vol, veh/h		1301			535			452			409	
Approach Delay, s/veh		39.7			37.3			14.6			13.0	
Approach LOS		D			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		44.5		40.5	11.5	33.0		40.5
Change Period (Y+Rc), s		6.0		4.5	4.5	6.0		4.5
Max Green Setting (Gmax), s		38.5		36.0	8.5	25.5		36.0
Max Q Clear Time (g_c+I1), s		9.0		35.2	7.2	10.1		38.5
Green Ext Time (p_c), s		3.4		0.7	0.1	2.9		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		31.0
HCM 2010 LOS		C

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	27	681	187	39	546	9	2	4	8	3	4	20
Future Vol, veh/h	27	681	187	39	546	9	2	4	8	3	4	20
Conflicting Peds, #/hr	20	0	36	36	0	20	22	0	35	35	0	22
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	681	187	39	546	9	2	4	8	3	4	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	575	0	0	904	0	0	1240	1518	505	1081	1607	320
Stage 1	-	-	-	-	-	-	865	865	-	649	649	-
Stage 2	-	-	-	-	-	-	375	653	-	432	958	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	994	-	-	748	-	-	131	118	512	172	104	676
Stage 1	-	-	-	-	-	-	315	369	-	425	464	-
Stage 2	-	-	-	-	-	-	618	462	-	572	334	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	973	-	-	723	-	-	104	97	478	140	86	649
Mov Cap-2 Maneuver	-	-	-	-	-	-	104	97	-	140	86	-
Stage 1	-	-	-	-	-	-	287	336	-	394	420	-
Stage 2	-	-	-	-	-	-	536	418	-	507	304	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	1	26.6	19.6
HCM LOS			D	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	181	973	-	-	723	-	-	273
HCM Lane V/C Ratio	0.077	0.028	-	-	0.054	-	-	0.099
HCM Control Delay (s)	26.6	8.8	0.2	-	10.3	0.4	-	19.6
HCM Lane LOS	D	A	A	-	B	A	-	C
HCM 95th %tile Q(veh)	0.2	0.1	-	-	0.2	-	-	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	549	76	110	416	25	118	362	131	50	319	67
Future Volume (veh/h)	61	549	76	110	416	25	118	362	131	50	319	67
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	0.99		0.92	0.97		0.88	0.94		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1710	1676	1710	1676	1676	1676	1676	1676	1710
Adj Flow Rate, veh/h	61	549	59	110	416	19	118	362	85	50	319	55
Adj No. of Lanes	1	2	0	0	2	0	1	2	1	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	224	1018	109	186	695	33	478	1761	691	525	1475	249
Arrive On Green	0.71	0.71	0.69	0.12	0.12	0.11	1.00	1.00	1.00	0.18	0.18	0.18
Sat Flow, veh/h	855	2881	309	351	1967	94	876	3185	1251	796	2668	451
Grp Volume(v), veh/h	61	303	305	243	0	302	118	362	85	50	188	186
Grp Sat Flow(s),veh/h/ln	855	1593	1597	913	0	1500	876	1593	1251	796	1593	1526
Q Serve(g_s), s	4.8	7.6	7.8	15.3	0.0	16.2	2.9	0.0	0.0	4.5	8.5	8.8
Cycle Q Clear(g_c), s	20.9	7.6	7.8	23.1	0.0	16.2	11.7	0.0	0.0	4.5	8.5	8.8
Prop In Lane	1.00		0.19	0.45		0.06	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	224	562	564	384	0	530	478	1761	691	525	880	844
V/C Ratio(X)	0.27	0.54	0.54	0.63	0.00	0.57	0.25	0.21	0.12	0.10	0.21	0.22
Avail Cap(c_a), veh/h	284	675	676	458	0	635	478	1761	691	525	880	844
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	2.00	2.00	2.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	0.97	0.00	0.97	0.97	0.97	0.97	0.98	0.98	0.98
Uniform Delay (d), s/veh	17.5	9.2	9.3	35.5	0.0	31.4	1.1	0.0	0.0	17.4	19.0	19.2
Incr Delay (d2), s/veh	0.2	0.3	0.3	1.1	0.0	0.3	1.2	0.3	0.4	0.4	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	3.3	3.4	5.7	0.0	6.8	0.8	0.1	0.1	1.0	3.9	3.9
LnGrp Delay(d),s/veh	17.7	9.5	9.6	36.6	0.0	31.8	2.3	0.3	0.4	17.7	19.6	19.8
LnGrp LOS	B	A	A	D		C	A	A	A	B	B	B
Approach Vol, veh/h		669			545			565			424	
Approach Delay, s/veh		10.3			33.9			0.7			19.4	
Approach LOS		B			C			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		51.0		34.0		51.0		34.0
Change Period (Y+Rc), s		5.0		4.5		5.0		4.5
Max Green Setting (Gmax), s		40.0		35.5		40.0		35.5
Max Q Clear Time (g_c+I1), s		13.7		22.9		10.8		25.1
Green Ext Time (p_c), s		5.5		4.9		5.6		4.4

Intersection Summary	
HCM 2010 Ctrl Delay	15.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	371	287	137	538	48	0	0	0	33	187	21
Future Volume (veh/h)	59	371	287	137	538	48	0	0	0	33	187	21
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.88	1.00		0.88				1.00		0.73
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710	1676	1676	1710				1710	1676	1710
Adj Flow Rate, veh/h	59	371	188	137	538	40				33	187	17
Adj No. of Lanes	0	2	0	1	2	0				0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2				0	2	0
Cap, veh/h	138	786	384	177	1868	138				62	350	32
Arrive On Green	0.16	0.16	0.15	0.11	0.63	0.61				0.28	0.28	0.28
Sat Flow, veh/h	187	1671	817	1597	2975	220				222	1260	115
Grp Volume(v), veh/h	331	0	287	137	287	291				237	0	0
Grp Sat Flow(s),veh/h/ln	1427	0	1248	1597	1593	1603				1596	0	0
Q Serve(g_s), s	7.7	0.0	17.9	7.1	7.0	7.1				10.7	0.0	0.0
Cycle Q Clear(g_c), s	16.7	0.0	17.9	7.1	7.0	7.1				10.7	0.0	0.0
Prop In Lane	0.18		0.65	1.00		0.14				0.14		0.07
Lane Grp Cap(c), veh/h	721	0	587	177	1000	1006				444	0	0
V/C Ratio(X)	0.46	0.00	0.49	0.78	0.29	0.29				0.53	0.00	0.00
Avail Cap(c_a), veh/h	721	0	587	263	1000	1006				488	0	0
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.85	0.00	0.85	0.93	0.93	0.93				1.00	0.00	0.00
Uniform Delay (d), s/veh	25.7	0.0	26.7	36.8	7.2	7.2				26.0	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	2.5	3.8	0.7	0.7				0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	0.0	6.6	3.3	3.2	3.3				4.7	0.0	0.0
LnGrp Delay(d),s/veh	27.5	0.0	29.2	40.5	7.9	7.9				26.4	0.0	0.0
LnGrp LOS	C		C	D	A	A				C		
Approach Vol, veh/h		618			715						237	
Approach Delay, s/veh		28.3			14.1						26.4	
Approach LOS		C			B						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	13.4	44.0		27.6		57.4		
Change Period (Y+Rc), s	4.5	5.5		3.5		5.5		
Max Green Setting (Gmax), s	13.5	31.5		26.5		49.5		
Max Q Clear Time (g_c+I1), s	9.1	19.9		12.7		9.1		
Green Ext Time (p_c), s	0.2	4.6		0.8		6.7		

Intersection Summary	
HCM 2010 Ctrl Delay	21.6
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	347	0	11	777	25	7	1	3	13	0	38
Future Volume (veh/h)	41	347	0	11	777	25	7	1	3	13	0	38
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		1.00	0.94		0.83	0.89		0.88	0.88		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	41	347	0	11	777	22	7	1	1	13	0	10
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	352	1857	0	590	1833	52	365	51	43	268	15	167
Arrive On Green	1.00	1.00	0.00	0.58	0.58	0.58	0.32	0.32	0.32	0.32	0.00	0.32
Sat Flow, veh/h	599	3269	0	867	3143	89	898	158	132	625	46	516
Grp Volume(v), veh/h	41	347	0	11	394	405	9	0	0	23	0	0
Grp Sat Flow(s),veh/h/ln	599	1593	0	867	1593	1639	1188	0	0	1187	0	0
Q Serve(g_s), s	1.6	0.0	0.0	0.5	11.6	11.6	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	13.2	0.0	0.0	0.5	11.6	11.6	0.3	0.0	0.0	0.9	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.05	0.78		0.11	0.57		0.43
Lane Grp Cap(c), veh/h	352	1857	0	590	929	956	459	0	0	449	0	0
V/C Ratio(X)	0.12	0.19	0.00	0.02	0.42	0.42	0.02	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	352	1857	0	590	929	956	522	0	0	512	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.74	0.74	0.00	0.86	0.86	0.86	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.6	0.0	0.0	7.5	9.8	9.8	19.6	0.0	0.0	19.9	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.2	0.0	0.0	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.1	5.3	5.5	0.1	0.0	0.0	0.4	0.0	0.0
LnGrp Delay(d),s/veh	2.1	0.2	0.0	7.5	11.0	11.0	19.6	0.0	0.0	19.9	0.0	0.0
LnGrp LOS	A	A		A	B	B	B			B		
Approach Vol, veh/h		388			810			9			23	
Approach Delay, s/veh		0.4			11.0			19.6			19.9	
Approach LOS		A			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		53.6		31.4		53.6		31.4
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		44.5		31.5		44.5		31.5
Max Q Clear Time (g_c+I1), s		15.2		2.9		13.6		2.3
Green Ext Time (p_c), s		6.5		0.1		6.6		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	7.9
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	181	112	453	609	120	53	603	259	9	791	116
Future Volume (veh/h)	63	181	112	453	609	120	53	603	259	9	791	116
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.82	1.00		0.83	0.96		0.78	0.95		0.77
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1676	1676	1710	1676	1710
Adj Flow Rate, veh/h	63	181	102	453	609	102	53	603	189	9	791	102
Adj No. of Lanes	2	2	0	2	2	0	0	3	1	0	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	136	654	331	534	1297	216	113	1053	412	46	1266	159
Arrive On Green	0.04	0.34	0.33	0.23	0.65	0.63	0.66	0.66	0.63	0.33	0.33	0.31
Sat Flow, veh/h	3097	1899	960	3097	2645	441	168	3171	1112	15	3811	479
Grp Volume(v), veh/h	63	148	135	453	366	345	128	528	189	344	288	270
Grp Sat Flow(s),veh/h/ln	1549	1593	1266	1549	1593	1493	562	1388	1112	1647	1388	1270
Q Serve(g_s), s	1.8	6.1	7.1	12.6	10.3	10.6	5.4	9.3	8.1	0.0	15.7	16.3
Cycle Q Clear(g_c), s	1.8	6.1	7.1	12.6	10.3	10.6	21.7	9.3	8.1	15.5	15.7	16.3
Prop In Lane	1.00		0.76	1.00		0.30	0.42		1.00	0.03		0.38
Lane Grp Cap(c), veh/h	136	549	436	534	781	732	243	922	412	588	461	422
V/C Ratio(X)	0.46	0.27	0.31	0.85	0.47	0.47	0.52	0.57	0.46	0.58	0.63	0.64
Avail Cap(c_a), veh/h	379	549	436	551	781	732	254	956	426	608	478	438
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.99	0.99	0.89	0.89	0.89	0.99	0.99	0.99	0.53	0.53	0.53
Uniform Delay (d), s/veh	42.0	21.3	22.1	33.6	9.8	10.0	13.4	11.6	11.4	25.2	25.3	25.8
Incr Delay (d2), s/veh	2.4	1.2	1.8	10.6	1.8	1.9	1.7	0.8	0.8	0.7	1.3	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.8	2.7	6.1	4.8	4.7	1.4	3.5	2.5	7.3	6.2	5.9
LnGrp Delay(d),s/veh	44.4	22.5	23.9	44.1	11.6	12.0	15.1	12.4	12.2	26.0	26.6	27.4
LnGrp LOS	D	C	C	D	B	B	B	B	B	C	C	C
Approach Vol, veh/h		346			1164			845			902	
Approach Delay, s/veh		27.1			24.4			12.8			26.6	
Approach LOS		C			C			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		33.9	8.0	48.1		33.9	21.1	35.0
Change Period (Y+Rc), s		5.6	4.0	5.6		5.6	5.6	* 5.6
Max Green Setting (Gmax), s		29.4	11.0	34.4		29.4	16.0	* 29
Max Q Clear Time (g_c+I1), s		23.7	3.8	12.6		18.3	14.6	9.1
Green Ext Time (p_c), s		4.6	0.1	8.6		8.1	0.4	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	22.3
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	56	433	988	267	104	85
Future Volume (veh/h)	56	433	988	267	104	85
Number	7	4	8	18	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.89	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1676	1676	1676	1710
Adj Flow Rate, veh/h	56	433	988	183	122	0
Adj No. of Lanes	1	2	2	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	335	2688	2688	1058	214	89
Arrive On Green	1.00	1.00	0.28	0.28	0.07	0.00
Sat Flow, veh/h	429	3269	3269	1262	3193	1454
Grp Volume(v), veh/h	56	433	988	183	122	0
Grp Sat Flow(s),veh/h/ln	429	1593	1593	1262	1597	1454
Q Serve(g_s), s	4.1	0.0	22.4	9.9	3.3	0.0
Cycle Q Clear(g_c), s	26.5	0.0	22.4	9.9	3.3	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	335	2688	2688	1058	214	89
V/C Ratio(X)	0.17	0.16	0.37	0.17	0.57	0.00
Avail Cap(c_a), veh/h	335	2688	2688	1058	993	444
HCM Platoon Ratio	2.00	2.00	0.33	0.33	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.81	0.81	1.00	0.00
Uniform Delay (d), s/veh	3.9	0.0	13.2	8.8	40.7	0.0
Incr Delay (d2), s/veh	1.0	0.1	0.3	0.3	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	10.1	3.6	1.5	0.0
LnGrp Delay(d),s/veh	4.9	0.1	13.5	9.1	41.6	0.0
LnGrp LOS	A	A	B	A	D	
Approach Vol, veh/h		489	1171		122	
Approach Delay, s/veh		0.7	12.8		41.6	
Approach LOS		A	B		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		10.0		80.0				80.0
Change Period (Y+Rc), s		4.5		4.5				4.5
Max Green Setting (Gmax), s		27.5		53.5				53.5
Max Q Clear Time (g_c+I1), s		5.3		28.5				24.4
Green Ext Time (p_c), s		0.5		10.7				11.4

Intersection Summary		
HCM 2010 Ctrl Delay		11.4
HCM 2010 LOS		B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	480	30	42	1178	13	0	0	0	20	2	49
Future Volume (veh/h)	19	480	30	42	1178	13	0	0	0	20	2	49
Number	3	8	18	7	4	14				5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.88	0.95		0.77				1.00		0.81
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710				1710	1676	1710
Adj Flow Rate, veh/h	19	480	26	42	1178	12				20	2	27
Adj No. of Lanes	1	2	0	1	2	0				0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2				0	2	0
Cap, veh/h	329	1860	100	543	1963	20				159	16	215
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00				0.30	0.30	0.29
Sat Flow, veh/h	408	3049	165	759	3219	33				538	54	726
Grp Volume(v), veh/h	19	250	256	42	583	607				49	0	0
Grp Sat Flow(s),veh/h/ln	408	1593	1621	759	1593	1659				1318	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0				2.5	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0				2.5	0.0	0.0
Prop In Lane	1.00		0.10	1.00		0.02				0.41		0.55
Lane Grp Cap(c), veh/h	329	971	989	543	971	1012				390	0	0
V/C Ratio(X)	0.06	0.26	0.26	0.08	0.60	0.60				0.13	0.00	0.00
Avail Cap(c_a), veh/h	329	971	989	543	971	1012				432	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98	0.82	0.82	0.82				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				23.3	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.6	0.6	0.2	2.2	2.2				0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.2	0.0	0.6	0.6				0.9	0.0	0.0
LnGrp Delay(d),s/veh	0.3	0.6	0.6	0.2	2.2	2.2				23.3	0.0	0.0
LnGrp LOS	A	A	A	A	A	A				C		
Approach Vol, veh/h		525			1232						49	
Approach Delay, s/veh		0.6			2.1						23.3	
Approach LOS		A			A						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		31.1		58.9				58.9
Change Period (Y+Rc), s		5.0		4.5				4.5
Max Green Setting (Gmax), s		29.0		51.5				51.5
Max Q Clear Time (g_c+I1), s		4.5		2.0				2.0
Green Ext Time (p_c), s		0.1		2.7				2.7

Intersection Summary			
HCM 2010 Ctrl Delay			2.3
HCM 2010 LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	415	27	31	1055	28	40	10	8	47	7	108
Future Volume (veh/h)	33	415	27	31	1055	28	40	10	8	47	7	108
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.87	0.95		0.84	0.96		0.95	0.96		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	33	415	23	31	1055	26	40	10	2	47	7	66
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	387	2040	112	616	2118	52	292	66	11	161	38	175
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	457	3043	168	806	3160	78	918	275	48	436	160	728
Grp Volume(v), veh/h	33	216	222	31	532	549	52	0	0	120	0	0
Grp Sat Flow(s),veh/h/ln	457	1593	1618	806	1593	1645	1240	0	0	1323	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	6.5	0.0	0.0
Prop In Lane	1.00		0.10	1.00		0.05	0.77		0.04	0.39		0.55
Lane Grp Cap(c), veh/h	387	1068	1084	616	1068	1103	362	0	0	374	0	0
V/C Ratio(X)	0.09	0.20	0.20	0.05	0.50	0.50	0.14	0.00	0.00	0.32	0.00	0.00
Avail Cap(c_a), veh/h	387	1068	1084	616	1068	1103	503	0	0	523	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98	0.75	0.75	0.75	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	27.1	0.0	0.0	28.4	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.4	0.4	0.1	1.2	1.2	0.1	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.1	0.0	0.4	0.4	1.0	0.0	0.0	2.5	0.0	0.0
LnGrp Delay(d),s/veh	0.4	0.4	0.4	0.1	1.2	1.2	27.2	0.0	0.0	28.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C			C		
Approach Vol, veh/h		471			1112			52			120	
Approach Delay, s/veh		0.4			1.2			27.2			28.6	
Approach LOS		A			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		25.7		64.3		25.7		64.3
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		31.5		49.5		31.5		49.5
Max Q Clear Time (g_c+I1), s		8.5		2.0		4.8		2.0
Green Ext Time (p_c), s		0.2		2.4		0.2		2.4

Intersection Summary		
HCM 2010 Ctrl Delay		3.6
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	455	8	29	1111	32	11	2	16	22	1	21
Future Volume (veh/h)	12	455	8	29	1111	32	11	2	16	22	1	21
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.87	0.95		0.82	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	12	455	7	29	1111	30	11	2	5	22	1	7
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	335	1886	29	546	1854	50	311	61	119	364	23	97
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	433	3203	49	792	3148	85	766	191	368	914	72	300
Grp Volume(v), veh/h	12	226	236	29	562	579	18	0	0	30	0	0
Grp Sat Flow(s),veh/h/ln	433	1593	1659	792	1593	1640	1325	0	0	1287	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	1.3	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.05	0.61		0.28	0.73		0.23
Lane Grp Cap(c), veh/h	335	938	977	546	938	966	484	0	0	484	0	0
V/C Ratio(X)	0.04	0.24	0.24	0.05	0.60	0.60	0.04	0.00	0.00	0.06	0.00	0.00
Avail Cap(c_a), veh/h	335	938	977	546	938	966	484	0	0	484	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98	0.73	0.73	0.73	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	21.1	0.0	0.0	21.1	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.6	0.6	0.1	2.1	2.0	0.1	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.2	0.0	0.5	0.5	0.3	0.0	0.0	0.6	0.0	0.0
LnGrp Delay(d),s/veh	0.2	0.6	0.6	0.1	2.1	2.0	21.2	0.0	0.0	21.4	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C			C		
Approach Vol, veh/h		474			1170			18			30	
Approach Delay, s/veh		0.6			2.0			21.2			21.4	
Approach LOS		A			A			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		33.0		57.0		33.0		57.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		28.5		52.5		28.5		52.5				
Max Q Clear Time (g_c+I1), s		3.3		2.0		2.7		2.0				
Green Ext Time (p_c), s		0.2		18.1		0.2		18.1				
Intersection Summary												
HCM 2010 Ctrl Delay			2.1									
HCM 2010 LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	503	0	1	1156	104	0	0	0	31	0	28
Future Volume (veh/h)	24	503	0	1	1156	104	0	0	0	31	0	28
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	0.97		0.84	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	0	1710	1676	1710	0	1676	0	1710	1676	1710
Adj Flow Rate, veh/h	24	503	0	1	1156	98	0	0	0	31	0	0
Adj No. of Lanes	1	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	0	2	2	2	0	2	0	2	2	2
Cap, veh/h	585	2576	0	40	1337	113	0	162	0	203	0	0
Arrive On Green	0.60	1.00	0.00	0.46	0.47	0.46	0.00	0.00	0.00	0.10	0.00	0.00
Sat Flow, veh/h	1597	3269	0	0	2864	242	0	1676	0	1271	0	0
Grp Volume(v), veh/h	24	503	0	676	0	579	0	0	0	31	0	0
Grp Sat Flow(s),veh/h/ln	1597	1593	0	1676	0	1430	0	1676	0	1271	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	32.7	0.0	0.0	0.0	2.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	32.7	0.0	32.7	0.0	0.0	0.0	2.0	0.0	0.0
Prop In Lane	1.00		0.00	0.00		0.17	0.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	585	2576	0	813	0	668	0	162	0	210	0	0
V/C Ratio(X)	0.04	0.20	0.00	0.83	0.00	0.87	0.00	0.00	0.00	0.15	0.00	0.00
Avail Cap(c_a), veh/h	585	2576	0	813	0	668	0	512	0	475	0	0
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.00	0.78	0.00	0.78	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.6	0.0	0.0	21.5	0.0	21.6	0.0	0.0	0.0	37.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	7.7	0.0	11.6	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.0	16.8	0.0	15.0	0.0	0.0	0.0	0.7	0.0	0.0
LnGrp Delay(d),s/veh	10.6	0.2	0.0	29.3	0.0	33.2	0.0	0.0	0.0	37.5	0.0	0.0
LnGrp LOS	B	A		C		C				D		
Approach Vol, veh/h		527			1255			0			31	
Approach Delay, s/veh		0.6			31.1			0.0			37.5	
Approach LOS		A			C						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6		8
Phs Duration (G+Y+Rc), s		13.2	30.8	46.0		13.2		76.8
Change Period (Y+Rc), s		4.5	4.5	* 4.5		4.5		4.5
Max Green Setting (Gmax), s		27.5	8.0	* 42		27.5		53.5
Max Q Clear Time (g_c+I1), s		4.0	2.0	34.7		0.0		2.0
Green Ext Time (p_c), s		0.0	0.6	1.4		0.0		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	22.3
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	375	156	95	832	438	146
Future Volume (veh/h)	375	156	95	832	438	146
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.92	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1710	1676	1676	1676	1676
Adj Flow Rate, veh/h	375	121	95	832	438	44
Adj No. of Lanes	2	0	1	2	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1157	366	125	1952	483	424
Arrive On Green	0.50	0.49	0.16	1.00	0.30	0.30
Sat Flow, veh/h	2414	737	1597	3269	1597	1425
Grp Volume(v), veh/h	254	242	95	832	438	44
Grp Sat Flow(s),veh/h/ln	1593	1474	1597	1593	1597	1425
Q Serve(g_s), s	10.1	10.5	6.0	0.0	28.0	2.4
Cycle Q Clear(g_c), s	10.1	10.5	6.0	0.0	28.0	2.4
Prop In Lane		0.50	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	791	732	125	1952	483	424
V/C Ratio(X)	0.32	0.33	0.76	0.43	0.91	0.10
Avail Cap(c_a), veh/h	791	732	301	1952	603	531
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.92	0.92	1.00	1.00
Uniform Delay (d), s/veh	16.0	16.2	43.7	0.0	35.6	27.0
Incr Delay (d2), s/veh	1.1	1.2	8.3	0.6	13.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	4.5	2.9	0.2	14.1	0.9
LnGrp Delay(d),s/veh	17.0	17.4	52.0	0.6	49.3	27.0
LnGrp LOS	B	B	D	A	D	C
Approach Vol, veh/h	496			927	482	
Approach Delay, s/veh	17.2			5.9	47.2	
Approach LOS	B			A	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	12.3	57.6				70.0		36.0
Change Period (Y+Rc), s	4.5	5.5				5.5		4.5
Max Green Setting (Gmax), s	19.5	32.5				56.5		39.5
Max Q Clear Time (g_c+I1), s	8.0	12.5				2.0		30.0
Green Ext Time (p_c), s	0.3	8.6				11.4		1.6

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	649	285	0	0	0	0	300	211	177	788	0
Future Volume (veh/h)	155	649	285	0	0	0	0	300	211	177	788	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.85				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710				0	1676	1676	1676	1676	0
Adj Flow Rate, veh/h	155	649	221				0	300	0	177	788	0
Adj No. of Lanes	0	3	0				0	2	1	1	2	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	183	812	281				0	1521	674	206	2037	0
Arrive On Green	0.29	0.29	0.28				0.00	0.48	0.00	0.26	1.00	0.00
Sat Flow, veh/h	641	2847	986				0	3269	1425	1597	3269	0
Grp Volume(v), veh/h	398	335	292				0	300	0	177	788	0
Grp Sat Flow(s),veh/h/ln	1644	1526	1305				0	1593	1425	1597	1593	0
Q Serve(g_s), s	24.2	21.3	21.9				0.0	5.8	0.0	11.2	0.0	0.0
Cycle Q Clear(g_c), s	24.2	21.3	21.9				0.0	5.8	0.0	11.2	0.0	0.0
Prop In Lane	0.39		0.76				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	469	435	372				0	1521	674	206	2037	0
V/C Ratio(X)	0.85	0.77	0.79				0.00	0.20	0.00	0.86	0.39	0.00
Avail Cap(c_a), veh/h	566	525	449				0	1521	674	414	2037	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.94	0.00	0.70	0.70	0.00
Uniform Delay (d), s/veh	35.7	34.7	35.1				0.0	16.0	0.0	38.4	0.0	0.0
Incr Delay (d2), s/veh	8.6	4.4	6.0				0.0	0.3	0.0	2.9	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.1	9.5	8.5				0.0	2.6	0.0	5.1	0.1	0.0
LnGrp Delay(d),s/veh	44.3	39.2	41.1				0.0	16.2	0.0	41.3	0.4	0.0
LnGrp LOS	D	D	D					B		D	A	
Approach Vol, veh/h		1025						300			965	
Approach Delay, s/veh		41.7						16.2			7.9	
Approach LOS		D						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	17.2	54.1		34.7		71.3		
Change Period (Y+Rc), s	3.5	4.0		5.0		4.0		
Max Green Setting (Gmax), s	27.5	30.0		36.0		61.0		
Max Q Clear Time (g_c+I1), s	13.2	7.8		26.2		2.0		
Green Ext Time (p_c), s	0.5	5.7		3.6		6.5		

Intersection Summary	
HCM 2010 Ctrl Delay	24.1
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	50	2	108	35	324	0	0	799	38
Future Vol, veh/h	0	0	0	50	2	108	35	324	0	0	799	38
Conflicting Peds, #/hr	1	0	20	20	0	1	71	0	68	68	0	71
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	100	-	0	50	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	50	2	108	35	324	0	0	799	38

Major/Minor				Minor1			Major1			Major2		
Conflicting Flow All				1232	1302	325	908	0	-	-	-	0
Stage 1				394	394	-	-	-	-	-	-	-
Stage 2				838	908	-	-	-	-	-	-	-
Critical Hdwy				6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1				5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy				3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver				196	161	716	750	-	0	0	-	-
Stage 1				681	605	-	-	-	0	0	-	-
Stage 2				424	354	-	-	-	0	0	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver				183	0	715	736	-	-	-	-	-
Mov Cap-2 Maneuver				183	0	-	-	-	-	-	-	-
Stage 1				649	0	-	-	-	-	-	-	-
Stage 2				416	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.9	1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	736	-	183	715	-	-
HCM Lane V/C Ratio	0.048	-	0.284	0.151	-	-
HCM Control Delay (s)	10.1	-	32.3	10.9	-	-
HCM Lane LOS	B	-	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.1	0.5	-	-

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	161	17	0	210
Future Vol, veh/h	0	0	161	17	0	210
Conflicting Peds, #/hr	15	0	0	15	20	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	161	17	0	210

Major/Minor	Major2		Minor2	
Conflicting Flow All	-	0	-	187
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	855
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-		
Mov Cap-1 Maneuver	-	-	-	843
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	SB
HCM Control Delay, s	0	10.7
HCM LOS		B

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	843
HCM Lane V/C Ratio	-	-	0.249
HCM Control Delay (s)	-	-	10.7
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	13	64	206	58	405	0	0	474	32
Future Volume (veh/h)	0	0	0	13	64	206	58	405	0	0	474	32
Number				7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.84	0.93		1.00	1.00		0.82
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1676	1676	1710	1676	0	0	1676	1710
Adj Flow Rate, veh/h				13	64	57	58	405	0	0	474	30
Adj No. of Lanes				0	1	2	0	2	0	0	2	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				50	247	375	266	1797	0	0	2180	137
Arrive On Green				0.18	0.18	0.18	0.72	0.73	0.00	0.00	1.00	1.00
Sat Flow, veh/h				281	1382	2098	292	2548	0	0	3083	189
Grp Volume(v), veh/h				77	0	57	229	234	0	0	250	254
Grp Sat Flow(s),veh/h/ln				1662	0	1049	1315	1449	0	0	1593	1595
Q Serve(g_s), s				3.4	0.0	1.9	0.0	4.5	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				3.4	0.0	1.9	3.7	4.5	0.0	0.0	0.0	0.0
Prop In Lane				0.17		1.00	0.25		0.00	0.00		0.12
Lane Grp Cap(c), veh/h				297	0	375	993	1054	0	0	1158	1160
V/C Ratio(X)				0.26	0.00	0.15	0.23	0.22	0.00	0.00	0.22	0.22
Avail Cap(c_a), veh/h				548	0	691	993	1054	0	0	1158	1160
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.98	0.98	0.00	0.00	0.99	0.99
Uniform Delay (d), s/veh				30.1	0.0	29.5	3.7	3.8	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh				0.2	0.0	0.1	0.5	0.5	0.0	0.0	0.4	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.6	0.0	0.6	1.9	1.9	0.0	0.0	0.1	0.1
LnGrp Delay(d),s/veh				30.2	0.0	29.5	4.2	4.3	0.0	0.0	0.4	0.4
LnGrp LOS				C		C	A	A			A	A
Approach Vol, veh/h					134			463			504	
Approach Delay, s/veh					29.9			4.2			0.4	
Approach LOS					C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		65.8		19.2		65.8		
Change Period (Y+Rc), s		5.0		4.5		5.0		
Max Green Setting (Gmax), s		48.0		27.5		48.0		
Max Q Clear Time (g_c+I1), s		6.5		5.4		2.0		
Green Ext Time (p_c), s		4.8		0.5		4.8		

Intersection Summary		
HCM 2010 Ctrl Delay		5.6
HCM 2010 LOS		A

Notes

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	52	16	43	0	0	0	0	327	148	291	459	0
Future Vol, veh/h	52	16	43	0	0	0	0	327	148	291	459	0
Conflicting Peds, #/hr	22	0	30	30	0	22	81	0	97	97	0	81
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	120	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	52	16	43	0	0	0	0	327	148	291	459	0

Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	1464	1613	489				-	0	0	572	0	0
Stage 1	1041	1041	-				-	-	-	-	-	-
Stage 2	423	572	-				-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22				-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-				-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318				-	-	-	2.218	-	-
Pot Cap-1 Maneuver	141	104	579				0	-	-	1001	-	0
Stage 1	340	307	-				0	-	-	-	-	0
Stage 2	661	504	-				0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	99	0	562				-	-	-	980	-	-
Mov Cap-2 Maneuver	99	0	-				-	-	-	-	-	-
Stage 1	239	0	-				-	-	-	-	-	-
Stage 2	661	0	-				-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	52	0	4
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	99	562	980	-
HCM Lane V/C Ratio	-	-	0.606	0.091	0.297	-
HCM Control Delay (s)	-	-	86	12	10.2	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %tile Q(veh)	-	-	2.9	0.3	1.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	89	84	23	0	44	0	390	32	40	454	0
Future Volume (veh/h)	35	89	84	23	0	44	0	390	32	40	454	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.92		0.88	0.93		0.88	1.00		0.80	0.90		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1710	1676	1710	0	1676	1710	1710	1676	0
Adj Flow Rate, veh/h	35	89	75	23	0	14	0	390	23	40	454	0
Adj No. of Lanes	1	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	0	2	2	2	2	0
Cap, veh/h	429	223	188	224	16	95	0	1771	104	158	1630	0
Arrive On Green	0.28	0.28	0.28	0.30	0.00	0.28	0.00	1.00	1.00	0.59	0.59	0.00
Sat Flow, veh/h	1156	789	665	473	54	321	0	3093	176	167	2845	0
Grp Volume(v), veh/h	35	0	164	37	0	0	0	205	208	255	239	0
Grp Sat Flow(s),veh/h/ln	1156	0	1453	849	0	0	0	1593	1592	1487	1449	0
Q Serve(g_s), s	0.0	0.0	6.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	5.7	0.0
Cycle Q Clear(g_c), s	1.6	0.0	6.4	6.6	0.0	0.0	0.0	0.0	0.0	5.2	5.7	0.0
Prop In Lane	1.00		0.46	0.62		0.38	0.00		0.11	0.16		0.00
Lane Grp Cap(c), veh/h	429	0	411	336	0	0	0	937	937	934	853	0
V/C Ratio(X)	0.08	0.00	0.40	0.11	0.00	0.00	0.00	0.22	0.22	0.27	0.28	0.00
Avail Cap(c_a), veh/h	482	0	478	386	0	0	0	937	937	934	853	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.99	0.00	0.00	0.00	0.96	0.96	0.98	0.98	0.00
Uniform Delay (d), s/veh	18.6	0.0	20.4	18.3	0.0	0.0	0.0	0.0	0.0	7.0	7.1	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.5	0.5	0.7	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	2.6	0.5	0.0	0.0	0.0	0.1	0.1	2.5	2.4	0.0
LnGrp Delay(d),s/veh	18.6	0.0	20.6	18.3	0.0	0.0	0.0	0.5	0.5	7.7	7.9	0.0
LnGrp LOS	B		C	B				A	A	A	A	
Approach Vol, veh/h		199			37			413			494	
Approach Delay, s/veh		20.3			18.3			0.5			7.8	
Approach LOS		C			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		45.2		24.8		45.2		24.8
Change Period (Y+Rc), s		5.0		5.5		5.0		5.5
Max Green Setting (Gmax), s		37.0		22.5		37.0		22.5
Max Q Clear Time (g_c+I1), s		2.0		8.4		7.7		8.6
Green Ext Time (p_c), s		4.3		0.9		4.2		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	7.7
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	27	67	10	24	36	63	5	124	4	8	168	28
Future Volume (vph)	27	67	10	24	36	63	5	124	4	8	168	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0			4.0	4.0	
Lane Util. Factor		1.00			0.95		0.95			1.00	0.95	
Frpb, ped/bikes		0.99			1.00		1.00			1.00	1.00	
Flpb, ped/bikes		1.00			0.98		0.99			0.98	1.00	
Frt		0.96			1.00		0.91			1.00	0.98	
Flt Protected		0.99			0.95		0.98			0.95	1.00	
Satd. Flow (prot)		1579			1481		1407			1557	3117	
Flt Permitted		0.91			0.65		0.87			0.61	1.00	
Satd. Flow (perm)		1452			1012		1248			1002	3117	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	27	67	10	24	36	63	5	124	4	8	168	28
RTOR Reduction (vph)	0	13	0	0	0	0	93	0	0	0	12	0
Lane Group Flow (vph)	0	115	0	0	32	0	103	0	0	12	184	0
Confl. Peds. (#/hr)	18			31	31					17		
Confl. Bikes (#/hr)												
Turn Type	Perm	NA			Perm	Perm	NA		Perm	Perm	NA	
Protected Phases		3					3				2	
Permitted Phases	3				3	3			2	2		
Actuated Green, G (s)		18.9			18.9		18.9			37.0	37.0	
Effective Green, g (s)		19.9			19.9		19.9			39.0	39.0	
Actuated g/C Ratio		0.25			0.25		0.25			0.49	0.49	
Clearance Time (s)		5.0			5.0		5.0			6.0	6.0	
Vehicle Extension (s)		2.0			2.0		2.0			2.0	2.0	
Lane Grp Cap (vph)		361			251		310			488	1519	
v/s Ratio Prot											0.06	
v/s Ratio Perm		0.08			0.03		c0.08			0.01		
v/c Ratio		0.32			0.13		0.33			0.02	0.12	
Uniform Delay, d1		24.5			23.3		24.6			10.6	11.2	
Progression Factor		1.00			1.00		1.00			0.81	0.76	
Incremental Delay, d2		0.2			0.1		0.2			0.1	0.2	
Delay (s)		24.7			23.4		24.8			8.7	8.7	
Level of Service		C			C		C			A	A	
Approach Delay (s)		24.7					24.6				8.7	
Approach LOS		C					C				A	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2
Lane Configurations								
Traffic Volume (vph)	102	225	138	15	2	39	82	2
Future Volume (vph)	102	225	138	15	2	39	82	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0		
Lane Util. Factor	1.00	0.95	1.00			0.97		
Frpb, ped/bikes	1.00	1.00	0.95			1.00		
Flpb, ped/bikes	0.97	1.00	1.00			0.99		
Frt	1.00	1.00	0.85			0.90		
Flt Protected	0.95	1.00	1.00			0.98		
Satd. Flow (prot)	1546	3185	1360			2854		
Flt Permitted	0.63	1.00	1.00			0.95		
Satd. Flow (perm)	1023	3185	1360			2754		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	102	225	138	15	2	39	82	2
RTOR Reduction (vph)	0	0	11	0	0	0	0	0
Lane Group Flow (vph)	102	225	142	0	0	125	0	0
Confl. Peds. (#/hr)	21			17	17			
Confl. Bikes (#/hr)				10				
Turn Type	Perm	NA	pm+ov		D.Pm	Prot		
Protected Phases		6	4			4		
Permitted Phases	6		6		4			
Actuated Green, G (s)	37.0	37.0	45.1			8.1		
Effective Green, g (s)	39.0	39.0	47.1			9.1		
Actuated g/C Ratio	0.49	0.49	0.59			0.11		
Clearance Time (s)	6.0	6.0	5.0			5.0		
Vehicle Extension (s)	2.0	2.0	2.0			2.0		
Lane Grp Cap (vph)	498	1552	868			313		
v/s Ratio Prot		0.07	0.02					
v/s Ratio Perm	c0.10		0.09			c0.05		
v/c Ratio	0.20	0.14	0.16			0.40		
Uniform Delay, d1	11.7	11.3	7.5			32.9		
Progression Factor	1.00	1.00	1.00			1.00		
Incremental Delay, d2	0.9	0.2	0.0			0.3		
Delay (s)	12.6	11.5	7.5			33.2		
Level of Service	B	B	A			C		
Approach Delay (s)		10.5				33.2		
Approach LOS		B				C		

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	111	22	7	135	145	8	221	24	162	238	70
Future Volume (veh/h)	115	111	22	7	135	145	8	221	24	162	238	70
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.79		0.65	0.75		0.67	0.90		0.89	0.97		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1710	1676	1676	1676	1676	1710	1676	1676	1710
Adj Flow Rate, veh/h	115	111	8	7	135	62	8	221	18	162	238	58
Adj No. of Lanes	1	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	367	528	38	70	581	341	426	529	43	484	637	155
Arrive On Green	0.36	0.36	0.35	0.35	0.36	0.36	0.12	0.12	0.11	0.10	0.51	0.50
Sat Flow, veh/h	836	1484	107	21	1635	960	876	1514	123	1597	1245	303
Grp Volume(v), veh/h	115	0	119	142	0	62	8	0	239	162	0	296
Grp Sat Flow(s),veh/h/ln	836	0	1591	1656	0	960	876	0	1638	1597	0	1549
Q Serve(g_s), s	6.7	0.0	3.1	0.0	0.0	2.7	0.5	0.0	8.1	3.5	0.0	6.9
Cycle Q Clear(g_c), s	10.3	0.0	3.1	3.6	0.0	2.7	0.5	0.0	8.1	3.5	0.0	6.9
Prop In Lane	1.00		0.07	0.05		1.00	1.00		0.08	1.00		0.20
Lane Grp Cap(c), veh/h	367	0	566	638	0	341	426	0	572	484	0	792
V/C Ratio(X)	0.31	0.00	0.21	0.22	0.00	0.18	0.02	0.00	0.42	0.33	0.00	0.37
Avail Cap(c_a), veh/h	376	0	583	656	0	352	426	0	572	518	0	792
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.00	0.97	0.92	0.00	0.92	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.3	0.0	13.5	13.6	0.0	13.3	17.5	0.0	20.9	10.1	0.0	8.9
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.1	0.0	0.1	0.1	0.0	2.2	0.1	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	1.4	1.7	0.0	0.7	0.1	0.0	4.1	1.5	0.0	3.3
LnGrp Delay(d),s/veh	17.4	0.0	13.5	13.7	0.0	13.4	17.6	0.0	23.1	10.3	0.0	10.2
LnGrp LOS	B		B	B		B	B		C	B		B
Approach Vol, veh/h		234			204			247			458	
Approach Delay, s/veh		15.5			13.6			22.9			10.3	
Approach LOS		B			B			C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.7	25.0		25.3		34.7		25.3				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	6.5	18.5		21.5		29.5		21.5				
Max Q Clear Time (g_c+I1), s	5.5	10.1		12.3		8.9		5.6				
Green Ext Time (p_c), s	0.1	1.6		1.6		2.3		2.1				
Intersection Summary												
HCM 2010 Ctrl Delay			14.7									
HCM 2010 LOS			B									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	230	60	36	161	83	73	331	53	40	399	70
Future Volume (veh/h)	19	230	60	36	161	83	73	331	53	40	399	70
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.86		0.79	0.88		0.79	1.00		0.84	0.97		0.70
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710	1710	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	19	230	24	36	161	26	73	331	40	40	399	57
Adj No. of Lanes	0	2	0	0	2	0	0	2	0	0	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	871	87	175	689	111	76	753	123	195	1770	238
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.18	0.18	0.18	1.00	1.00	1.00
Sat Flow, veh/h	107	2615	262	324	2069	332	8	1362	222	238	3204	431
Grp Volume(v), veh/h	145	0	128	116	0	107	185	0	259	166	168	162
Grp Sat Flow(s),veh/h/ln	1589	0	1395	1364	0	1361	154	0	1439	1257	1388	1228
Q Serve(g_s), s	0.0	0.0	4.7	0.0	0.0	4.0	7.1	0.0	11.0	1.3	0.0	0.0
Cycle Q Clear(g_c), s	4.4	0.0	4.7	4.8	0.0	4.0	7.1	0.0	11.0	12.3	0.0	0.0
Prop In Lane	0.13		0.19	0.31		0.24	0.39		0.15	0.24		0.35
Lane Grp Cap(c), veh/h	587	0	465	522	0	453	0	0	795	758	767	679
V/C Ratio(X)	0.25	0.00	0.28	0.22	0.00	0.23	0.00	0.00	0.33	0.22	0.22	0.24
Avail Cap(c_a), veh/h	635	0	508	563	0	496	0	0	795	758	767	679
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	2.00	2.00	2.00
Upstream Filter(I)	0.96	0.00	0.96	0.98	0.00	0.98	0.96	0.00	0.96	0.96	0.96	0.96
Uniform Delay (d), s/veh	17.0	0.0	17.2	16.7	0.0	16.9	0.0	0.0	17.3	0.4	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	1.0	0.6	0.6	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	1.8	1.6	0.0	1.5	0.0	0.0	4.6	0.5	0.1	0.2
LnGrp Delay(d),s/veh	17.1	0.0	17.3	16.8	0.0	17.0	0.0	0.0	18.3	1.0	0.6	0.8
LnGrp LOS	B		B	B		B			B	A	A	A
Approach Vol, veh/h		273			223			444			496	
Approach Delay, s/veh		17.2			16.9			10.7			0.8	
Approach LOS		B			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		43.2		26.8		43.2		26.8
Change Period (Y+Rc), s		5.0		4.0		5.0		4.0
Max Green Setting (Gmax), s		36.0		25.0		27.0		25.0
Max Q Clear Time (g_c+I1), s		13.0		6.7		14.3		6.8
Green Ext Time (p_c), s		4.6		2.1		3.7		2.1

Intersection Summary		
HCM 2010 Ctrl Delay		9.5
HCM 2010 LOS		A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	140	110	0	0	0	0	0	2719	198
Future Volume (veh/h)	0	0	0	140	110	0	0	0	0	0	2719	198
Number				3	8	18				1	6	16
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		0.96
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1676	1676	0				0	1676	1710
Adj Flow Rate, veh/h				140	110	0				0	2719	189
Adj No. of Lanes				1	2	0				0	4	0
Peak Hour Factor				1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %				2	2	0				0	2	2
Cap, veh/h				371	581	0				0	3537	243
Arrive On Green				0.18	0.18	0.00				0.00	0.64	0.62
Sat Flow, veh/h				1597	3269	0				0	5771	381
Grp Volume(v), veh/h				140	110	0				0	2119	789
Grp Sat Flow(s),veh/h/ln				1597	1593	0				0	1442	1592
Q Serve(g_s), s				7.1	2.6	0.0				0.0	31.2	32.2
Cycle Q Clear(g_c), s				7.1	2.6	0.0				0.0	31.2	32.2
Prop In Lane				1.00		0.00				0.00		0.24
Lane Grp Cap(c), veh/h				371	581	0				0	2763	1017
V/C Ratio(X)				0.38	0.19	0.00				0.00	0.77	0.78
Avail Cap(c_a), veh/h				515	867	0				0	2763	1017
HCM Platoon Ratio				1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)				0.89	0.89	0.00				0.00	1.00	1.00
Uniform Delay (d), s/veh				33.0	31.2	0.0				0.0	11.5	11.9
Incr Delay (d2), s/veh				0.2	0.1	0.0				0.0	2.1	5.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.1	1.2	0.0				0.0	12.7	15.5
LnGrp Delay(d),s/veh				33.2	31.2	0.0				0.0	13.6	17.7
LnGrp LOS				C	C						B	B
Approach Vol, veh/h					250						2908	
Approach Delay, s/veh					32.3						14.7	
Approach LOS					C						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs						6		8
Phs Duration (G+Y+Rc), s						61.5		20.4
Change Period (Y+Rc), s						6.0		4.5
Max Green Setting (Gmax), s						55.5		24.0
Max Q Clear Time (g_c+I1), s						34.2		9.1
Green Ext Time (p_c), s						16.5		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	16.1
HCM 2010 LOS	B

Movement	WBT	WBR	WBR2	NBL2	NBL	NBT
Lane Configurations						
Traffic Volume (vph)	140	209	21	110	169	835
Future Volume (vph)	140	209	21	110	169	835
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.91	0.91		0.86	0.81	0.81
Frpb, ped/bikes	0.98	0.96		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00
Frt	0.93	0.85		1.00	1.00	1.00
Flt Protected	1.00	1.00		0.95	0.95	1.00
Satd. Flow (prot)	2799	1248		1370	1290	4070
Flt Permitted	1.00	1.00		0.95	0.95	1.00
Satd. Flow (perm)	2799	1248		1370	1290	4070
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	140	209	21	110	169	835
RTOR Reduction (vph)	0	20	0	0	0	0
Lane Group Flow (vph)	253	97	0	99	163	852
Confl. Peds. (#/hr)		8				
Confl. Bikes (#/hr)		10				
Turn Type	NA	Perm		Split	Split	NA
Protected Phases	8			2	2	2
Permitted Phases		8				
Actuated Green, G (s)	13.0	13.0		67.5	67.5	67.5
Effective Green, g (s)	13.5	13.5		68.5	68.5	68.5
Actuated g/C Ratio	0.15	0.15		0.76	0.76	0.76
Clearance Time (s)	4.5	4.5		5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	419	187		1042	981	3097
v/s Ratio Prot	c0.09			0.07	0.13	c0.21
v/s Ratio Perm		0.08				
v/c Ratio	0.60	0.52		0.10	0.17	0.28
Uniform Delay, d1	35.8	35.2		2.8	2.9	3.2
Progression Factor	1.00	1.00		0.27	0.54	0.23
Incremental Delay, d2	1.7	1.0		0.1	0.4	0.2
Delay (s)	37.4	36.2		0.9	1.9	0.9
Level of Service	D	D		A	A	A
Approach Delay (s)	37.1					1.1
Approach LOS	D					A

Intersection Summary			
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	20	288	3	29	125	0	0	144	78
Future Volume (veh/h)	0	0	0	20	288	3	29	125	0	0	144	78
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.97	0.99		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1676	1676	1710	1710	1676	0	0	1676	1710
Adj Flow Rate, veh/h				20	288	1	29	125	0	0	144	48
Adj No. of Lanes				1	3	0	0	2	0	0	2	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				639	1883	7	282	1162	0	0	1123	359
Arrive On Green				0.40	0.40	0.41	0.48	0.48	0.00	0.00	0.48	0.49
Sat Flow, veh/h				1597	4708	16	433	2514	0	0	2439	752
Grp Volume(v), veh/h				20	187	102	82	72	0	0	95	97
Grp Sat Flow(s),veh/h/ln				1597	1526	1673	1421	1449	0	0	1593	1515
Q Serve(g_s), s				0.5	2.5	2.5	0.0	1.8	0.0	0.0	2.2	2.3
Cycle Q Clear(g_c), s				0.5	2.5	2.5	1.7	1.8	0.0	0.0	2.2	2.3
Prop In Lane				1.00		0.01	0.35		0.00	0.00		0.50
Lane Grp Cap(c), veh/h				639	1220	669	753	691	0	0	760	723
V/C Ratio(X)				0.03	0.15	0.15	0.11	0.10	0.00	0.00	0.13	0.13
Avail Cap(c_a), veh/h				639	1220	669	753	691	0	0	760	723
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				11.8	12.5	12.5	9.3	9.4	0.0	0.0	9.5	9.4
Incr Delay (d2), s/veh				0.1	0.3	0.5	0.3	0.3	0.0	0.0	0.3	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.2	1.1	1.3	0.9	0.8	0.0	0.0	1.0	1.0
LnGrp Delay(d),s/veh				11.9	12.7	12.9	9.6	9.7	0.0	0.0	9.8	9.7
LnGrp LOS				B	B	B	A	A			A	A
Approach Vol, veh/h					309			154			192	
Approach Delay, s/veh					12.7			9.7			9.8	
Approach LOS					B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		35.0				35.0		30.0
Change Period (Y+Rc), s		3.0				3.0		3.5
Max Green Setting (Gmax), s		27.0				32.0		26.5
Max Q Clear Time (g_c+I1), s		3.8				4.3		4.5
Green Ext Time (p_c), s		2.1				2.2		1.9

Intersection Summary			
HCM 2010 Ctrl Delay			11.1
HCM 2010 LOS			B

Notes

Movement	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	NEL2	NEL
Lane Configurations												
Traffic Volume (vph)	44	22	270	54	4	12	77	197	46	23	13	53
Future Volume (vph)	44	22	270	54	4	12	77	197	46	23	13	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0			4.0	4.0	4.0				4.0
Lane Util. Factor			0.95			1.00	1.00	0.95				0.97
Frpb, ped/bikes			0.99			1.00	1.00	0.98				1.00
Flpb, ped/bikes			1.00			0.97	1.00	1.00				1.00
Frt			0.98			1.00	1.00	0.96				1.00
Flt Protected			0.99			0.95	1.00	1.00				0.95
Satd. Flow (prot)			3067			1550	1676	3006				3088
Flt Permitted			0.99			0.59	1.00	1.00				0.95
Satd. Flow (perm)			3067			959	1676	3006				3088
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	44	22	270	54	4	12	77	197	46	23	13	53
RTOR Reduction (vph)	0	0	18	0	0	0	0	7	0	0	0	0
Lane Group Flow (vph)	0	0	372	0	0	16	77	259	0	0	0	68
Confl. Peds. (#/hr)		17		30		24			24			
Confl. Bikes (#/hr)				4					48			
Turn Type	Perm	Perm	NA		Perm	Perm	NA	NA			Perm	Prot
Protected Phases			4				2	6				3
Permitted Phases	4	4			2	2					3	
Actuated Green, G (s)			20.6			37.6	37.6	37.6				5.3
Effective Green, g (s)			21.6			40.1	40.1	40.1				6.3
Actuated g/C Ratio			0.27			0.50	0.50	0.50				0.08
Clearance Time (s)			5.0			6.5	6.5	6.5				5.0
Vehicle Extension (s)			2.0			2.0	2.0	2.0				2.0
Lane Grp Cap (vph)			828			480	840	1506				243
v/s Ratio Prot							0.05	c0.09				
v/s Ratio Perm			0.12			0.02						0.02
v/c Ratio			0.45			0.03	0.09	0.17				0.28
Uniform Delay, d1			24.3			10.1	10.4	10.9				34.7
Progression Factor			1.00			1.00	1.00	0.47				1.00
Incremental Delay, d2			0.1			0.1	0.2	0.2				0.2
Delay (s)			24.4			10.2	10.6	5.4				34.9
Level of Service			C			B	B	A				C
Approach Delay (s)			24.4				10.6	5.4				34.9
Approach LOS			C				B	A				C

Intersection Summary			
HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	NER2
Lane Configurations	
Traffic Volume (vph)	2
Future Volume (vph)	2
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	2
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	24	178	114	100	125	0	0	138	96
Future Volume (veh/h)	0	0	0	24	178	114	100	125	0	0	138	96
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.78	0.97		1.00	1.00		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	0	0	1710	1676	1710	1676	1676	0	0	1676	1710
Adj Flow Rate, veh/h	0	0	0	24	178	37	100	125	0	0	138	70
Adj No. of Lanes	1	0	0	0	2	0	1	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	0	0	2	2	2	2	2	0	0	2	2
Cap, veh/h	0	0	0	107	797	167	536	673	0	0	405	205
Arrive On Green	0.00	0.00	0.00	0.35	0.35	0.33	0.40	0.40	0.00	0.00	0.40	0.34
Sat Flow, veh/h		0		309	2302	482	1016	1676	0	0	1010	512
Grp Volume(v), veh/h		0.0		129	0	110	100	125	0	0	0	208
Grp Sat Flow(s),veh/h/ln				1661	0	1431	1016	1676	0	0	0	1522
Q Serve(g_s), s				1.7	0.0	1.7	2.4	1.5	0.0	0.0	0.0	3.1
Cycle Q Clear(g_c), s				1.7	0.0	1.7	5.5	1.5	0.0	0.0	0.0	3.1
Prop In Lane				0.19		0.34	1.00		0.00	0.00		0.34
Lane Grp Cap(c), veh/h				575	0	496	536	673	0	0	0	610
V/C Ratio(X)				0.22	0.00	0.22	0.19	0.19	0.00	0.00	0.00	0.34
Avail Cap(c_a), veh/h				1075	0	926	1315	1958	0	0	0	1777
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				7.3	0.0	7.4	8.5	6.1	0.0	0.0	0.0	6.8
Incr Delay (d2), s/veh				0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.8	0.0	0.7	0.7	0.7	0.0	0.0	0.0	1.3
LnGrp Delay(d),s/veh				7.4	0.0	7.5	8.6	6.2	0.0	0.0	0.0	7.0
LnGrp LOS				A		A	A	A				A
Approach Vol, veh/h					239			225			208	
Approach Delay, s/veh					7.4			7.3			7.0	
Approach LOS					A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		16.7				16.7		15.0
Change Period (Y+Rc), s		6.0				6.0		4.5
Max Green Setting (Gmax), s		35.0				35.0		20.0
Max Q Clear Time (g_c+I1), s		7.5				5.1		3.7
Green Ext Time (p_c), s		2.1				2.1		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	7.2
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	18	168	51	82	402	0	0	431	65
Future Volume (veh/h)	0	0	0	18	168	51	82	402	0	0	431	65
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.80	0.97		1.00	1.00		0.89
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1676	1710	1710	1676	0	0	1676	1710
Adj Flow Rate, veh/h				18	168	13	82	402	0	0	431	58
Adj No. of Lanes				0	2	0	0	2	0	0	3	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				0	2	0	2	2	0	0	2	2
Cap, veh/h				93	895	71	281	1295	0	0	2250	292
Arrive On Green				0.33	0.33	0.32	1.00	1.00	0.00	0.00	0.74	0.73
Sat Flow, veh/h				284	2733	218	379	2397	0	0	4183	524
Grp Volume(v), veh/h				105	0	94	236	248	0	0	322	167
Grp Sat Flow(s),veh/h/ln				1662	0	1573	1250	1449	0	0	1526	1505
Q Serve(g_s), s				3.2	0.0	3.0	0.0	0.0	0.0	0.0	2.2	2.4
Cycle Q Clear(g_c), s				3.2	0.0	3.0	0.0	0.0	0.0	0.0	2.2	2.4
Prop In Lane				0.17		0.14	0.35		0.00	0.00		0.35
Lane Grp Cap(c), veh/h				545	0	515	767	809	0	0	1703	840
V/C Ratio(X)				0.19	0.00	0.18	0.31	0.31	0.00	0.00	0.19	0.20
Avail Cap(c_a), veh/h				653	0	618	767	809	0	0	1703	840
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.33	1.33
Upstream Filter(I)				1.00	0.00	1.00	0.94	0.94	0.00	0.00	0.98	0.98
Uniform Delay (d), s/veh				16.9	0.0	16.9	0.0	0.0	0.0	0.0	4.3	4.3
Incr Delay (d2), s/veh				0.1	0.0	0.1	1.0	0.9	0.0	0.0	0.2	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.5	0.0	1.3	0.2	0.2	0.0	0.0	1.0	1.1
LnGrp Delay(d),s/veh				17.0	0.0	16.9	1.0	0.9	0.0	0.0	4.5	4.9
LnGrp LOS				B		B	A	A			A	A
Approach Vol, veh/h					199			484			489	
Approach Delay, s/veh					16.9			1.0			4.6	
Approach LOS					B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		43.6				43.6		26.4
Change Period (Y+Rc), s		5.0				5.0		4.0
Max Green Setting (Gmax), s		34.0				34.0		27.0
Max Q Clear Time (g_c+I1), s		2.0				4.4		5.2
Green Ext Time (p_c), s		5.1				5.0		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	5.2
HCM 2010 LOS	A

Movement	EBT	EBR	EBR2	SBL2	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	192	30	64	1317	513	1029
Future Volume (vph)	192	30	64	1317	513	1029
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.91	0.86	0.86
Frpb, ped/bikes	0.99			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.95			1.00	1.00	1.00
Flt Protected	1.00			0.95	0.95	0.99
Satd. Flow (prot)	3009			1449	1370	2855
Flt Permitted	1.00			0.95	0.95	0.99
Satd. Flow (perm)	3009			1449	1370	2855
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	192	30	64	1317	513	1029
RTOR Reduction (vph)	33	0	0	86	68	0
Lane Group Flow (vph)	253	0	0	638	781	1286
Confl. Bikes (#/hr)		5				
Turn Type	NA			Split	Split	NA
Protected Phases	4			6	6	6
Permitted Phases						
Actuated Green, G (s)	12.5			68.0	68.0	68.0
Effective Green, g (s)	13.0			69.0	69.0	69.0
Actuated g/C Ratio	0.14			0.77	0.77	0.77
Clearance Time (s)	4.5			5.0	5.0	5.0
Vehicle Extension (s)	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)	434			1110	1050	2188
v/s Ratio Prot	c0.08			0.44	c0.57	0.45
v/s Ratio Perm						
v/c Ratio	0.58			0.58	0.74	0.59
Uniform Delay, d1	36.0			4.4	5.7	4.5
Progression Factor	1.00			0.27	0.61	0.13
Incremental Delay, d2	1.3			1.5	3.5	0.8
Delay (s)	37.3			2.7	7.0	1.4
Level of Service	D			A	A	A
Approach Delay (s)	37.3					3.4
Approach LOS	D					A

Intersection Summary			
HCM 2000 Control Delay	6.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	237	1272	382	35	495	180
Future Volume (vph)	237	1272	382	35	495	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	0.91	0.91		0.97	
Frpb, ped/bikes	1.00	1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.96	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1593	4577	4512		3012	
Flt Permitted	0.95	1.00	1.00		0.96	
Satd. Flow (perm)	1593	4577	4512		3012	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	237	1272	382	35	495	180
RTOR Reduction (vph)	78	0	14	0	0	0
Lane Group Flow (vph)	159	1272	403	0	675	0
Confl. Peds. (#/hr)				6		
Confl. Bikes (#/hr)						
Turn Type	Split	NA	NA		Prot	
Protected Phases	4	4	2		1	
Permitted Phases						
Actuated Green, G (s)	41.6	41.6	13.4		20.5	
Effective Green, g (s)	42.1	42.1	14.4		21.5	
Actuated g/C Ratio	0.47	0.47	0.16		0.24	
Clearance Time (s)	4.5	4.5	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	745	2141	721		719	
v/s Ratio Prot	0.10	c0.28	c0.09		c0.22	
v/s Ratio Perm						
v/c Ratio	0.21	0.59	0.56		0.94	
Uniform Delay, d1	14.2	17.7	34.9		33.6	
Progression Factor	0.64	0.85	1.00		1.00	
Incremental Delay, d2	0.5	0.9	0.5		19.6	
Delay (s)	9.6	15.9	35.4		53.2	
Level of Service	A	B	D		D	
Approach Delay (s)		14.9	35.4		53.2	
Approach LOS		B	D		D	

Intersection Summary			
HCM 2000 Control Delay	28.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	459	38	17	258	0	0	0	0	560	502	261
Future Volume (veh/h)	0	459	38	17	258	0	0	0	0	560	502	261
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1676	1710	1676	1676	0				1676	1676	1676
Adj Flow Rate, veh/h	0	459	30	17	258	0				592	457	132
Adj No. of Lanes	0	2	0	1	2	0				2	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1192	78	320	1254	0				1617	849	721
Arrive On Green	0.00	0.39	0.36	0.39	0.39	0.00				0.51	0.51	0.51
Sat Flow, veh/h	0	3111	197	808	3269	0				3193	1676	1425
Grp Volume(v), veh/h	0	241	248	17	258	0				592	457	132
Grp Sat Flow(s),veh/h/ln	0	1593	1632	808	1593	0				1597	1676	1425
Q Serve(g_s), s	0.0	8.6	8.7	1.2	4.3	0.0				9.0	14.8	4.0
Cycle Q Clear(g_c), s	0.0	8.6	8.7	10.0	4.3	0.0				9.0	14.8	4.0
Prop In Lane	0.00		0.12	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	627	643	320	1254	0				1617	849	721
V/C Ratio(X)	0.00	0.38	0.39	0.05	0.21	0.00				0.37	0.54	0.18
Avail Cap(c_a), veh/h	0	627	643	320	1254	0				1617	849	721
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	17.3	17.5	20.9	16.0	0.0				12.0	13.4	10.7
Incr Delay (d2), s/veh	0.0	1.8	1.8	0.3	0.4	0.0				0.6	2.4	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.1	4.3	0.3	1.9	0.0				4.1	7.3	1.7
LnGrp Delay(d),s/veh	0.0	19.1	19.2	21.2	16.4	0.0				12.6	15.9	11.3
LnGrp LOS		B	B	C	B					B	B	B
Approach Vol, veh/h		489			275						1181	
Approach Delay, s/veh		19.2			16.7						13.7	
Approach LOS		B			B						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				35.5		44.5		35.5
Change Period (Y+Rc), s				6.5		5.5		6.5
Max Green Setting (Gmax), s				29.0		39.0		29.0
Max Q Clear Time (g_c+I1), s				10.7		16.8		12.0
Green Ext Time (p_c), s				4.6		9.0		4.5

Intersection Summary	
HCM 2010 Ctrl Delay	15.5
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	844	0	0	238	501	37	626	91	0	0	0
Future Volume (veh/h)	175	844	0	0	238	501	37	626	91	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1676	1676	0	0	1676	1676	1710	1676	1710			
Adj Flow Rate, veh/h	175	844	0	0	238	301	37	626	65			
Adj No. of Lanes	1	2	0	0	2	2	0	3	0			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Percent Heavy Veh, %	2	2	0	0	2	2	0	2	0			
Cap, veh/h	230	1823	0	0	1115	850	82	1468	156			
Arrive On Green	0.29	1.00	0.00	0.00	0.35	0.35	0.36	0.36	0.34			
Sat Flow, veh/h	1597	3353	0	0	3269	2428	230	4120	439			
Grp Volume(v), veh/h	175	844	0	0	238	301	268	223	237			
Grp Sat Flow(s),veh/h/ln	1597	1676	0	0	1593	1214	1665	1526	1599			
Q Serve(g_s), s	8.0	0.0	0.0	0.0	4.2	7.4	9.9	8.8	9.0			
Cycle Q Clear(g_c), s	8.0	0.0	0.0	0.0	4.2	7.4	9.9	8.8	9.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.14		0.27			
Lane Grp Cap(c), veh/h	230	1823	0	0	1115	850	593	543	569			
V/C Ratio(X)	0.76	0.46	0.00	0.00	0.21	0.35	0.45	0.41	0.42			
Avail Cap(c_a), veh/h	230	1823	0	0	1115	850	593	543	569			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	27.3	0.0	0.0	0.0	18.3	19.3	19.8	19.4	19.6			
Incr Delay (d2), s/veh	21.0	0.8	0.0	0.0	0.4	1.2	2.5	2.3	2.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.8	0.2	0.0	0.0	1.9	2.6	5.0	4.1	4.3			
LnGrp Delay(d),s/veh	48.3	0.8	0.0	0.0	18.7	20.4	22.2	21.7	21.9			
LnGrp LOS	D	A			B	C	C	C	C			
Approach Vol, veh/h		1019			539			728				
Approach Delay, s/veh		9.0			19.7			22.0				
Approach LOS		A			B			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		32.5		47.5			15.5	32.0
Change Period (Y+Rc), s		5.5		5.5			3.5	5.5
Max Green Setting (Gmax), s		27.0		42.0			12.0	26.5
Max Q Clear Time (g_c+I1), s		11.9		2.0			10.0	9.4
Green Ext Time (p_c), s		0.8		2.3			0.0	2.2

Intersection Summary		
HCM 2010 Ctrl Delay		15.6
HCM 2010 LOS		B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	529	107	51	348	88	160	362	49	90	353	246
Future Volume (veh/h)	128	529	107	51	348	88	160	362	49	90	353	246
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.91	1.00		0.91	0.99		0.92	0.99		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1676	1676	1676	1676	1676	1676
Adj Flow Rate, veh/h	128	529	107	51	348	88	160	362	24	90	353	121
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	688	138	75	517	128	432	917	719	458	917	734
Arrive On Green	0.10	0.26	0.27	0.02	0.07	0.07	0.55	0.55	0.55	0.55	0.55	0.55
Sat Flow, veh/h	1597	2597	522	1597	2478	613	816	1676	1314	883	1676	1342
Grp Volume(v), veh/h	128	323	313	51	221	215	160	362	24	90	353	121
Grp Sat Flow(s),veh/h/ln	1597	1593	1526	1597	1593	1498	816	1676	1314	883	1676	1342
Q Serve(g_s), s	6.6	15.9	16.1	2.7	11.5	11.9	11.9	10.6	0.7	5.6	10.3	3.8
Cycle Q Clear(g_c), s	6.6	15.9	16.1	2.7	11.5	11.9	22.2	10.6	0.7	16.2	10.3	3.8
Prop In Lane	1.00		0.34	1.00		0.41	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	165	422	404	75	332	313	432	917	719	458	917	734
V/C Ratio(X)	0.78	0.77	0.77	0.68	0.67	0.69	0.37	0.39	0.03	0.20	0.39	0.16
Avail Cap(c_a), veh/h	207	422	404	207	412	388	432	917	719	458	917	734
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.13	0.13	0.13	0.94	0.94	0.94	0.95	0.95	0.95	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.1	28.8	28.8	41.2	36.7	36.8	17.4	11.1	8.9	15.8	11.1	9.6
Incr Delay (d2), s/veh	1.5	1.1	1.2	3.7	1.5	2.1	2.3	1.2	0.1	1.0	1.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	7.1	6.9	1.3	5.2	5.1	2.9	5.1	0.3	1.5	5.0	1.5
LnGrp Delay(d),s/veh	38.6	29.9	30.0	44.9	38.2	38.9	19.7	12.3	9.0	16.8	12.3	10.1
LnGrp LOS	D	C	C	D	D	D	B	B	A	B	B	B
Approach Vol, veh/h		764			487			546			564	
Approach Delay, s/veh		31.4			39.2			14.4			12.5	
Approach LOS		C			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		50.5	8.0	26.5		50.5	12.8	21.7
Change Period (Y+Rc), s		5.5	4.5	3.5		5.5	4.5	3.5
Max Green Setting (Gmax), s		38.5	10.5	22.5		38.5	10.5	22.5
Max Q Clear Time (g_c+I1), s		24.2	4.7	18.1		18.2	8.6	13.9
Green Ext Time (p_c), s		5.1	0.0	2.0		5.9	0.1	2.3

Intersection Summary		
HCM 2010 Ctrl Delay		24.6
HCM 2010 LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	178	315	153	49	236	205	134	661	26	149	590	109
Future Volume (veh/h)	178	315	153	49	236	205	134	661	26	149	590	109
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.96	0.99		1.00	0.99		0.91	0.98		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1710	1676	1676	1676	1676	1710	1676	1676	1710
Adj Flow Rate, veh/h	178	315	76	49	236	0	134	661	23	149	590	93
Adj No. of Lanes	1	2	0	0	2	1	1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	355	877	208	167	743	494	363	1695	59	446	1479	232
Arrive On Green	0.11	0.11	0.11	0.35	0.35	0.00	1.00	1.00	1.00	0.54	0.54	0.53
Sat Flow, veh/h	1010	2532	600	314	2146	1425	671	3128	109	667	2729	429
Grp Volume(v), veh/h	178	196	195	129	156	0	134	336	348	149	343	340
Grp Sat Flow(s),veh/h/ln	1010	1593	1539	1010	1449	1425	671	1593	1644	667	1593	1565
Q Serve(g_s), s	14.5	9.7	10.0	2.7	6.7	0.0	6.3	0.0	0.0	11.2	10.7	10.8
Cycle Q Clear(g_c), s	21.2	9.7	10.0	12.6	6.7	0.0	17.2	0.0	0.0	11.2	10.7	10.8
Prop In Lane	1.00		0.39	0.38		1.00	1.00		0.07	1.00		0.27
Lane Grp Cap(c), veh/h	355	552	533	408	502	494	363	863	891	446	863	848
V/C Ratio(X)	0.50	0.36	0.37	0.32	0.31	0.00	0.37	0.39	0.39	0.33	0.40	0.40
Avail Cap(c_a), veh/h	403	628	607	468	571	562	363	863	891	446	863	848
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.77	0.77	0.80	0.80	0.00	0.96	0.96	0.96	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.2	28.9	29.1	21.5	20.4	0.0	2.0	0.0	0.0	11.5	11.4	11.5
Incr Delay (d2), s/veh	0.3	0.1	0.1	0.1	0.1	0.0	2.8	1.3	1.2	2.0	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	4.3	4.3	2.4	2.7	0.0	1.4	0.3	0.3	2.3	5.0	5.0
LnGrp Delay(d),s/veh	37.6	29.0	29.2	21.6	20.5	0.0	4.8	1.3	1.2	13.5	12.7	12.9
LnGrp LOS	D	C	C	C	C		A	A	A	B	B	B
Approach Vol, veh/h		569			285			818			832	
Approach Delay, s/veh		31.7			21.0			1.8			12.9	
Approach LOS		C			C			A			B	
Timer	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		51.1		33.9		51.1		33.9				
Change Period (Y+Rc), s		6.0		5.5		6.0		5.5				
Max Green Setting (Gmax), s		41.0		32.5		41.0		32.5				
Max Q Clear Time (g_c+I1), s		19.2		23.2		13.2		14.6				
Green Ext Time (p_c), s		9.7		2.8		10.8		3.7				
Intersection Summary												
HCM 2010 Ctrl Delay			14.5									
HCM 2010 LOS			B									

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	12	31	537	26	18	482
Future Volume (veh/h)	12	31	537	26	18	482
Number	7	14	2	12	1	6
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		0.91	0.98	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1676	1676	1676	1676
Adj Flow Rate, veh/h	12	1	537	23	18	482
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	34	22	1512	1159	761	1512
Arrive On Green	0.02	0.02	1.00	1.00	1.00	1.00
Sat Flow, veh/h	1597	1425	1676	1293	749	1676
Grp Volume(v), veh/h	12	1	537	23	18	482
Grp Sat Flow(s),veh/h/ln	1597	1425	1676	1293	749	1676
Q Serve(g_s), s	0.6	0.1	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.6	0.1	0.0	0.0	0.0	0.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	34	22	1512	1159	761	1512
V/C Ratio(X)	0.35	0.05	0.36	0.02	0.02	0.32
Avail Cap(c_a), veh/h	432	377	1512	1159	761	1512
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.33	1.33
Upstream Filter(I)	1.00	1.00	0.91	0.91	0.92	0.92
Uniform Delay (d), s/veh	41.0	41.2	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.3	0.6	0.0	0.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.2	0.0	0.0	0.2
LnGrp Delay(d),s/veh	43.3	41.5	0.6	0.0	0.1	0.5
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	13		560			500
Approach Delay, s/veh	43.1		0.6			0.5
Approach LOS	D		A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		79.7		5.3		79.7		
Change Period (Y+Rc), s		3.5		4.0		3.5		
Max Green Setting (Gmax), s		55.0		22.5		55.0		
Max Q Clear Time (g_c+I1), s		2.0		2.6		2.0		
Green Ext Time (p_c), s		2.9		0.0		2.9		

Intersection Summary	
HCM 2010 Ctrl Delay	1.1
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	10	21	0	0	0	33	811	20	30	747	24
Future Volume (veh/h)	6	10	21	0	0	0	33	811	20	30	747	24
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93				0.98		0.89	0.98		0.92
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710				1676	1676	1710	1676	1676	1710
Adj Flow Rate, veh/h	6	10	1				33	811	19	30	747	23
Adj No. of Lanes	0	1	0				1	2	0	1	2	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	0				2	2	2	2	2	2
Cap, veh/h	52	87	9				575	2528	59	549	2508	77
Arrive On Green	0.09	0.09	0.08				1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	573	955	95				615	3170	74	583	3145	97
Grp Volume(v), veh/h	17	0	0				33	407	423	30	378	392
Grp Sat Flow(s),veh/h/ln	1623	0	0				615	1593	1652	583	1593	1649
Q Serve(g_s), s	0.8	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.8	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.35		0.06				1.00		0.04	1.00		0.06
Lane Grp Cap(c), veh/h	147	0	0				575	1270	1317	549	1270	1315
V/C Ratio(X)	0.12	0.00	0.00				0.06	0.32	0.32	0.05	0.30	0.30
Avail Cap(c_a), veh/h	706	0	0				575	1270	1317	549	1270	1315
HCM Platoon Ratio	1.00	1.00	1.00				2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00				0.94	0.94	0.94	0.92	0.92	0.92
Uniform Delay (d), s/veh	35.5	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0				0.2	0.6	0.6	0.2	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0				0.0	0.2	0.2	0.0	0.2	0.2
LnGrp Delay(d),s/veh	35.6	0.0	0.0				0.2	0.6	0.6	0.2	0.6	0.5
LnGrp LOS	D						A	A	A	A	A	A
Approach Vol, veh/h		17						863			800	
Approach Delay, s/veh		35.6						0.6			0.5	
Approach LOS		D						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		72.3		12.7		72.3		
Change Period (Y+Rc), s		5.0		5.5		5.0		
Max Green Setting (Gmax), s		38.0		36.5		38.0		
Max Q Clear Time (g_c+I1), s		2.0		2.8		2.0		
Green Ext Time (p_c), s		5.1		0.0		5.1		

Intersection Summary			
HCM 2010 Ctrl Delay			0.9
HCM 2010 LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	21	21	0	0	151	21	700	17	235	523	27
Future Volume (vph)	0	21	21	0	0	151	21	700	17	235	523	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.5				4.0		4.5		1.5	4.5	
Lane Util. Factor		1.00				1.00		0.95		1.00	0.95	
Frpb, ped/bikes		0.91				1.00		0.99		1.00	0.99	
Flpb, ped/bikes		1.00				1.00		1.00		1.00	1.00	
Frt		0.93				0.86		1.00		1.00	0.99	
Flt Protected		1.00				1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1416				1450		3145		1593	3127	
Flt Permitted		1.00				1.00		0.93		0.95	1.00	
Satd. Flow (perm)		1416				1450		2938		1593	3127	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	0	21	21	0	0	151	21	700	17	235	523	27
RTOR Reduction (vph)	0	20	0	0	0	111	0	2	0	0	3	0
Lane Group Flow (vph)	0	22	0	0	0	40	0	736	0	235	547	0
Confl. Peds. (#/hr)	1		34	34		1	102		92			102
Confl. Bikes (#/hr)			2						81			20
Turn Type		NA				Prot	Perm	NA		Prot	NA	
Protected Phases		4				8		2		3	6	
Permitted Phases							2					
Actuated Green, G (s)		3.7				20.3		55.2		16.1	55.2	
Effective Green, g (s)		4.2				20.8		55.7		16.6	55.7	
Actuated g/C Ratio		0.05				0.24		0.66		0.20	0.66	
Clearance Time (s)		3.0				4.5		5.0		2.0	5.0	
Vehicle Extension (s)		2.0				2.0		2.0		2.0	2.0	
Lane Grp Cap (vph)		69				354		1925		311	2049	
v/s Ratio Prot		c0.02				0.03				c0.15	0.17	
v/s Ratio Perm								c0.25				
v/c Ratio		0.32				0.11		0.38		0.76	0.27	
Uniform Delay, d1		39.0				24.9		6.7		32.3	6.1	
Progression Factor		1.00				1.00		0.48		0.98	0.64	
Incremental Delay, d2		1.0				0.1		0.5		8.7	0.3	
Delay (s)		40.0				25.0		3.8		40.4	4.2	
Level of Service		D				C		A		D	A	
Approach Delay (s)		40.0			25.0			3.8			15.0	
Approach LOS		D			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations								
Traffic Volume (veh/h)	16	22	22	541	442	12		
Future Volume (veh/h)	16	22	22	541	442	12		
Number	7	14	5	2	6	16		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00	0.96			0.90		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1676	1676	1676	1676	1676	1710		
Adj Flow Rate, veh/h	16	4	22	541	442	11		
Adj No. of Lanes	1	1	1	1	1	0		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	45	32	810	1501	1454	36		
Arrive On Green	0.03	0.02	1.00	1.00	1.00	1.00		
Sat Flow, veh/h	1597	1425	810	1676	1623	40		
Grp Volume(v), veh/h	16	4	22	541	0	453		
Grp Sat Flow(s),veh/h/ln	1597	1425	810	1676	0	1664		
Q Serve(g_s), s	0.8	0.2	0.0	0.0	0.0	0.0		
Cycle Q Clear(g_c), s	0.8	0.2	0.0	0.0	0.0	0.0		
Prop In Lane	1.00	1.00	1.00			0.02		
Lane Grp Cap(c), veh/h	45	32	810	1501	0	1490		
V/C Ratio(X)	0.36	0.13	0.03	0.36	0.00	0.30		
Avail Cap(c_a), veh/h	451	394	810	1501	0	1490		
HCM Platoon Ratio	1.00	1.00	2.00	2.00	2.00	2.00		
Upstream Filter(I)	1.00	1.00	0.88	0.88	0.00	0.96		
Uniform Delay (d), s/veh	40.6	40.8	0.0	0.0	0.0	0.0		
Incr Delay (d2), s/veh	1.8	0.7	0.1	0.6	0.0	0.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.4	0.1	0.0	0.2	0.0	0.2		
LnGrp Delay(d),s/veh	42.3	41.4	0.1	0.6	0.0	0.5		
LnGrp LOS	D	D	A	A		A		
Approach Vol, veh/h	20			563	453			
Approach Delay, s/veh	42.2			0.6	0.5			
Approach LOS	D			A	A			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		79.1		5.9		79.1		
Change Period (Y+Rc), s		3.5		4.0		3.5		
Max Green Setting (Gmax), s		54.0		23.5		54.0		
Max Q Clear Time (g_c+I1), s		2.0		2.8		2.0		
Green Ext Time (p_c), s		2.7		0.0		2.7		
Intersection Summary								
HCM 2010 Ctrl Delay			1.3					
HCM 2010 LOS			A					

Movement	EBU	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	13	236	366	87	24	58	19	156	183	255	853	103
Future Volume (vph)	13	236	366	87	24	58	19	156	183	255	853	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0			4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00	0.95	1.00			1.00	1.00	1.00	0.97	0.95	
Frpb, ped/bikes		1.00	1.00	0.79			1.00	1.00	0.79	1.00	0.97	
Flpb, ped/bikes		1.00	1.00	1.00			1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85			1.00	1.00	0.85	1.00	0.98	
Flt Protected		0.95	1.00	1.00			0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1593	3185	1121			1593	1676	1133	3090	3027	
Flt Permitted		0.95	1.00	1.00			0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1593	3185	1121			1593	1676	1133	3090	3027	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	13	236	366	87	24	58	19	156	183	255	853	103
RTOR Reduction (vph)	0	0	0	94	0	0	0	0	140	0	6	0
Lane Group Flow (vph)	0	249	366	17	0	0	77	156	43	255	950	0
Confl. Peds. (#/hr)				56					75			164
Confl. Bikes (#/hr)				44					18			25
Turn Type	Prot	Prot	NA	Perm		Prot	Prot	NA	Perm	Prot	NA	
Protected Phases	7	7	4			3	3	8		5	2	
Permitted Phases				4					8			
Actuated Green, G (s)		23.2	20.2	20.2			7.0	32.2	32.2	16.3	51.8	
Effective Green, g (s)		24.2	21.2	21.2			8.0	33.2	33.2	17.3	52.8	
Actuated g/C Ratio		0.17	0.15	0.15			0.06	0.24	0.24	0.12	0.38	
Clearance Time (s)		5.0	5.0	5.0			5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0	3.0	3.0			3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		275	482	169			91	397	268	381	1141	
v/s Ratio Prot		c0.16	c0.11				c0.05	0.09		0.08	c0.31	
v/s Ratio Perm				0.01					0.04			
v/c Ratio		0.91	0.76	0.10			0.85	0.39	0.16	0.67	0.83	
Uniform Delay, d1		56.8	57.0	51.2			65.4	44.9	42.4	58.6	39.6	
Progression Factor		1.00	1.00	1.00			1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		30.6	6.8	0.3			47.9	0.6	0.3	4.4	7.2	
Delay (s)		87.4	63.7	51.4			113.2	45.6	42.6	63.0	46.7	
Level of Service		F	E	D			F	D	D	E	D	
Approach Delay (s)			70.0					56.8			50.2	
Approach LOS			E					E			D	

Intersection Summary			
HCM 2000 Control Delay	55.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Traffic Volume (vph)	131	352	46	71
Future Volume (vph)	131	352	46	71
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	0.94		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.96		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1593	2891		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1593	2891		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00
Adj. Flow (vph)	131	352	46	71
RTOR Reduction (vph)	0	10	0	0
Lane Group Flow (vph)	131	459	0	0
Confl. Peds. (#/hr)				104
Confl. Bikes (#/hr)			44	44
Turn Type	Prot	NA		
Protected Phases	1	6		
Permitted Phases				
Actuated Green, G (s)	12.8	48.3		
Effective Green, g (s)	13.8	49.3		
Actuated g/C Ratio	0.10	0.35		
Clearance Time (s)	5.0	5.0		
Vehicle Extension (s)	3.0	3.0		
Lane Grp Cap (vph)	157	1018		
v/s Ratio Prot	c0.08	0.16		
v/s Ratio Perm				
v/c Ratio	0.83	0.45		
Uniform Delay, d1	62.0	34.9		
Progression Factor	1.00	1.00		
Incremental Delay, d2	30.0	1.4		
Delay (s)	92.0	36.4		
Level of Service	F	D		
Approach Delay (s)		48.5		
Approach LOS		D		

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Traffic Volume (veh/h)	175	821	635	398	276	95		
Future Volume (veh/h)	175	821	635	398	276	95		
Number	5	2	6	16	7	14		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			0.90	1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1676	1676	1676	1710	1676	1676		
Adj Flow Rate, veh/h	175	821	635	343	276	17		
Adj No. of Lanes	1	2	2	0	2	1		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	517	2455	766	414	432	193		
Arrive On Green	0.65	1.00	0.80	0.79	0.14	0.14		
Sat Flow, veh/h	1597	3269	1999	1035	3193	1425		
Grp Volume(v), veh/h	175	821	528	450	276	17		
Grp Sat Flow(s),veh/h/ln	1597	1593	1593	1357	1597	1425		
Q Serve(g_s), s	4.2	0.0	16.7	17.1	7.0	0.9		
Cycle Q Clear(g_c), s	4.2	0.0	16.7	17.1	7.0	0.9		
Prop In Lane	1.00			0.76	1.00	1.00		
Lane Grp Cap(c), veh/h	517	2455	637	543	432	193		
V/C Ratio(X)	0.34	0.33	0.83	0.83	0.64	0.09		
Avail Cap(c_a), veh/h	517	2455	637	543	1052	469		
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00		
Upstream Filter(I)	0.63	0.63	0.77	0.77	1.00	1.00		
Uniform Delay (d), s/veh	10.9	0.0	6.8	7.1	34.8	32.2		
Incr Delay (d2), s/veh	0.1	0.2	9.4	10.9	0.6	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.8	0.1	8.3	7.6	3.1	0.7		
LnGrp Delay(d),s/veh	11.0	0.2	16.2	18.0	35.4	32.2		
LnGrp LOS	B	A	B	B	D	C		
Approach Vol, veh/h		996	978		293			
Approach Delay, s/veh		2.1	17.0		35.2			
Approach LOS		A	B		D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		69.5		15.5	31.5	38.0		
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5		
Max Green Setting (Gmax), s		48.5		27.5	10.5	33.5		
Max Q Clear Time (g_c+I1), s		2.0		9.0	6.2	19.1		
Green Ext Time (p_c), s		5.7		1.3	2.0	4.4		
Intersection Summary								
HCM 2010 Ctrl Delay			12.8					
HCM 2010 LOS			B					
Notes								

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	818	205	80	510	91	374	379	209	95	299	90
Future Volume (veh/h)	117	818	205	80	510	91	374	379	209	95	299	90
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.88	1.00		0.88	0.95		0.89	0.95		0.86
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1676	1676	1676	1676	1676	1676
Adj Flow Rate, veh/h	117	818	205	80	510	91	374	379	188	95	299	67
Adj No. of Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	212	879	220	107	949	168	546	917	692	316	542	396
Arrive On Green	0.48	0.48	0.47	0.12	0.12	0.12	0.18	0.55	0.55	0.65	0.65	0.65
Sat Flow, veh/h	724	2448	613	494	2645	468	1597	1676	1264	716	1676	1223
Grp Volume(v), veh/h	117	532	491	80	305	296	374	379	188	95	299	67
Grp Sat Flow(s),veh/h/ln	724	1593	1469	494	1593	1520	1597	1676	1264	716	1676	1223
Q Serve(g_s), s	13.4	26.7	26.7	3.8	15.3	15.6	12.8	11.2	6.7	5.4	8.3	1.8
Cycle Q Clear(g_c), s	29.0	26.7	26.7	30.5	15.3	15.6	12.8	11.2	6.7	5.4	8.3	1.8
Prop In Lane	1.00		0.42	1.00		0.31	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	212	571	527	107	571	546	546	917	692	316	542	396
V/C Ratio(X)	0.55	0.93	0.93	0.75	0.53	0.54	0.68	0.41	0.27	0.30	0.55	0.17
Avail Cap(c_a), veh/h	212	571	527	107	571	546	546	917	692	316	542	396
HCM Platoon Ratio	1.33	1.33	1.33	0.33	0.33	0.33	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.92	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.94	0.94
Uniform Delay (d), s/veh	29.4	21.2	21.4	52.2	30.8	30.9	14.7	11.3	10.2	11.1	11.6	10.5
Incr Delay (d2), s/veh	1.7	20.5	21.8	22.9	0.5	0.6	2.9	1.4	1.0	2.3	3.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	14.8	13.9	2.6	6.8	6.7	6.0	5.5	2.5	1.2	4.3	0.7
LnGrp Delay(d),s/veh	31.1	41.7	43.2	75.1	31.3	31.5	17.6	12.6	11.2	13.4	15.4	11.3
LnGrp LOS	C	D	D	E	C	C	B	B	B	B	B	B
Approach Vol, veh/h		1140			681			941			461	
Approach Delay, s/veh		41.3			36.5			14.3			14.4	
Approach LOS		D			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		50.5		34.5	19.0	31.5		34.5
Change Period (Y+Rc), s		6.0		4.5	4.5	6.0		4.5
Max Green Setting (Gmax), s		44.5		30.0	14.5	25.5		30.0
Max Q Clear Time (g_c+I1), s		13.2		31.0	14.8	10.3		32.5
Green Ext Time (p_c), s		5.8		0.0	0.0	4.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	28.6
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	964	98	25	716	29	10	3	12	15	1	35
Future Vol, veh/h	39	964	98	25	716	29	10	3	12	15	1	35
Conflicting Peds, #/hr	54	0	57	57	0	54	30	0	30	30	0	30
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	39	964	98	25	716	29	10	3	12	15	1	35

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	799	0	0	1119	0	0	1587	1997	618	1427	2032	457
Stage 1	-	-	-	-	-	-	1148	1148	-	835	835	-
Stage 2	-	-	-	-	-	-	439	849	-	592	1197	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	819	-	-	620	-	-	73	59	432	96	57	551
Stage 1	-	-	-	-	-	-	211	272	-	328	381	-
Stage 2	-	-	-	-	-	-	567	375	-	460	257	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	796	-	-	602	-	-	53	43	397	70	42	508
Mov Cap-2 Maneuver	-	-	-	-	-	-	53	43	-	70	42	-
Stage 1	-	-	-	-	-	-	175	226	-	273	336	-
Stage 2	-	-	-	-	-	-	475	330	-	375	213	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.7	62.3	36
HCM LOS			F	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	87	796	-	-	602	-	-	166
HCM Lane V/C Ratio	0.287	0.049	-	-	0.042	-	-	0.307
HCM Control Delay (s)	62.3	9.8	0.6	-	11.2	0.4	-	36
HCM Lane LOS	F	A	A	-	B	A	-	E
HCM 95th %tile Q(veh)	1.1	0.2	-	-	0.1	-	-	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	762	99	67	377	53	254	662	215	91	342	145
Future Volume (veh/h)	139	762	99	67	377	53	254	662	215	91	342	145
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		0.87	0.99		0.87	0.94		0.80	0.95		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1710	1676	1710	1676	1676	1676	1676	1676	1710
Adj Flow Rate, veh/h	139	762	85	67	377	40	254	662	194	91	342	99
Adj No. of Lanes	1	2	0	0	2	0	1	2	1	1	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	367	1141	127	116	712	86	418	1606	578	363	1181	331
Arrive On Green	0.40	0.40	0.40	0.80	0.80	0.79	1.00	1.00	1.00	0.50	0.50	0.49
Sat Flow, veh/h	824	2840	317	150	1773	213	803	3185	1147	552	2344	656
Grp Volume(v), veh/h	139	427	420	212	0	272	254	662	194	91	229	212
Grp Sat Flow(s),veh/h/ln	824	1593	1564	684	0	1451	803	1593	1147	552	1593	1407
Q Serve(g_s), s	11.3	18.6	18.7	9.8	0.0	5.1	12.7	0.0	0.0	8.3	7.1	7.6
Cycle Q Clear(g_c), s	16.4	18.6	18.7	28.5	0.0	5.1	20.3	0.0	0.0	8.3	7.1	7.6
Prop In Lane	1.00		0.20	0.32		0.15	1.00		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	367	640	628	331	0	583	418	1606	578	363	803	709
V/C Ratio(X)	0.38	0.67	0.67	0.64	0.00	0.47	0.61	0.41	0.34	0.25	0.28	0.30
Avail Cap(c_a), veh/h	385	675	663	353	0	615	418	1606	578	363	803	709
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.98	0.00	0.98	0.87	0.87	0.87	0.97	0.97	0.97
Uniform Delay (d), s/veh	22.1	20.8	20.8	9.4	0.0	5.5	1.8	0.0	0.0	12.5	12.2	12.5
Incr Delay (d2), s/veh	0.2	1.8	1.9	2.4	0.0	0.2	5.6	0.7	1.4	1.6	0.9	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	8.5	8.4	2.8	0.0	1.9	3.1	0.2	0.2	1.4	3.3	3.1
LnGrp Delay(d),s/veh	22.4	22.6	22.7	11.8	0.0	5.8	7.4	0.7	1.4	14.1	13.1	13.5
LnGrp LOS	C	C	C	B		A	A	A	A	B	B	B
Approach Vol, veh/h		986			484			1110			532	
Approach Delay, s/veh		22.6			8.4			2.3			13.4	
Approach LOS		C			A			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		46.9		38.1		46.9		38.1
Change Period (Y+Rc), s		5.0		4.5		5.0		4.5
Max Green Setting (Gmax), s		40.0		35.5		40.0		35.5
Max Q Clear Time (g_c+I1), s		22.3		20.7		10.3		30.5
Green Ext Time (p_c), s		9.5		6.8		12.2		3.2

Intersection Summary	
HCM 2010 Ctrl Delay	11.6
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	822	192	113	413	31	0	0	0	73	203	80
Future Volume (veh/h)	35	822	192	113	413	31	0	0	0	73	203	80
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	0.94		0.86	1.00		0.88				1.00		0.73
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710	1676	1676	1710				1710	1676	1710
Adj Flow Rate, veh/h	35	822	171	113	413	24				73	203	67
Adj No. of Lanes	0	2	0	1	2	0				0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2				0	2	0
Cap, veh/h	73	1152	236	149	1881	109				90	251	83
Arrive On Green	0.96	0.96	0.92	0.09	0.62	0.60				0.29	0.29	0.29
Sat Flow, veh/h	59	2403	492	1597	3034	175				316	878	290
Grp Volume(v), veh/h	562	0	466	113	216	221				343	0	0
Grp Sat Flow(s),veh/h/ln	1612	0	1343	1597	1593	1617				1483	0	0
Q Serve(g_s), s	0.0	0.0	5.1	5.9	5.1	5.1				18.3	0.0	0.0
Cycle Q Clear(g_c), s	3.5	0.0	5.1	5.9	5.1	5.1				18.3	0.0	0.0
Prop In Lane	0.06		0.37	1.00		0.11				0.21		0.20
Lane Grp Cap(c), veh/h	818	0	644	149	987	1003				424	0	0
V/C Ratio(X)	0.69	0.00	0.72	0.76	0.22	0.22				0.81	0.00	0.00
Avail Cap(c_a), veh/h	818	0	644	225	987	1003				454	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.71	0.00	0.71	0.97	0.97	0.97				1.00	0.00	0.00
Uniform Delay (d), s/veh	1.0	0.0	1.3	37.6	7.1	7.2				28.1	0.0	0.0
Incr Delay (d2), s/veh	3.3	0.0	5.0	2.9	0.5	0.5				9.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	2.2	2.7	2.4	2.4				8.5	0.0	0.0
LnGrp Delay(d),s/veh	4.3	0.0	6.3	40.5	7.6	7.6				37.1	0.0	0.0
LnGrp LOS	A		A	D	A	A				D		
Approach Vol, veh/h		1028			550						343	
Approach Delay, s/veh		5.2			14.4						37.1	
Approach LOS		A			B						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.9	44.8		28.3		56.7		
Change Period (Y+Rc), s	4.5	5.5		3.5		5.5		
Max Green Setting (Gmax), s	11.5	33.5		26.5		49.5		
Max Q Clear Time (g_c+I1), s	7.9	7.1		20.3		7.1		
Green Ext Time (p_c), s	0.1	4.3		0.5		4.4		

Intersection Summary			
HCM 2010 Ctrl Delay			13.5
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	883	5	5	483	23	3	2	4	78	0	59
Future Volume (veh/h)	33	883	5	5	483	23	3	2	4	78	0	59
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.84	0.98		0.86	0.90		0.87	0.89		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	33	883	5	5	483	20	3	2	1	78	0	20
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	472	1885	11	350	1798	74	262	163	72	367	8	77
Arrive On Green	0.77	0.77	0.77	0.58	0.58	0.58	0.32	0.32	0.32	0.32	0.00	0.32
Sat Flow, veh/h	769	3243	18	548	3094	128	611	503	223	897	23	236
Grp Volume(v), veh/h	33	434	454	5	248	255	6	0	0	98	0	0
Grp Sat Flow(s),veh/h/ln	769	1593	1669	548	1593	1629	1338	0	0	1156	0	0
Q Serve(g_s), s	1.3	8.2	8.2	0.4	6.6	6.6	0.0	0.0	0.0	4.6	0.0	0.0
Cycle Q Clear(g_c), s	7.9	8.2	8.2	8.6	6.6	6.6	0.2	0.0	0.0	5.2	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.08	0.50		0.17	0.80		0.20
Lane Grp Cap(c), veh/h	472	926	970	350	926	947	498	0	0	451	0	0
V/C Ratio(X)	0.07	0.47	0.47	0.01	0.27	0.27	0.01	0.00	0.00	0.22	0.00	0.00
Avail Cap(c_a), veh/h	472	926	970	350	926	947	625	0	0	565	0	0
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.53	0.53	0.53	0.93	0.93	0.93	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.1	5.0	5.0	11.4	8.8	8.9	19.5	0.0	0.0	21.1	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.9	0.9	0.1	0.7	0.6	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.7	3.9	0.1	3.0	3.1	0.1	0.0	0.0	1.7	0.0	0.0
LnGrp Delay(d),s/veh	6.2	5.9	5.8	11.5	9.5	9.5	19.5	0.0	0.0	21.2	0.0	0.0
LnGrp LOS	A	A	A	B	A	A	B			C		
Approach Vol, veh/h		921			508			6			98	
Approach Delay, s/veh		5.9			9.5			19.5			21.2	
Approach LOS		A			A			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		53.4		31.6		53.4		31.6
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		40.5		35.5		40.5		35.5
Max Q Clear Time (g_c+I1), s		10.2		7.2		10.6		2.2
Green Ext Time (p_c), s		7.6		0.4		7.6		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	8.1
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	679	139	232	368	22	14	1052	713	2	394	113
Future Volume (veh/h)	149	679	139	232	368	22	14	1052	713	2	394	113
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.76	1.00		0.80	0.96		0.91	0.99		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1676	1676	1710	1676	1710
Adj Flow Rate, veh/h	149	679	124	232	368	18	14	1052	685	2	394	74
Adj No. of Lanes	2	2	0	2	2	0	0	3	1	0	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	208	741	135	293	1016	49	46	2160	710	35	1812	321
Arrive On Green	0.07	0.29	0.28	0.09	0.33	0.32	0.98	0.98	0.95	0.49	0.49	0.48
Sat Flow, veh/h	3097	2548	464	3097	3052	148	25	4401	1290	3	3691	653
Grp Volume(v), veh/h	149	424	379	232	191	195	398	668	685	176	147	147
Grp Sat Flow(s),veh/h/ln	1549	1593	1420	1549	1593	1608	1649	1388	1290	1658	1388	1301
Q Serve(g_s), s	5.2	28.3	28.5	8.1	10.0	10.2	0.0	0.9	52.4	0.0	6.6	7.2
Cycle Q Clear(g_c), s	5.2	28.3	28.5	8.1	10.0	10.2	0.9	0.9	52.4	6.6	6.6	7.2
Prop In Lane	1.00		0.33	1.00		0.09	0.04		1.00	0.01		0.50
Lane Grp Cap(c), veh/h	208	463	413	293	530	535	843	1363	710	847	682	638
V/C Ratio(X)	0.72	0.91	0.92	0.79	0.36	0.36	0.47	0.49	0.96	0.21	0.22	0.23
Avail Cap(c_a), veh/h	310	463	413	338	530	535	843	1363	710	847	682	638
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89	0.98	0.98	0.98	0.91	0.91	0.91	0.90	0.90	0.90
Uniform Delay (d), s/veh	50.3	37.7	38.0	48.7	27.8	27.9	0.5	0.5	4.9	15.9	15.9	16.3
Incr Delay (d2), s/veh	4.1	23.0	25.7	10.5	1.9	1.9	0.4	0.2	23.7	0.1	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	15.3	14.1	3.9	4.7	4.8	0.3	0.2	25.6	3.1	2.6	2.6
LnGrp Delay(d),s/veh	54.4	60.7	63.7	59.3	29.7	29.8	0.9	0.8	28.6	16.0	16.1	16.5
LnGrp LOS	D	E	E	E	C	C	A	A	C	B	B	B
Approach Vol, veh/h		952			618			1751			470	
Approach Delay, s/veh		60.9			40.8			11.7			16.2	
Approach LOS		E			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		58.0	11.4	40.6		58.0	16.0	36.0
Change Period (Y+Rc), s		5.6	4.0	5.6		5.6	5.6	* 5.6
Max Green Setting (Gmax), s		52.4	11.0	31.4		52.4	12.0	* 30
Max Q Clear Time (g_c+I1), s		54.4	7.2	12.2		9.2	10.1	30.5
Green Ext Time (p_c), s		0.0	0.3	3.9		27.0	0.3	0.0

Intersection Summary			
HCM 2010 Ctrl Delay			29.4
HCM 2010 LOS			C

Notes

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	162	1321	488	229	294	85
Future Volume (veh/h)	162	1321	488	229	294	85
Number	7	4	8	18	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98			0.90	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1676	1676	1676	1710
Adj Flow Rate, veh/h	162	1321	488	155	343	0
Adj No. of Lanes	1	2	2	1	2	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	578	2441	2441	985	462	202
Arrive On Green	0.77	0.77	0.77	0.77	0.14	0.00
Sat Flow, veh/h	688	3269	3269	1286	3193	1454
Grp Volume(v), veh/h	162	1321	488	155	343	0
Grp Sat Flow(s),veh/h/ln	688	1593	1593	1286	1597	1454
Q Serve(g_s), s	7.6	14.9	3.8	2.9	9.3	0.0
Cycle Q Clear(g_c), s	11.4	14.9	3.8	2.9	9.3	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	578	2441	2441	985	462	202
V/C Ratio(X)	0.28	0.54	0.20	0.16	0.74	0.00
Avail Cap(c_a), veh/h	578	2441	2441	985	834	371
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.27	0.27	0.96	0.96	1.00	0.00
Uniform Delay (d), s/veh	4.5	4.2	2.9	2.8	36.9	0.0
Incr Delay (d2), s/veh	0.3	0.2	0.2	0.3	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	6.5	1.7	1.1	4.2	0.0
LnGrp Delay(d),s/veh	4.8	4.4	3.1	3.1	37.8	0.0
LnGrp LOS	A	A	A	A	D	
Approach Vol, veh/h		1483	643		343	
Approach Delay, s/veh		4.5	3.1		37.8	
Approach LOS		A	A		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		17.0		73.0				73.0
Change Period (Y+Rc), s		4.5		4.5				4.5
Max Green Setting (Gmax), s		23.0		58.0				58.0
Max Q Clear Time (g_c+I1), s		11.3		16.9				5.8
Green Ext Time (p_c), s		1.3		18.6				20.3

Intersection Summary		
HCM 2010 Ctrl Delay		8.7
HCM 2010 LOS		A

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	1499	52	23	681	20	0	0	0	29	0	29
Future Volume (veh/h)	49	1499	52	23	681	20	0	0	0	29	0	29
Number	3	8	18	7	4	14				5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.85	1.00		0.79				1.00		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710				1710	1676	1710
Adj Flow Rate, veh/h	49	1499	50	23	681	18				29	0	6
Adj No. of Lanes	1	2	0	1	2	0				0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2				0	2	0
Cap, veh/h	431	2313	77	214	2328	61				238	0	49
Arrive On Green	0.74	0.74	0.74	0.24	0.24	0.24				0.19	0.00	0.18
Sat Flow, veh/h	648	3125	104	298	3145	83				1270	0	263
Grp Volume(v), veh/h	49	761	788	23	345	354				35	0	0
Grp Sat Flow(s),veh/h/ln	648	1593	1636	298	1593	1636				1533	0	0
Q Serve(g_s), s	3.9	26.1	26.6	7.3	19.4	19.4				2.1	0.0	0.0
Cycle Q Clear(g_c), s	23.3	26.1	26.6	33.9	19.4	19.4				2.1	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.05				0.83		0.17
Lane Grp Cap(c), veh/h	431	1179	1211	214	1179	1211				287	0	0
V/C Ratio(X)	0.11	0.65	0.65	0.11	0.29	0.29				0.12	0.00	0.00
Avail Cap(c_a), veh/h	431	1179	1211	214	1179	1211				404	0	0
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33				1.00	1.00	1.00
Upstream Filter(I)	0.78	0.78	0.78	0.96	0.96	0.96				1.00	0.00	0.00
Uniform Delay (d), s/veh	11.3	7.1	7.2	35.0	18.1	18.1				37.3	0.0	0.0
Incr Delay (d2), s/veh	0.4	2.1	2.1	1.0	0.6	0.6				0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	11.9	12.5	0.7	8.7	9.0				0.9	0.0	0.0
LnGrp Delay(d),s/veh	11.7	9.2	9.3	36.0	18.7	18.7				37.3	0.0	0.0
LnGrp LOS	B	A	A	D	B	B				D		
Approach Vol, veh/h		1598			722						35	
Approach Delay, s/veh		9.3			19.3						37.3	
Approach LOS		A			B						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		24.6		85.4				85.4
Change Period (Y+Rc), s		5.0		4.5				4.5
Max Green Setting (Gmax), s		28.0		72.5				72.5
Max Q Clear Time (g_c+I1), s		4.1		35.9				28.6
Green Ext Time (p_c), s		0.0		4.3				4.3

Intersection Summary	
HCM 2010 Ctrl Delay	12.8
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	1345	33	34	596	56	37	5	36	94	13	67
Future Volume (veh/h)	75	1345	33	34	596	56	37	5	36	94	13	67
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		0.80	1.00		0.84	0.94		0.90	0.92		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	75	1345	32	34	596	51	37	5	18	94	13	45
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	514	2134	51	189	1972	168	233	37	93	240	38	95
Arrive On Green	0.45	0.45	0.45	1.00	1.00	1.00	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	664	3159	75	353	2919	249	717	145	369	744	151	376
Grp Volume(v), veh/h	75	677	700	34	324	323	60	0	0	152	0	0
Grp Sat Flow(s),veh/h/ln	664	1593	1641	353	1593	1575	1231	0	0	1271	0	0
Q Serve(g_s), s	7.4	35.8	36.0	6.0	0.0	0.0	0.0	0.0	0.0	6.6	0.0	0.0
Cycle Q Clear(g_c), s	7.4	35.8	36.0	41.9	0.0	0.0	3.9	0.0	0.0	10.5	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.16	0.62		0.30	0.62		0.30
Lane Grp Cap(c), veh/h	514	1076	1109	189	1076	1064	363	0	0	373	0	0
V/C Ratio(X)	0.15	0.63	0.63	0.18	0.30	0.30	0.17	0.00	0.00	0.41	0.00	0.00
Avail Cap(c_a), veh/h	514	1076	1109	189	1076	1064	410	0	0	421	0	0
HCM Platoon Ratio	0.67	0.67	0.67	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.68	0.68	0.68	0.93	0.93	0.93	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.8	19.5	19.6	10.1	0.0	0.0	32.3	0.0	0.0	34.6	0.0	0.0
Incr Delay (d2), s/veh	0.4	1.9	1.9	2.0	0.7	0.7	0.1	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	16.3	16.9	0.7	0.2	0.2	1.4	0.0	0.0	3.9	0.0	0.0
LnGrp Delay(d),s/veh	12.2	21.5	21.5	12.1	0.7	0.7	32.3	0.0	0.0	34.8	0.0	0.0
LnGrp LOS	B	C	C	B	A	A	C			C		
Approach Vol, veh/h		1452			681			60			152	
Approach Delay, s/veh		21.0			1.2			32.3			34.8	
Approach LOS		C			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		31.7		78.3		31.7		78.3
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		31.5		69.5		31.5		69.5
Max Q Clear Time (g_c+I1), s		12.5		43.9		5.9		38.0
Green Ext Time (p_c), s		0.3		3.9		0.3		4.0

Intersection Summary	
HCM 2010 Ctrl Delay	16.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	1372	11	26	645	49	24	4	36	24	7	33
Future Volume (veh/h)	36	1372	11	26	645	49	24	4	36	24	7	33
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		0.80	1.00		0.83	0.95		0.95	0.96		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1676	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	36	1372	11	26	645	44	24	4	21	24	7	10
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	455	1968	16	214	1816	124	238	48	178	284	83	102
Arrive On Green	0.81	0.81	0.80	1.00	1.00	1.00	0.32	0.32	0.31	0.32	0.32	0.31
Sat Flow, veh/h	640	3231	26	351	2982	203	594	151	559	730	262	320
Grp Volume(v), veh/h	36	676	707	26	344	345	49	0	0	41	0	0
Grp Sat Flow(s),veh/h/ln	640	1593	1664	351	1593	1592	1304	0	0	1312	0	0
Q Serve(g_s), s	1.3	20.4	20.4	2.8	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.3	20.4	20.4	23.2	0.0	0.0	2.6	0.0	0.0	2.0	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.13	0.49		0.43	0.59		0.24
Lane Grp Cap(c), veh/h	455	970	1014	214	970	970	464	0	0	469	0	0
V/C Ratio(X)	0.08	0.70	0.70	0.12	0.35	0.36	0.11	0.00	0.00	0.09	0.00	0.00
Avail Cap(c_a), veh/h	455	970	1014	214	970	970	464	0	0	469	0	0
HCM Platoon Ratio	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.73	0.73	0.73	0.89	0.89	0.89	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.2	6.0	6.0	3.5	0.0	0.0	26.5	0.0	0.0	26.3	0.0	0.0
Incr Delay (d2), s/veh	0.2	3.1	2.9	1.0	0.9	0.9	0.5	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	9.5	9.9	0.3	0.2	0.2	1.1	0.0	0.0	0.9	0.0	0.0
LnGrp Delay(d),s/veh	4.5	9.1	9.0	4.6	0.9	0.9	27.0	0.0	0.0	26.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C			C		
Approach Vol, veh/h		1419			715			49			41	
Approach Delay, s/veh		8.9			1.0			27.0			26.7	
Approach LOS		A			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		39.0		71.0		39.0		71.0
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s		34.5		66.5		34.5		66.5
Max Q Clear Time (g_c+I1), s		4.0		25.2		4.6		22.4
Green Ext Time (p_c), s		0.5		25.0		0.5		26.0

Intersection Summary	
HCM 2010 Ctrl Delay	7.1
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	1458	0	3	706	141	0	0	0	83	0	36
Future Volume (veh/h)	32	1458	0	3	706	141	0	0	0	83	0	36
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	0.98		0.85	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	0	1710	1676	1710	0	1676	0	1710	1676	1710
Adj Flow Rate, veh/h	32	1458	0	3	706	129	0	0	0	83	0	0
Adj No. of Lanes	1	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	0	2	2	2	0	2	0	2	2	2
Cap, veh/h	529	2370	0	34	1367	249	0	307	0	298	0	0
Arrive On Green	0.33	1.00	0.00	0.53	0.54	0.53	0.00	0.00	0.00	0.18	0.00	0.00
Sat Flow, veh/h	1597	3269	0	2	2549	464	0	1676	0	1271	0	0
Grp Volume(v), veh/h	32	1458	0	463	0	375	0	0	0	83	0	0
Grp Sat Flow(s),veh/h/ln	1597	1593	0	1668	0	1346	0	1676	0	1271	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	19.7	0.0	0.0	0.0	6.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	19.5	0.0	19.7	0.0	0.0	0.0	6.3	0.0	0.0
Prop In Lane	1.00		0.00	0.01		0.34	0.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	529	2370	0	920	0	722	0	307	0	298	0	0
V/C Ratio(X)	0.06	0.62	0.00	0.50	0.00	0.52	0.00	0.00	0.00	0.28	0.00	0.00
Avail Cap(c_a), veh/h	529	2370	0	920	0	722	0	457	0	412	0	0
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.00	0.93	0.00	0.93	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.4	0.0	0.0	16.4	0.0	16.4	0.0	0.0	0.0	39.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.0	1.8	0.0	2.5	0.0	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.2	0.0	9.5	0.0	7.8	0.0	0.0	0.0	2.2	0.0	0.0
LnGrp Delay(d),s/veh	11.4	0.8	0.0	18.2	0.0	18.9	0.0	0.0	0.0	39.4	0.0	0.0
LnGrp LOS	B	A		B		B				D		
Approach Vol, veh/h		1490			838			0			83	
Approach Delay, s/veh		1.0			18.5			0.0			39.4	
Approach LOS		A			B						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4		6		8
Phs Duration (G+Y+Rc), s		24.2	22.8	63.0		24.2		85.8
Change Period (Y+Rc), s		4.5	4.5	* 4.5		4.5		4.5
Max Green Setting (Gmax), s		29.5	9.0	* 59		29.5		71.5
Max Q Clear Time (g_c+I1), s		8.3	2.0	21.7		0.0		2.0
Green Ext Time (p_c), s		0.0	2.2	1.2		0.0		3.1

Intersection Summary		
HCM 2010 Ctrl Delay		8.4
HCM 2010 LOS		A

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1029	510	179	626	225	92
Future Volume (veh/h)	1029	510	179	626	225	92
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.87	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1710	1676	1676	1676	1676
Adj Flow Rate, veh/h	1029	467	179	626	225	20
Adj No. of Lanes	2	0	1	2	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1204	524	213	2406	270	241
Arrive On Green	0.58	0.57	0.27	1.00	0.17	0.17
Sat Flow, veh/h	2144	896	1597	3269	1597	1425
Grp Volume(v), veh/h	785	711	179	626	225	20
Grp Sat Flow(s),veh/h/ln	1593	1364	1597	1593	1597	1425
Q Serve(g_s), s	42.8	48.2	11.2	0.0	14.4	1.3
Cycle Q Clear(g_c), s	42.8	48.2	11.2	0.0	14.4	1.3
Prop In Lane		0.66	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	931	797	213	2406	270	241
V/C Ratio(X)	0.84	0.89	0.84	0.26	0.83	0.08
Avail Cap(c_a), veh/h	931	797	301	2406	603	538
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.75	0.75	0.95	0.95	1.00	1.00
Uniform Delay (d), s/veh	18.1	19.6	37.8	0.0	42.6	37.1
Incr Delay (d2), s/veh	7.1	11.3	13.1	0.2	2.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.6	20.5	5.6	0.1	6.6	0.5
LnGrp Delay(d),s/veh	25.2	30.9	50.9	0.2	45.2	37.2
LnGrp LOS	C	C	D	A	D	D
Approach Vol, veh/h	1496			805	245	
Approach Delay, s/veh	27.9			11.5	44.5	
Approach LOS	C			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	18.1	65.9				84.1		21.9
Change Period (Y+Rc), s	4.5	5.5				5.5		4.5
Max Green Setting (Gmax), s	19.5	32.5				56.5		39.5
Max Q Clear Time (g_c+I1), s	13.2	50.2				2.0		16.4
Green Ext Time (p_c), s	0.5	0.0				22.3		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	24.3
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	284	763	163	0	0	0	0	481	623	253	633	0
Future Volume (veh/h)	284	763	163	0	0	0	0	481	623	253	633	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.80				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710				0	1676	1676	1676	1676	0
Adj Flow Rate, veh/h	284	763	143				0	481	0	253	633	0
Adj No. of Lanes	0	3	0				0	2	1	1	2	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	327	945	180				0	1262	565	275	1932	0
Arrive On Green	0.32	0.32	0.31				0.00	0.40	0.00	0.35	1.00	0.00
Sat Flow, veh/h	1027	2970	566				0	3269	1425	1597	3269	0
Grp Volume(v), veh/h	449	384	357				0	481	0	253	633	0
Grp Sat Flow(s),veh/h/ln	1625	1526	1412				0	1593	1425	1597	1593	0
Q Serve(g_s), s	27.6	24.3	24.5				0.0	11.4	0.0	16.1	0.0	0.0
Cycle Q Clear(g_c), s	27.6	24.3	24.5				0.0	11.4	0.0	16.1	0.0	0.0
Prop In Lane	0.63		0.40				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	517	485	449				0	1262	565	275	1932	0
V/C Ratio(X)	0.87	0.79	0.79				0.00	0.38	0.00	0.92	0.33	0.00
Avail Cap(c_a), veh/h	567	533	493				0	1262	565	407	1932	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.09	0.00	0.60	0.60	0.00
Uniform Delay (d), s/veh	34.1	32.9	33.2				0.0	22.8	0.0	34.0	0.0	0.0
Incr Delay (d2), s/veh	11.9	6.4	7.1				0.0	0.1	0.0	10.5	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.1	11.1	10.4				0.0	5.0	0.0	7.8	0.1	0.0
LnGrp Delay(d),s/veh	46.0	39.3	40.3				0.0	22.8	0.0	44.5	0.3	0.0
LnGrp LOS	D	D	D					C		D	A	
Approach Vol, veh/h		1190						481			886	
Approach Delay, s/veh		42.1						22.8			12.9	
Approach LOS		D						C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	22.3	46.0		37.7		68.3		
Change Period (Y+Rc), s	3.5	4.0		5.0		4.0		
Max Green Setting (Gmax), s	27.5	30.0		36.0		61.0		
Max Q Clear Time (g_c+I1), s	18.1	13.4		29.6		2.0		
Green Ext Time (p_c), s	0.7	5.3		3.1		6.6		

Intersection Summary			
HCM 2010 Ctrl Delay			28.4
HCM 2010 LOS			C

Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	78	10	366	32	550	0	0	517	39
Future Vol, veh/h	0	0	0	78	10	366	32	550	0	0	517	39
Conflicting Peds, #/hr	0	0	32	32	0	0	99	0	130	130	0	99
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	100	-	0	50	-	-	-	-	-
Veh in Median Storage, #	-	-	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	78	10	366	32	550	0	0	517	39

Major/Minor				Minor1			Major1			Major2		
Conflicting Flow All				1183	1269	550	655	0	-	-	-	0
Stage 1				614	614	-	-	-	-	-	-	-
Stage 2				569	655	-	-	-	-	-	-	-
Critical Hdwy				6.42	6.52	6.22	4.12	-	-	-	-	-
Critical Hdwy Stg 1				5.42	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2				5.42	5.52	-	-	-	-	-	-	-
Follow-up Hdwy				3.518	4.018	3.318	2.218	-	-	-	-	-
Pot Cap-1 Maneuver				209	168	535	932	-	0	0	-	-
Stage 1				540	483	-	-	-	0	0	-	-
Stage 2				566	463	-	-	-	0	0	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver				195	0	535	904	-	-	-	-	-
Mov Cap-2 Maneuver				195	0	-	-	-	-	-	-	-
Stage 1				521	0	-	-	-	-	-	-	-
Stage 2				549	0	-	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27.6	0.5	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	WBLn1	WBLn2	SBT	SBR
Capacity (veh/h)	904	-	195	535	-	-
HCM Lane V/C Ratio	0.035	-	0.451	0.684	-	-
HCM Control Delay (s)	9.1	-	37.8	25.1	-	-
HCM Lane LOS	A	-	E	D	-	-
HCM 95th %tile Q(veh)	0.1	-	2.1	5.2	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	209	19	0	118
Future Vol, veh/h	0	0	209	19	0	118
Conflicting Peds, #/hr	32	0	0	32	22	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	-	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	209	19	0	118

Major/Minor	Major2		Minor2	
Conflicting Flow All	-	0	-	254
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.318
Pot Cap-1 Maneuver	-	-	0	785
Stage 1	-	-	0	-
Stage 2	-	-	0	-
Platoon blocked, %	-	-		
Mov Cap-1 Maneuver	-	-	-	761
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	WB	SB
HCM Control Delay, s	0	10.6
HCM LOS		B

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	761
HCM Lane V/C Ratio	-	-	0.155
HCM Control Delay (s)	-	-	10.6
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	19	139	452	53	688	0	0	476	42
Future Volume (veh/h)	0	0	0	19	139	452	53	688	0	0	476	42
Number				7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.86	0.93		1.00	1.00		0.83
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1676	1676	1710	1676	0	0	1676	1710
Adj Flow Rate, veh/h				19	139	308	53	688	0	0	476	38
Adj No. of Lanes				0	1	2	0	2	0	0	2	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				46	334	493	156	1875	0	0	1992	158
Arrive On Green				0.23	0.23	0.23	0.68	0.68	0.00	0.00	1.00	1.00
Sat Flow, veh/h				200	1466	2163	158	2842	0	0	3022	233
Grp Volume(v), veh/h				158	0	308	376	365	0	0	256	258
Grp Sat Flow(s),veh/h/ln				1666	0	1081	1475	1449	0	0	1593	1579
Q Serve(g_s), s				6.9	0.0	10.9	0.0	9.2	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				6.9	0.0	10.9	7.9	9.2	0.0	0.0	0.0	0.0
Prop In Lane				0.12		1.00	0.14		0.00	0.00		0.15
Lane Grp Cap(c), veh/h				380	0	493	1048	983	0	0	1080	1070
V/C Ratio(X)				0.42	0.00	0.63	0.36	0.37	0.00	0.00	0.24	0.24
Avail Cap(c_a), veh/h				549	0	712	1048	983	0	0	1080	1070
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.96	0.96	0.00	0.00	0.96	0.96
Uniform Delay (d), s/veh				28.0	0.0	29.5	5.7	5.9	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh				0.3	0.0	0.5	0.9	1.0	0.0	0.0	0.5	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.2	0.0	3.3	3.9	3.9	0.0	0.0	0.1	0.2
LnGrp Delay(d),s/veh				28.3	0.0	30.0	6.6	6.9	0.0	0.0	0.5	0.5
LnGrp LOS				C		C	A	A			A	A
Approach Vol, veh/h					466			741			514	
Approach Delay, s/veh					29.4			6.8			0.5	
Approach LOS					C			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		61.6		23.4		61.6		
Change Period (Y+Rc), s		5.0		4.5		5.0		
Max Green Setting (Gmax), s		48.0		27.5		48.0		
Max Q Clear Time (g_c+I1), s		11.2		12.9		2.0		
Green Ext Time (p_c), s		6.7		2.2		6.8		

Intersection Summary	
HCM 2010 Ctrl Delay	11.0
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	14	36	0	0	0	0	444	75	126	473	0
Future Vol, veh/h	48	14	36	0	0	0	0	444	75	126	473	0
Conflicting Peds, #/hr	23	0	33	33	0	23	101	0	182	182	0	101
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	120	-	-
Veh in Median Storage, #	-	0	-	-	-	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	48	14	36	0	0	0	0	444	75	126	473	0

Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	1230	1426	506				-	0	0	701	0	0
Stage 1	725	725	-				-	-	-	-	-	-
Stage 2	505	701	-				-	-	-	-	-	-
Critical Hdwy	6.42	6.52	6.22				-	-	-	4.12	-	-
Critical Hdwy Stg 1	5.42	5.52	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	5.52	-				-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318				-	-	-	2.218	-	-
Pot Cap-1 Maneuver	196	135	566				0	-	-	896	-	0
Stage 1	479	430	-				0	-	-	-	-	0
Stage 2	606	441	-				0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	168	0	548				-	-	-	876	-	-
Mov Cap-2 Maneuver	168	0	-				-	-	-	-	-	-
Stage 1	410	0	-				-	-	-	-	-	-
Stage 2	606	0	-				-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25.8	0	2.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	-	-	168	548	876	-
HCM Lane V/C Ratio	-	-	0.327	0.078	0.144	-
HCM Control Delay (s)	-	-	36.5	12.1	9.8	-
HCM Lane LOS	-	-	E	B	A	-
HCM 95th %tile Q(veh)	-	-	1.3	0.3	0.5	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	99	266	30	0	90	0	508	28	42	456	0
Future Volume (veh/h)	124	99	266	30	0	90	0	508	28	42	456	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		0.87	0.96		0.87	1.00		0.76	0.91		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1710	1676	1710	0	1676	1710	1710	1676	0
Adj Flow Rate, veh/h	124	99	240	30	0	29	0	508	22	42	456	0
Adj No. of Lanes	1	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	0	2	2	2	2	0
Cap, veh/h	396	125	304	124	20	65	0	1733	75	156	1542	0
Arrive On Green	0.32	0.32	0.30	0.32	0.00	0.30	0.00	1.00	1.00	0.57	0.57	0.00
Sat Flow, veh/h	1177	391	949	146	63	202	0	3147	132	170	2801	0
Grp Volume(v), veh/h	124	0	339	59	0	0	0	263	267	254	244	0
Grp Sat Flow(s),veh/h/ln	1177	0	1340	410	0	0	0	1593	1603	1446	1449	0
Q Serve(g_s), s	0.0	0.0	16.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0
Cycle Q Clear(g_c), s	8.3	0.0	16.2	17.3	0.0	0.0	0.0	0.0	0.0	5.4	6.1	0.0
Prop In Lane	1.00		0.71	0.51		0.49	0.00		0.08	0.17		0.00
Lane Grp Cap(c), veh/h	396	0	429	209	0	0	0	901	907	878	820	0
V/C Ratio(X)	0.31	0.00	0.79	0.28	0.00	0.00	0.00	0.29	0.29	0.29	0.30	0.00
Avail Cap(c_a), veh/h	406	0	440	218	0	0	0	901	907	878	820	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.91	0.00	0.00	0.00	0.93	0.93	0.97	0.97	0.00
Uniform Delay (d), s/veh	19.0	0.0	22.2	19.4	0.0	0.0	0.0	0.0	0.0	7.8	7.9	0.0
Incr Delay (d2), s/veh	0.2	0.0	8.4	0.2	0.0	0.0	0.0	0.8	0.8	0.8	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	7.0	1.1	0.0	0.0	0.0	0.2	0.2	2.7	2.6	0.0
LnGrp Delay(d),s/veh	19.2	0.0	30.6	19.6	0.0	0.0	0.0	0.8	0.8	8.6	8.8	0.0
LnGrp LOS	B		C	B				A	A	A	A	
Approach Vol, veh/h		463			59			530			498	
Approach Delay, s/veh		27.5			19.6			0.8			8.7	
Approach LOS		C			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		43.6		26.4		43.6		26.4
Change Period (Y+Rc), s		5.0		5.5		5.0		5.5
Max Green Setting (Gmax), s		38.0		21.5		38.0		21.5
Max Q Clear Time (g_c+I1), s		2.0		18.2		8.1		19.3
Green Ext Time (p_c), s		5.1		0.9		5.0		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	12.0
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Traffic Volume (vph)	36	29	13	42	41	152	4	163	2	5	377	59
Future Volume (vph)	36	29	13	42	41	152	4	163	2	5	377	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0			4.0	4.0	
Lane Util. Factor		1.00			0.95		0.95			1.00	0.95	
Frpb, ped/bikes		0.99			1.00		1.00			1.00	0.99	
Flpb, ped/bikes		1.00			0.99		0.99			0.99	1.00	
Frt		0.94			1.00		0.92			1.00	0.98	
Flt Protected		0.99			0.95		0.98			0.95	1.00	
Satd. Flow (prot)		1522			1492		1428			1572	3087	
Flt Permitted		0.73			0.67		0.78			0.57	1.00	
Satd. Flow (perm)		1122			1055		1147			942	3087	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	36	29	13	42	41	152	4	163	2	5	377	59
RTOR Reduction (vph)	0	25	0	0	0	0	48	0	0	0	13	0
Lane Group Flow (vph)	0	95	0	0	37	0	275	0	0	7	423	0
Confl. Peds. (#/hr)	23			19	19					10		32
Confl. Bikes (#/hr)				2								
Turn Type	Perm	NA			Perm	Perm	NA		Perm	Perm	NA	
Protected Phases		3					3				2	
Permitted Phases	3				3	3			2	2		
Actuated Green, G (s)		23.2			23.2		23.2			37.1	37.1	
Effective Green, g (s)		24.2			24.2		24.2			39.1	39.1	
Actuated g/C Ratio		0.28			0.28		0.28			0.46	0.46	
Clearance Time (s)		5.0			5.0		5.0			6.0	6.0	
Vehicle Extension (s)		2.0			2.0		2.0			2.0	2.0	
Lane Grp Cap (vph)		319			300		326			433	1420	
v/s Ratio Prot											0.14	
v/s Ratio Perm		0.08			0.04		c0.24			0.01		
v/c Ratio		0.30			0.12		0.84			0.02	0.30	
Uniform Delay, d1		23.8			22.5		28.6			12.5	14.4	
Progression Factor		1.00			1.00		1.00			1.19	1.00	
Incremental Delay, d2		0.2			0.1		17.1			0.1	0.5	
Delay (s)		23.9			22.6		45.7			14.9	14.8	
Level of Service		C			C		D			B	B	
Approach Delay (s)		23.9					43.3				14.8	
Approach LOS		C					D				B	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR	SBR2	NEL2	NEL	NER	NER2
Lane Configurations								
Traffic Volume (vph)	106	292	120	8	1	99	67	2
Future Volume (vph)	106	292	120	8	1	99	67	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0		
Lane Util. Factor	1.00	0.95	1.00			0.97		
Frpb, ped/bikes	1.00	1.00	0.97			1.00		
Flpb, ped/bikes	0.97	1.00	1.00			1.00		
Frt	1.00	1.00	0.85			0.94		
Flt Protected	0.95	1.00	1.00			0.97		
Satd. Flow (prot)	1542	3185	1377			2965		
Flt Permitted	0.46	1.00	1.00			0.95		
Satd. Flow (perm)	754	3185	1377			2910		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	106	292	120	8	1	99	67	2
RTOR Reduction (vph)	0	0	11	0	0	0	0	0
Lane Group Flow (vph)	106	292	117	0	0	169	0	0
Confl. Peds. (#/hr)	32			10				
Confl. Bikes (#/hr)				5				
Turn Type	Perm	NA	pm+ov		D.Pm	Prot		
Protected Phases		6	4			4		
Permitted Phases	6		6		4			
Actuated Green, G (s)	37.1	37.1	45.8			8.7		
Effective Green, g (s)	39.1	39.1	47.8			9.7		
Actuated g/C Ratio	0.46	0.46	0.56			0.11		
Clearance Time (s)	6.0	6.0	5.0			5.0		
Vehicle Extension (s)	2.0	2.0	2.0			2.0		
Lane Grp Cap (vph)	346	1465	839			332		
v/s Ratio Prot		0.09	0.02					
v/s Ratio Perm	c0.14		0.07			c0.06		
v/c Ratio	0.31	0.20	0.14			0.51		
Uniform Delay, d1	14.4	13.6	8.8			35.4		
Progression Factor	1.00	1.00	1.00			1.00		
Incremental Delay, d2	2.3	0.3	0.0			0.4		
Delay (s)	16.7	13.9	8.9			35.9		
Level of Service	B	B	A			D		
Approach Delay (s)		13.3				35.9		
Approach LOS		B				D		

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	132	26	20	213	220	11	253	40	105	300	87
Future Volume (veh/h)	99	132	26	20	213	220	11	253	40	105	300	87
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.88		0.77	0.85		0.76	0.88		0.83	0.97		0.81
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1676	1710	1710	1676	1676	1676	1676	1710	1676	1676	1710
Adj Flow Rate, veh/h	99	132	12	20	213	70	11	253	32	105	300	73
Adj No. of Lanes	1	1	0	0	1	1	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	333	516	47	86	551	383	407	529	67	439	639	156
Arrive On Green	0.35	0.35	0.34	0.35	0.35	0.35	0.12	0.12	0.12	0.08	0.52	0.51
Sat Flow, veh/h	866	1471	134	60	1571	1090	795	1422	180	1597	1240	302
Grp Volume(v), veh/h	99	0	144	233	0	70	11	0	285	105	0	373
Grp Sat Flow(s),veh/h/ln	866	0	1605	1630	0	1090	795	0	1601	1597	0	1542
Q Serve(g_s), s	5.8	0.0	3.8	0.0	0.0	2.7	0.7	0.0	10.0	2.2	0.0	9.3
Cycle Q Clear(g_c), s	12.1	0.0	3.8	6.3	0.0	2.7	1.4	0.0	10.0	2.2	0.0	9.3
Prop In Lane	1.00		0.08	0.09		1.00	1.00		0.11	1.00		0.20
Lane Grp Cap(c), veh/h	333	0	563	637	0	383	407	0	595	439	0	795
V/C Ratio(X)	0.30	0.00	0.26	0.37	0.00	0.18	0.03	0.00	0.48	0.24	0.00	0.47
Avail Cap(c_a), veh/h	347	0	589	662	0	400	407	0	595	502	0	795
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.00	0.95	0.87	0.00	0.87	0.99	0.00	0.99	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.2	0.0	13.9	14.7	0.0	13.5	17.4	0.0	20.9	9.9	0.0	9.3
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.1	0.0	0.1	0.1	0.0	2.7	0.1	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	1.7	2.9	0.0	0.8	0.2	0.0	4.9	0.9	0.0	4.4
LnGrp Delay(d),s/veh	19.4	0.0	14.0	14.8	0.0	13.6	17.6	0.0	23.6	10.0	0.0	11.3
LnGrp LOS	B		B	B		B	B		C	B		B
Approach Vol, veh/h		243			303			296			478	
Approach Delay, s/veh		16.2			14.5			23.4			11.0	
Approach LOS		B			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	8.6	26.3		25.1		34.9		25.1
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5
Max Green Setting (Gmax), s	6.5	18.5		21.5		29.5		21.5
Max Q Clear Time (g_c+I1), s	4.2	12.0		14.1		11.3		8.3
Green Ext Time (p_c), s	0.1	1.8		1.7		3.0		2.3

Intersection Summary	
HCM 2010 Ctrl Delay	15.6
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	197	94	54	202	58	78	430	63	61	592	126
Future Volume (veh/h)	29	197	94	54	202	58	78	430	63	61	592	126
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.85		0.75	0.84		0.75	1.00		0.84	0.93		0.70
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1710	1676	1710	1710	1676	1710	1710	1676	1710	1710	1676	1710
Adj Flow Rate, veh/h	29	197	23	54	202	26	78	430	52	61	592	113
Adj No. of Lanes	0	2	0	0	2	0	0	2	0	0	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	774	88	194	652	85	72	777	131	197	1738	316
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	1.00	1.00	1.00	0.37	0.37	0.36
Sat Flow, veh/h	219	2363	268	378	1992	260	7	1392	234	240	3113	566
Grp Volume(v), veh/h	131	0	118	144	0	138	242	0	318	276	261	228
Grp Sat Flow(s),veh/h/ln	1477	0	1374	1253	0	1377	202	0	1432	1389	1388	1142
Q Serve(g_s), s	0.0	0.0	4.4	1.7	0.0	5.2	10.0	0.0	0.0	1.5	9.4	10.2
Cycle Q Clear(g_c), s	4.0	0.0	4.4	6.1	0.0	5.2	10.0	0.0	0.0	8.5	9.4	10.2
Prop In Lane	0.22		0.20	0.37		0.19	0.32		0.16	0.22		0.50
Lane Grp Cap(c), veh/h	546	0	450	481	0	451	0	0	799	838	775	638
V/C Ratio(X)	0.24	0.00	0.26	0.30	0.00	0.31	0.00	0.00	0.40	0.33	0.34	0.36
Avail Cap(c_a), veh/h	568	0	471	500	0	472	0	0	799	838	775	638
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	0.67	0.67	0.67
Upstream Filter(I)	0.97	0.00	0.97	0.97	0.00	0.97	0.90	0.00	0.90	0.96	0.96	0.96
Uniform Delay (d), s/veh	17.2	0.0	17.3	17.6	0.0	17.6	0.0	0.0	0.0	12.2	12.6	13.0
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	1.3	1.0	1.1	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	1.7	2.1	0.0	2.0	0.0	0.0	0.3	4.0	3.9	3.5
LnGrp Delay(d),s/veh	17.3	0.0	17.4	17.7	0.0	17.7	0.0	0.0	1.3	13.2	13.8	14.5
LnGrp LOS	B		B	B		B			A	B	B	B
Approach Vol, veh/h		249			282			560			766	
Approach Delay, s/veh		17.3			17.7			0.8			13.8	
Approach LOS		B			B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		43.1		26.9		43.1		26.9
Change Period (Y+Rc), s		5.0		4.0		5.0		4.0
Max Green Setting (Gmax), s		37.0		24.0		28.0		24.0
Max Q Clear Time (g_c+I1), s		12.0		6.4		12.2		8.1
Green Ext Time (p_c), s		7.4		2.3		6.2		2.2

Intersection Summary			
HCM 2010 Ctrl Delay			10.9
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	245	151	0	0	0	0	0	1215	146
Future Volume (veh/h)	0	0	0	245	151	0	0	0	0	0	1215	146
Number				3	8	18				1	6	16
Initial Q (Qb), veh				0	0	0				0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00				1.00		0.99
Parking Bus, Adj				1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1676	1676	0				0	1676	1710
Adj Flow Rate, veh/h				245	151	0				0	1215	131
Adj No. of Lanes				1	2	0				0	4	0
Peak Hour Factor				1.00	1.00	1.00				1.00	1.00	1.00
Percent Heavy Veh, %				2	2	0				0	2	2
Cap, veh/h				453	734	0				0	3126	335
Arrive On Green				0.08	0.08	0.00				0.00	0.59	0.56
Sat Flow, veh/h				1597	3269	0				0	5559	571
Grp Volume(v), veh/h				245	151	0				0	986	360
Grp Sat Flow(s),veh/h/ln				1597	1593	0				0	1442	1570
Q Serve(g_s), s				12.7	3.8	0.0				0.0	10.4	10.6
Cycle Q Clear(g_c), s				12.7	3.8	0.0				0.0	10.4	10.6
Prop In Lane				1.00		0.00				0.00		0.36
Lane Grp Cap(c), veh/h				453	734	0				0	2539	922
V/C Ratio(X)				0.54	0.21	0.00				0.00	0.39	0.39
Avail Cap(c_a), veh/h				594	1016	0				0	2539	922
HCM Platoon Ratio				0.33	0.33	1.00				1.00	1.00	1.00
Upstream Filter(I)				0.71	0.71	0.00				0.00	1.00	1.00
Uniform Delay (d), s/veh				36.1	32.0	0.0				0.0	9.4	9.6
Incr Delay (d2), s/veh				0.3	0.0	0.0				0.0	0.4	1.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.7	1.7	0.0				0.0	4.2	4.9
LnGrp Delay(d),s/veh				36.3	32.0	0.0				0.0	9.8	10.9
LnGrp LOS				D	C						A	B
Approach Vol, veh/h					396						1346	
Approach Delay, s/veh					34.7						10.1	
Approach LOS					C						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs						6		8
Phs Duration (G+Y+Rc), s						53.9		23.6
Change Period (Y+Rc), s						6.0		4.5
Max Green Setting (Gmax), s						47.9		26.6
Max Q Clear Time (g_c+I1), s						12.6		14.7
Green Ext Time (p_c), s						7.7		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	15.7
HCM 2010 LOS	B

Movement	WBT	WBR	WBR2	NBL2	NBL	NBT
Lane Configurations						
Traffic Volume (vph)	290	323	85	106	1029	363
Future Volume (vph)	290	323	85	106	1029	363
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	0.91	0.91		0.86	0.81	0.81
Frpb, ped/bikes	0.99	0.95		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00
Frt	0.94	0.85		1.00	1.00	1.00
Flt Protected	1.00	1.00		0.95	0.95	0.97
Satd. Flow (prot)	2833	1229		1370	1290	3957
Flt Permitted	1.00	1.00		0.95	0.95	0.97
Satd. Flow (perm)	2833	1229		1370	1290	3957
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	290	323	85	106	1029	363
RTOR Reduction (vph)	0	29	0	0	0	0
Lane Group Flow (vph)	481	188	0	95	515	888
Confl. Peds. (#/hr)		8	8			
Confl. Bikes (#/hr)		10	10			
Turn Type	NA	Perm		Split	Split	NA
Protected Phases	8			2	2	2
Permitted Phases		8				
Actuated Green, G (s)	18.4	18.4		57.1	57.1	57.1
Effective Green, g (s)	18.9	18.9		58.1	58.1	58.1
Actuated g/C Ratio	0.22	0.22		0.68	0.68	0.68
Clearance Time (s)	4.5	4.5		5.0	5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)	629	273		936	881	2704
v/s Ratio Prot	c0.17			0.07	c0.40	0.22
v/s Ratio Perm		0.15				
v/c Ratio	0.76	0.69		0.10	0.58	0.33
Uniform Delay, d1	31.0	30.4		4.6	7.1	5.5
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.0	5.7		0.2	2.8	0.3
Delay (s)	35.9	36.0		4.8	9.9	5.8
Level of Service	D	D		A	A	A
Approach Delay (s)	36.0					7.2
Approach LOS	D					A

Intersection Summary			
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	22	425	9	40	160	0	0	150	171
Future Volume (veh/h)	0	0	0	22	425	9	40	160	0	0	150	171
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.97	0.99		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1676	1676	1710	1710	1676	0	0	1676	1710
Adj Flow Rate, veh/h				22	425	4	40	160	0	0	150	114
Adj No. of Lanes				1	3	0	0	2	0	0	2	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				639	1870	18	291	1124	0	0	842	593
Arrive On Green				0.40	0.40	0.41	0.48	0.48	0.00	0.00	0.48	0.49
Sat Flow, veh/h				1597	4674	44	451	2433	0	0	1850	1243
Grp Volume(v), veh/h				22	277	152	105	95	0	0	134	130
Grp Sat Flow(s),veh/h/ln				1597	1526	1667	1358	1449	0	0	1593	1416
Q Serve(g_s), s				0.5	3.9	3.9	0.0	2.4	0.0	0.0	3.1	3.4
Cycle Q Clear(g_c), s				0.5	3.9	3.9	3.4	2.4	0.0	0.0	3.1	3.4
Prop In Lane				1.00		0.03	0.38		0.00	0.00		0.88
Lane Grp Cap(c), veh/h				639	1220	667	724	691	0	0	760	675
V/C Ratio(X)				0.03	0.23	0.23	0.14	0.14	0.00	0.00	0.18	0.19
Avail Cap(c_a), veh/h				639	1220	667	724	691	0	0	760	675
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				11.9	12.9	12.9	9.5	9.5	0.0	0.0	9.7	9.5
Incr Delay (d2), s/veh				0.1	0.4	0.8	0.4	0.4	0.0	0.0	0.5	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.3	1.7	1.9	1.1	1.0	0.0	0.0	1.5	1.4
LnGrp Delay(d),s/veh				12.0	13.3	13.7	9.9	9.9	0.0	0.0	10.2	10.2
LnGrp LOS				B	B	B	A	A			B	B
Approach Vol, veh/h					451			200			264	
Approach Delay, s/veh					13.4			9.9			10.2	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		35.0				35.0		30.0
Change Period (Y+Rc), s		3.0				3.0		3.5
Max Green Setting (Gmax), s		27.0				32.0		26.5
Max Q Clear Time (g_c+I1), s		5.4				5.4		5.9
Green Ext Time (p_c), s		2.9				3.1		2.9

Intersection Summary		
HCM 2010 Ctrl Delay		11.7
HCM 2010 LOS		B

Notes

Movement	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	SBT	SBR	SBR2	NEL2	NEL
Lane Configurations												
Traffic Volume (vph)	56	37	383	141	11	30	187	265	56	27	16	101
Future Volume (vph)	56	37	383	141	11	30	187	265	56	27	16	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0			4.0	4.0	4.0				4.0
Lane Util. Factor			0.95			1.00	1.00	0.95				0.97
Frpb, ped/bikes			0.99			1.00	1.00	0.98				1.00
Flpb, ped/bikes			0.99			0.94	1.00	1.00				1.00
Frt			0.97			1.00	1.00	0.96				1.00
Flt Protected			0.99			0.95	1.00	1.00				0.95
Satd. Flow (prot)			2992			1499	1676	3023				3087
Flt Permitted			0.99			0.53	1.00	1.00				0.95
Satd. Flow (perm)			2992			837	1676	3023				3087
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	56	37	383	141	11	30	187	265	56	27	16	101
RTOR Reduction (vph)	0	0	36	0	0	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	0	581	0	0	41	187	342	0	0	0	121
Confl. Peds. (#/hr)	20	20		54	29	29			29			
Confl. Bikes (#/hr)				1					12			
Turn Type	Perm	Perm	NA		Perm	Perm	NA	NA			Perm	Prot
Protected Phases			4				2	6				3
Permitted Phases	4	4			2	2					3	
Actuated Green, G (s)			23.2			38.6	38.6	38.6				6.7
Effective Green, g (s)			24.2			41.1	41.1	41.1				7.7
Actuated g/C Ratio			0.28			0.48	0.48	0.48				0.09
Clearance Time (s)			5.0			6.5	6.5	6.5				5.0
Vehicle Extension (s)			2.0			2.0	2.0	2.0				2.0
Lane Grp Cap (vph)			851			404	810	1461				279
v/s Ratio Prot							0.11	c0.11				
v/s Ratio Perm			0.19			0.05						0.04
v/c Ratio			0.68			0.10	0.23	0.23				0.43
Uniform Delay, d1			27.0			11.9	12.8	12.8				36.6
Progression Factor			1.00			1.00	1.00	0.50				1.00
Incremental Delay, d2			1.8			0.5	0.7	0.4				0.4
Delay (s)			28.8			12.4	13.4	6.8				37.0
Level of Service			C			B	B	A				D
Approach Delay (s)			28.8				13.2	6.8				37.0
Approach LOS			C				B	A				D

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	NER2
Lane Configurations	
Traffic Volume (vph)	4
Future Volume (vph)	4
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frpb, ped/bikes	
Flpb, ped/bikes	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	1.00
Adj. Flow (vph)	4
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	38	431	177	84	127	0	0	200	130
Future Volume (veh/h)	0	0	0	38	431	177	84	127	0	0	200	130
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.80	0.96		1.00	1.00		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	0	0	1710	1676	1710	1676	1676	0	0	1676	1710
Adj Flow Rate, veh/h	0	0	0	38	431	110	84	127	0	0	200	102
Adj No. of Lanes	1	0	0	0	2	0	1	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	0	0	2	2	2	2	2	0	0	2	2
Cap, veh/h	0	0	0	75	870	232	421	674	0	0	399	203
Arrive On Green	0.00	0.00	0.00	0.39	0.39	0.37	0.40	0.40	0.00	0.00	0.40	0.35
Sat Flow, veh/h		0		195	2258	602	926	1676	0	0	992	506
Grp Volume(v), veh/h		0.0		325	0	254	84	127	0	0	0	302
Grp Sat Flow(s),veh/h/ln				1667	0	1388	926	1676	0	0	0	1499
Q Serve(g_s), s				5.6	0.0	5.2	2.8	1.8	0.0	0.0	0.0	5.8
Cycle Q Clear(g_c), s				5.6	0.0	5.2	8.6	1.8	0.0	0.0	0.0	5.8
Prop In Lane				0.12		0.43	1.00		0.00	0.00		0.34
Lane Grp Cap(c), veh/h				642	0	535	421	674	0	0	0	602
V/C Ratio(X)				0.51	0.00	0.47	0.20	0.19	0.00	0.00	0.00	0.50
Avail Cap(c_a), veh/h				909	0	757	960	1650	0	0	0	1474
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				8.8	0.0	8.8	11.7	7.3	0.0	0.0	0.0	8.7
Incr Delay (d2), s/veh				0.2	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.6	0.0	2.0	0.7	0.9	0.0	0.0	0.0	2.4
LnGrp Delay(d),s/veh				9.1	0.0	9.0	11.8	7.3	0.0	0.0	0.0	8.9
LnGrp LOS				A		A	B	A				A
Approach Vol, veh/h					579			211			302	
Approach Delay, s/veh					9.0			9.1			8.9	
Approach LOS					A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		19.1				19.1		18.5
Change Period (Y+Rc), s		6.0				6.0		4.5
Max Green Setting (Gmax), s		35.0				35.0		20.0
Max Q Clear Time (g_c+I1), s		10.6				7.8		7.6
Green Ext Time (p_c), s		2.5				2.6		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	9.0
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	61	353	89	110	476	0	0	571	181
Future Volume (veh/h)	0	0	0	61	353	89	110	476	0	0	571	181
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.80	0.95		1.00	1.00		0.85
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1710	1676	1710	1710	1676	0	1710	1676	1710
Adj Flow Rate, veh/h				61	353	60	110	476	0	0	571	166
Adj No. of Lanes				0	2	0	0	2	0	0	3	0
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				0	2	0	2	2	0	2	2	2
Cap, veh/h				131	780	138	285	1147	0	0	1883	521
Arrive On Green				0.33	0.33	0.33	1.00	1.00	0.00	0.00	1.00	1.00
Sat Flow, veh/h				392	2335	412	384	2156	0	0	3564	944
Grp Volume(v), veh/h				258	0	216	257	329	0	0	507	230
Grp Sat Flow(s),veh/h/ln				1657	0	1482	1014	1449	0	0	1526	1307
Q Serve(g_s), s				8.6	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s				8.6	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane				0.24		0.28	0.43		0.00	0.00		0.72
Lane Grp Cap(c), veh/h				554	0	495	633	799	0	0	1683	721
V/C Ratio(X)				0.47	0.00	0.44	0.41	0.41	0.00	0.00	0.30	0.32
Avail Cap(c_a), veh/h				615	0	550	633	799	0	0	1683	721
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	2.00	2.00	2.00
Upstream Filter(I)				1.00	0.00	1.00	0.95	0.95	0.00	0.00	0.94	0.94
Uniform Delay (d), s/veh				18.4	0.0	18.2	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh				0.2	0.0	0.2	1.8	1.5	0.0	0.0	0.4	1.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.0	0.0	3.3	0.3	0.3	0.0	0.0	0.1	0.2
LnGrp Delay(d),s/veh				18.6	0.0	18.4	1.8	1.5	0.0	0.0	0.4	1.1
LnGrp LOS				B		B	A	A			A	A
Approach Vol, veh/h					474			586			737	
Approach Delay, s/veh					18.5			1.6			0.6	
Approach LOS					B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		42.6				42.6		27.4
Change Period (Y+Rc), s		5.0				5.0		4.0
Max Green Setting (Gmax), s		35.0				35.0		26.0
Max Q Clear Time (g_c+I1), s		2.0				2.0		10.6
Green Ext Time (p_c), s		8.2				8.2		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	5.7
HCM 2010 LOS	A

Movement	EBT	EBR	EBR2	SBL2	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	205	88	31	461	771	228
Future Volume (vph)	205	88	31	461	771	228
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0
Lane Util. Factor	0.95			0.91	0.86	0.86
Frpb, ped/bikes	0.99			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.94			1.00	1.00	1.00
Flt Protected	1.00			0.95	0.95	0.98
Satd. Flow (prot)	2989			1449	1370	2828
Flt Permitted	1.00			0.95	0.95	0.98
Satd. Flow (perm)	2989			1449	1370	2828
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	205	88	31	461	771	228
RTOR Reduction (vph)	10	0	0	66	11	0
Lane Group Flow (vph)	314	0	0	188	821	374
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)		5				
Turn Type	NA			Split	Split	NA
Protected Phases	4			6	6	6
Permitted Phases						
Actuated Green, G (s)	13.5			62.0	62.0	62.0
Effective Green, g (s)	14.0			63.0	63.0	63.0
Actuated g/C Ratio	0.16			0.74	0.74	0.74
Clearance Time (s)	4.5			5.0	5.0	5.0
Vehicle Extension (s)	2.0			2.0	2.0	2.0
Lane Grp Cap (vph)	492			1073	1015	2096
v/s Ratio Prot	c0.11			0.13	c0.60	0.13
v/s Ratio Perm						
v/c Ratio	0.64			0.18	0.81	0.18
Uniform Delay, d1	33.1			3.3	7.1	3.3
Progression Factor	1.00			0.00	1.15	0.26
Incremental Delay, d2	2.0			0.3	6.6	0.2
Delay (s)	35.1			0.3	14.8	1.0
Level of Service	D			A	B	A
Approach Delay (s)	35.1					8.7
Approach LOS	D					A

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Traffic Volume (vph)	194	472	919	66	385	66
Future Volume (vph)	194	472	919	66	385	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	0.91	0.91		0.97	
Frpb, ped/bikes	1.00	1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.98	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1593	4577	4525		3051	
Flt Permitted	0.95	1.00	1.00		0.96	
Satd. Flow (perm)	1593	4577	4525		3051	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	194	472	919	66	385	66
RTOR Reduction (vph)	64	0	12	0	0	0
Lane Group Flow (vph)	130	472	973	0	451	0
Confl. Peds. (#/hr)				6		
Confl. Bikes (#/hr)						
Turn Type	Split	NA	NA		Prot	
Protected Phases	4	4	2		1	
Permitted Phases						
Actuated Green, G (s)	28.5	28.5	19.5		7.5	
Effective Green, g (s)	29.0	29.0	20.5		8.5	
Actuated g/C Ratio	0.41	0.41	0.29		0.12	
Clearance Time (s)	4.5	4.5	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	659	1896	1325		370	
v/s Ratio Prot	0.08	c0.10	c0.22		c0.15	
v/s Ratio Perm						
v/c Ratio	0.20	0.25	0.73		1.22	
Uniform Delay, d1	13.1	13.4	22.3		30.8	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.7	0.3	1.8		120.6	
Delay (s)	13.7	13.7	24.1		151.4	
Level of Service	B	B	C		F	
Approach Delay (s)		13.7	24.1		151.4	
Approach LOS		B	C		F	

Intersection Summary			
HCM 2000 Control Delay	48.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Attachment C

TCQSM Model Inputs and Data Sources

2100 Telegraph Development Project EIR
Existing and Existing Plus Project TCQSM Data Inputs and Sources

Inputs	Data Sources	
	Existing	**Existing Plus Project**
Step 1 - Dwell Time		
Average boarding volume per bus	APC, 2016	Estimated
Average alighting volume per bus	APC, 2016	Estimated
Boarding door(s)	AC Transit	Same as Existing
Fare payment method	AC Transit	Same as Existing
Boarding height	AC Transit	Same as Existing
Standees present?	AC Transit	Same as Existing
Number of doors	AC Transit	Same as Existing
Available door channels	AC Transit	Same as Existing
Percent of boarders using farebox	AC Transit	Same as Existing
Door opening and closing time	Default Value	Default Value
Number of loading areas	Field Observations	Field Observations
Step 2 - Capacity		
Coefficient of variation of dwell times	APC, 2016	Assumption
Failure rate	Default Value	Default Value
Average Dwell Time	Calculated	Calculated
Green time ratio	Synchro Network	Synchro Network
Traffic signal cycle length (s)	Synchro Network	Synchro Network
Stop type (on-line/off-line)	Field Observations	Same as Existing
Stop location	Field Observations	Same as Existing
Bus stop distance to upstream signal	Field Observations	Same as Existing
Curb lane traffic volume	Synchro Network	Synchro Network
Right-turning traffic volume	Synchro Network	Synchro Network
Conflicting pedestrian volume	Synchro Network	Synchro Network
Arrival type (random/typical/platooned)	Assumption	Assumption
Loading area design	Field Observations	Same as Existing
Bus lane type	Field Observations	Same as Existing
Step 3 - Speed Calculation		
Scheduled buses per hour	AC Transit	Same as Existing
Average stop spacing	Field Observations	Same as Existing
Running way type	Field Observations	Same as Existing
Traffic signal pattern	Assumption	Assumption
Bus running speed on facility	Assumption	Assumption
Average bus acceleration rate to running speed	Default Value	Default Value
Average bus deceleration rate from running speed	Default Value	Default Value

Attachment D

CMP Volumes, V/C Ratios, and LOS

FEHR & PEERS

2100 Telegraph Development Project EIR
Alameda CTC CMP/MTS System Analysis Summary - 2020 PM Peak Hour

Link Location	Segment Limits		# Lanes	Model Volume	Model Volume	No Project Volume	With Project Volume	V/C Ratio - No Project	V/C Ratio - With Project	V/C Ratio Difference	No Project LOS	With Project LOS	Change from LOS E or better to LOS F	LOS F and Change in V/C >=0.03
Freeway Segments														
I-580 Eastbound														
Between	San Pablo Avenue	SR-24	5	8,805	8,756	8,805	8,854	0.880	0.885	0.005	D	D	No	-
Between	SR-24	Harrison Street	5	8,053	8,014	8,053	8,092	0.805	0.809	0.004	D	D	No	-
Between	Lakeshore Avenue	Park Boulevard	4	8,679	8,610	8,679	8,748	1.085	1.094	0.009	F	F	-	No
I-580 Westbound														
Between	Park Boulevard	Lakeshore Avenue	4	5,358	5,327	5,358	5,389	0.670	0.674	0.004	C	C	No	-
Between	Harrison Street	SR-24	5	5,341	5,318	5,341	5,364	0.534	0.536	0.002	B	B	No	-
Between	SR-24	San Pablo Avenue	5	7,321	7,238	7,321	7,404	0.732	0.740	0.008	C	C	No	-
SR-24 Eastbound														
Between	I-580	Telegraph Avenue	4	6,742	6,703	6,742	6,781	0.843	0.848	0.005	D	D	No	-
SR-24 Westbound														
Between	Telegraph Avenue	I-580	4	3,948	3,925	3,948	3,971	0.493	0.496	0.003	B	B	No	-
I-980 Eastbound														
Between	I-880	12th Street	2	2,739	2,692	2,739	2,786	0.685	0.696	0.011	C	C	No	-
I-980 Westbound														
Between	12th Street	I-880	3	2,414	2,302	2,414	2,526	0.402	0.421	0.019	B	B	No	-
I-880 Northbound														
Between	5th Avenue	Oak Street	4	6,986	6,939	6,986	7,033	0.873	0.879	0.006	D	D	No	-
I-880 Southbound														
Between	Oak Street	5th Avenue	5	7,755	7,643	7,755	7,867	0.775	0.787	0.012	D	D	No	-
Arterials														
Telegraph Avenue - Northbound														
Between	17th Street	19th Street	2	283	269	283	297	0.177	0.186	0.009	A	A	No	-
Between	20th Street	Grand Avenue	2	406	189	406	623	0.254	0.389	0.135	A	B	No	-
Between	Grand Avenue	27th Street	2	972	900	972	1,044	0.607	0.652	0.045	C	C	No	-
Between	27th Street	34th Street	2	312	293	312	331	0.195	0.207	0.012	A	A	No	-
Telegraph Avenue - Southbound														
Between	34th Street	27th Street	2	733	725	733	741	0.458	0.463	0.005	B	B	No	-
Between	27th Street	Grand Avenue	2	281	265	281	297	0.176	0.186	0.010	A	A	No	-
Between	Grand Avenue	20th Street	2	288	160	288	416	0.180	0.260	0.080	A	A	No	-
Between	19th Street	17th Street	2	260	249	260	271	0.162	0.169	0.007	A	A	No	-
Broadway - Northbound														
Between	17th Street	19th Street	3	432	411	432	453	0.180	0.189	0.009	A	A	No	-
Between	20th Street	Grand Avenue	3	1,359	1,244	1,359	1,474	0.566	0.614	0.048	B	C	No	-
Between	Grand Avenue	27th Street	3	411	386	411	436	0.171	0.182	0.011	A	A	No	-
Between	27th Street	34th Street	3	503	478	503	528	0.210	0.220	0.010	A	A	No	-
Broadway - Southbound														
Between	34th Street	27th Street	3	557	547	557	567	0.232	0.236	0.004	A	A	No	-
Between	27th Street	Grand Avenue	3	378	368	378	388	0.158	0.162	0.004	A	A	No	-
Between	Grand Avenue	20th Street	3	326	95	326	557	0.136	0.232	0.096	A	A	No	-
Between	19th Street	17th Street	3	569	543	569	595	0.237	0.248	0.011	A	A	No	-
Harrison Street - Northbound														
Between	17th Street	19th Street	2	554	547	554	561	0.347	0.351	0.004	A	B	No	-
Between	20th Street	Grand Avenue	2	750	717	750	783	0.469	0.490	0.021	B	B	No	-
Between	Grand Avenue	27th Street	3	1,320	1,283	1,320	1,357	0.550	0.566	0.016	B	B	No	-
Between	27th Street	34th Street	2	569	532	569	606	0.355	0.378	0.023	B	B	No	-
Harrison Street - Southbound														
Between	34th Street	27th Street	2	223	207	223	239	0.140	0.150	0.010	A	A	No	-
Between	27th Street	Grand Avenue	3	573	557	573	589	0.239	0.246	0.007	A	A	No	-
Between	Grand Avenue	20th Street	2	163	146	163	180	0.102	0.112	0.010	A	A	No	-
Between	19th Street	17th Street	2	232	225	232	239	0.145	0.149	0.004	A	A	No	-
Northgate Avenue - Northbound														
Between	Grand Avenue	27th Street	3	181	99	181	263	0.075	0.109	0.034	A	A	No	-
Northgate Avenue - Southbound														
Between	27th Street	Grand Avenue	3	168	96	168	240	0.070	0.100	0.030	A	A	No	-
Grand Avenue - Eastbound														
Between	Market Street	San Pablo Avenue	3	892	879	892	905	0.372	0.377	0.005	B	B	No	-
Between	MLK Way	Northgate Avenue	3	607	579	607	635	0.253	0.264	0.011	A	A	No	-
Between	Northgate Avenue	Telegraph Avenue	3	598	498	598	698	0.249	0.291	0.042	A	A	No	-
Between	Telegraph Avenue	Broadway	3	515	362	515	668	0.215	0.278	0.063	A	A	No	-
Between	Broadway	Harrison Street	3	1,052	976	1,052	1,128	0.438	0.470	0.032	B	B	No	-
Between	Perkins Street	Euclid Street	3	1,187	1,125	1,187	1,249	0.494	0.520	0.026	B	B	No	-
Grand Avenue - Eastbound														
Between	Euclid Street	Perkins Street	3	495	470	495	520	0.206	0.217	0.011	A	A	No	-
Between	Harrison Street	Broadway	3	730	689	730	771	0.304	0.321	0.017	A	A	No	-
Between	Broadway	Telegraph Avenue	3	1,109	1,012	1,109	1,206	0.462	0.502	0.040	B	B	No	-
Between	Telegraph Avenue	Northgate Avenue	3	619	502	619	736	0.258	0.307	0.049	A	A	No	-
Between	Northgate Avenue	MLK Way	3	692	657	692	727	0.288	0.303	0.015	A	A	No	-
Between	San Pablo Avenue	Market Street	3	528	497	528	559	0.220	0.233	0.013	A	A	No	-

Fehr & Peers, 2017.

2100 Telegraph Development Project EIR
Alameda CTC CMP/MTS System Analysis Summary - 2040 PM Peak Hour

Link Location	Segment Limits		# Lanes	Model Volume	Model Volume	No Project Volume	With Project Volume	V/C Ratio - No Project	V/C Ratio - With Project	V/C Ratio Difference	No Project LOS	With Project LOS	Change from LOS E or better to LOS F	LOS F and Change in V/C >= 0.03
Freeway Segments														
I-580 Eastbound														
Between	San Pablo Avenue	SR-24	5	8,736	8,687	8,736	8,785	0.874	0.879	0.005	D	D	No	-
Between	SR-24	Harrison Street	5	8,083	8,044	8,083	8,122	0.808	0.812	0.004	D	D	No	-
Between	Lakeshore Avenue	Park Boulevard	4	8,903	8,834	8,903	8,972	1.113	1.121	0.008	F	F	-	No
I-580 Westbound														
Between	Park Boulevard	Lakeshore Avenue	4	6,759	6,728	6,759	6,790	0.845	0.849	0.004	D	D	No	-
Between	Harrison Street	SR-24	5	6,476	6,453	6,476	6,499	0.648	0.650	0.002	C	C	No	-
Between	SR-24	San Pablo Avenue	5	8,250	8,167	8,250	8,333	0.825	0.833	0.008	D	D	No	-
SR-24 Eastbound														
Between	I-580	Telegraph Avenue	4	7,165	7,126	7,165	7,204	0.896	0.900	0.004	D	D	No	-
SR-24 Westbound														
Between	Telegraph Avenue	I-580	4	4,181	4,158	4,181	4,204	0.523	0.526	0.003	B	B	No	-
I-980 Eastbound														
Between	I-880	12th Street	2	2,989	2,942	2,989	3,036	0.747	0.759	0.012	C	D	No	-
I-980 Westbound														
Between	12th Street	I-880	3	2,897	2,785	2,897	3,009	0.483	0.501	0.018	B	B	No	-
I-880 Northbound														
Between	5th Avenue	Oak Street	4	7,661	7,614	7,661	7,708	0.958	0.964	0.006	E	E	No	-
I-880 Southbound														
Between	Oak Street	5th Avenue	5	8,338	8,226	8,338	8,450	0.834	0.845	0.011	D	D	No	-
Arterials														
Telegraph Avenue - Northbound														
Between	17th Street	19th Street	2	247	233	247	261	0.155	0.163	0.008	A	A	No	-
Between	20th Street	Grand Avenue	2	380	163	380	597	0.237	0.373	0.136	A	B	No	-
Between	Grand Avenue	27th Street	2	805	733	805	877	0.503	0.548	0.045	B	B	No	-
Between	27th Street	34th Street	2	341	322	341	360	0.213	0.225	0.012	A	A	No	-
Telegraph Avenue - Southbound														
Between	34th Street	27th Street	2	907	899	907	915	0.567	0.572	0.005	B	B	No	-
Between	27th Street	Grand Avenue	2	298	282	298	314	0.186	0.196	0.010	A	A	No	-
Between	Grand Avenue	20th Street	2	286	158	286	414	0.179	0.259	0.080	A	A	No	-
Between	19th Street	17th Street	2	235	224	235	246	0.147	0.154	0.007	A	A	No	-
Broadway - Northbound														
Between	17th Street	19th Street	3	322	301	322	343	0.134	0.143	0.009	A	A	No	-
Between	20th Street	Grand Avenue	3	1,136	1,021	1,136	1,251	0.473	0.521	0.048	B	B	No	-
Between	Grand Avenue	27th Street	3	404	379	404	429	0.168	0.179	0.011	A	A	No	-
Between	27th Street	34th Street	3	526	501	526	551	0.219	0.230	0.011	A	A	No	-
Broadway - Southbound														
Between	34th Street	27th Street	3	674	664	674	684	0.281	0.285	0.004	A	A	No	-
Between	27th Street	Grand Avenue	3	375	365	375	385	0.156	0.160	0.004	A	A	No	-
Between	Grand Avenue	20th Street	3	280	49	280	511	0.116	0.213	0.097	A	A	No	-
Between	19th Street	17th Street	3	433	407	433	459	0.180	0.191	0.011	A	A	No	-
Harrison Street - Northbound														
Between	17th Street	19th Street	2	443	436	443	450	0.277	0.281	0.004	A	A	No	-
Between	20th Street	Grand Avenue	2	659	626	659	692	0.412	0.432	0.020	B	B	No	-
Between	Grand Avenue	27th Street	3	1,302	1,265	1,302	1,339	0.543	0.558	0.015	B	B	No	-
Between	27th Street	Pearl Street	2	632	595	632	669	0.395	0.418	0.023	B	B	No	-
Harrison Street - Southbound														
Between	Pearl Street	27th Street	2	238	222	238	254	0.149	0.159	0.010	A	A	No	-
Between	27th Street	Grand Avenue	3	605	589	605	621	0.252	0.259	0.007	A	A	No	-
Between	Grand Avenue	20th Street	2	137	120	137	154	0.085	0.096	0.011	A	A	No	-
Between	19th Street	17th Street	2	181	174	181	188	0.113	0.118	0.005	A	A	No	-
Northgate Avenue - Northbound														
Between	Grand Avenue	27th Street	3	181	99	181	263	0.075	0.109	0.034	A	A	No	-
Northgate Avenue - Southbound														
Between	27th Street	Grand Avenue	3	165	93	165	237	0.069	0.099	0.030	A	A	No	-
Grand Avenue - Eastbound														
Between	Market Street	San Pablo Avenue	3	1,045	1,032	1,045	1,058	0.435	0.441	0.006	B	B	No	-
Between	MLK Way	Northgate Avenue	3	706	678	706	734	0.294	0.306	0.012	A	A	No	-
Between	Northgate Avenue	Telegraph Avenue	3	652	552	652	752	0.272	0.313	0.041	A	A	No	-
Between	Telegraph Avenue	Broadway	3	571	418	571	724	0.238	0.301	0.063	A	A	No	-
Between	Broadway	Harrison Street	3	952	876	952	1,028	0.397	0.429	0.032	B	B	No	-
Between	Perkins Street	Euclid Street	3	1,133	1,071	1,133	1,195	0.472	0.498	0.026	B	B	No	-
Grand Avenue - Eastbound														
Between	Euclid Street	Perkins Street	3	498	473	498	523	0.207	0.218	0.011	A	A	No	-
Between	Harrison Street	Broadway	3	675	634	675	716	0.281	0.298	0.017	A	A	No	-
Between	Broadway	Telegraph Avenue	3	1,043	946	1,043	1,140	0.434	0.475	0.041	B	B	No	-
Between	Telegraph Avenue	Northgate Avenue	3	711	594	711	828	0.296	0.345	0.049	A	A	No	-
Between	Northgate Avenue	MLK Way	3	788	753	788	823	0.328	0.343	0.015	A	A	No	-
Between	San Pablo Avenue	Market Street	3	624	593	624	655	0.260	0.273	0.013	A	A	No	-

Fehr & Peers, 2017.

APPENDIX C.3: Transportation and Parking Demand Managment Plan

FEHR & PEERS

MEMORANDUM

Date: December 5, 2017

To: Carla Violet, UPP

From Rob Rees and Ron Ramos, Fehr & Peers

Subject: 2100 Telegraph Avenue Project – Transportation and Parking Management Plan

OK16-0114

TDM plans are a requirement of the City of Oakland's Standard Conditions of Approval (Department of Planning and Building, Bureau of Planning, Revised July 22, 2015 – Section 71). The 2100 Telegraph Avenue Project is required to prepare a Transportation and Parking Demand Management (TDM) Plan because it would generate more than 50 peak hour trips. Since the project would generate more than 100 peak hour trips, the TDM Plan goal is to achieve a 20 percent vehicle trip reduction (VTR).

PROJECT TRANSPORTATION CHARACTERISTICS

The project is located in the block bound by 22nd Street, Broadway, 21st Street, and Telegraph Avenue in Downtown Oakland. The block is currently occupied by Space Burger restaurant, a City owned Parking Garage, and three bank/retail buildings on Broadway. The project proposes a multi-level parking garage which would contain parking for the proposed uses as well as replacement parking from removal of the existing parking garage and loss of on-street parking spaces. The project has four development scenarios:

- The Residential/Office Mix Scenario would consist of 395 apartment units, 880,550 square feet of office space, 85,000 square feet of retail space, and 18,500 square feet of community space.
- The All Office Scenario would consist of 1,450,000 square feet of office space, 80,000 square feet of retail space, and 22,790 square feet of community space.

- The Maximum Office Scenario would consist of 2,689,000 square feet of office space and 87,000 square feet of retail space.
- The Maximum Residential Scenario would consist of 1,556 apartment units, 99,220 square feet of retail space, and 37,150 square feet of community space.

The Project is located in Downtown Oakland, a high-density, transit-rich, pedestrian-friendly area with limited parking supply. Pedestrian, bicycle and transit access between the site and nearby commercial areas is good: there are continuous sidewalks throughout the area, and bikeways connect the project site to adjacent commercial areas.

Transit service providers in the project vicinity include Bay Area Rapid Transit (BART) and AC Transit. The nearest AC Transit bus stops are adjacent to the project site along Broadway at 22nd Street where the bus stops are located on the near-side of the intersection in each direction. Eight local routes, one Transbay route, four night routes, and one school route operate in the vicinity of the project site (within about 500 feet of the site). The nearest BART station to the project site is the 19th Street BART Station, which is one block south of the project site (about 500 feet) and provides access to the Richmond-Daly City and Pittsburg/ Bay Point-SFO-Millbrae lines. In addition, the Oakland Free Broadway shuttle ("Free B") also operates along Broadway with the nearest stop at Grand Avenue.

The project's location is expected to result in a relatively high rate of pedestrian, bicycle, and transit trips, As a result, the automobile trips generated by the project is estimated to be slightly more than half of all trips generated by typical suburban office space, as shown in **Table 1**. Similarly, the VMT per worker in the project area is about 60 percent of the regional VMT per worker (The project VMT per worker is 12.5 compared to the regional VMT of 21.8) as documented in the CEQA document, and the VMT per capita is 3.2 compared to the regional VMT of 15.0. The project's parking supply would also be less than the current parking demand in Downtown Oakland, which would further discourage driving to and from the project site.

TABLE 1: AUTOMOBILE TRIP GENERATION

Land Use, ITE Code	Units [a]	Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Residential / Office Mix Scenario								
Residential [b]	395 DU	2,630	40	162	202	159	86	245
Retail [c]	85 KSF	6,120	88	54	142	258	280	538
Office [d]	880.55 KSF	6,860	960	131	1,091	181	884	1,065
Non-Auto Reduction (43%) [e]		-6,710	-468	-149	-617	-257	-538	-795
Pass-by-reduction [f]		-600	0	0	0	-52	-52	-104
Total Trips		**8,300**	**620**	**198**	**818**	**289**	**660**	**949**
All Office Scenario								
Retail [c]	80 KSF	5,880	85	52	137	248	268	516
Office [d]	1,450 KSF	10,020	1,431	195	1,626	290	1,413	1,703
Non-Auto Reduction (43%) [e]		-6,840	-652	-106	-758	-231	-723	-954
Pass-by-reduction [f]		-570	0	0	0	-50	-50	-100
Total Trips		**8,490**	**864**	**141**	**1,005**	**257**	**908**	**1,165**
Maximum Office Scenario								
Retail [c]	87 KSF	6,210	89	55	144	262	284	546
Office [d]	2,689 KSF	16,030	2,344	320	2,664	525	2,566	3,091
Non-Auto Reduction (43%) [e]		-9,560	-1,046	-161	-1,207	-338	-1,226	-1,564
Pass-by-reduction [f]		-6010	0	0	0	-53	-53	-106
Total Trips		**12,0870**	**1,387**	**214**	**1,601**	**396**	**1,571**	**1,967**
Maximum Residential Scenario								
Retail [c]	99.2 KSF	6,760	97	59	156	286	310	596
Residential [b]	1,556 DU	10,350	159	635	794	627	338	965
Non-Auto Reduction (43%) [e]		-7,360	-110	-299	-409	-393	-278	-671
Pass-by-reduction [f]		-660	0	0	0	-58	-58	-116
Total Trips		**9,900**	**146**	**395**	**541**	**462**	**312**	**774**

[a] DU = Dwelling Units, KSF = 1,000 square feet.

[b] ITE Trip Generation (9th Edition) land use category 220 (Apartment- Adj. Streets, 7-9 AM, 4-6 PM):
Daily: T = 6.65*(X)
AM Peak Hour: T = 0.51*(X) (20% in, 80% out)
PM Peak Hour: T = 0.62*(X) (65% in, 35% out)

[c] ITE Trip Generation (9th Edition) land use category 820 (Shopping Center – Adj. Streets, 7-9 AM, 4-6 PM):
Daily: Ln(T) = 0.65 * ln(X) + 5.83
AM Peak Hour: Ln(T) = 0.61 * ln(X) + 2.24 (62% in, 38% out)
PM Peak Hour: Ln(T) = 0.67 * ln(X) + 3.31 (48% in, 52% out)

[d] ITE Trip Generation (9th Edition) land use category 710 (General Office Building – Pk. Hr. of Generator):
Daily: Ln(T) = 0.76 * ln(X) + 3.68
AM Peak Hour: Ln(T) = 0.80 * ln(X) + 1.57 (88% in, 12% out)
PM Peak Hour: T = 1.12(X) + 78.45 (17% in, 83% out)

[e] The 43% reduction is based on data from the City of Oakland Transportation Impact Study Guidelines for development in an urban environment within 0.5 miles of a BART Station.

[f] PM peak hour pass-by rates based on ITE Trip Generation Handbook (3rd Edition). The weekday PM peak hour average pass-by rates for land use category 820 is 34%. Pass-by rates are not applied to the AM peak hour. Half of the reduction (17%) is applied to the daily trips.

Source: Fehr & Peers, 2017

MANDATORY TDM STRATEGIES

This section describes the mandatory strategies that shall be implemented at the project. Some of these strategies shall be directly implemented by the building management and others shall be implemented by individual tenants. If the mandatory measures do not achieve the required VTR goals, additional voluntary measures are to be implemented, as described in the following section. **Table 1** lists the mandatory strategies that are part of the City's *Transportation Impact Review Guidelines* (dated April 14, 2017). **Table 2** and **Table 3** list additional mandatory TDM strategies, the responsible party for implementation, and the effectiveness of each strategy based on research compiled in Quantifying Greenhouse Gas Mitigation Measures (California Air Pollution Control Officers Association (CAPCOA), August 2010). This report is a resource for local agencies to quantify the benefit, in terms of reduced travel demand, of implementing various TDM strategies. The mandatory strategies for the project are:

- *Alternative Work Schedule/Flexible Hours/Telecommuting* – Encourage project tenants to offer alternative work schedules, flexible hours, and or telecommuting, which can eliminate employee trips or shift them to non-peak periods.
- *Pre-tax Commuter Benefits* – Encourage project tenants to enroll in WageWorks or other service to help with pre-tax commuter savings. This strategy allows employees to deduct monthly transit passes or other amount using pre-tax dollars. This can help to lower payroll taxes and allows employees to save on transit.
- *Transit Fare Subsidy* – Building management shall either provide or require project tenants to provide free or reduced cost transit in order to increase transit mode share. Options include:
  - Employers can offer a monthly commuter check (or alternatively Clipper Card, which is accepted by BART, AC Transit, and other major transit providers in the Bay Area) to employees to use public transit. Note that as of 2017, IRS allows up to $255 per employee per month.
  - Employers can participate in AC Transit's EasyPass program, which enables employers to purchase annual bus passes for their employees in bulk at a deep discount. The passes allow unlimited rides on all AC Transit buses for all employees. For more information, see www.actransit.org/rider-info/easypass.

  Based on the CAPCPA report, a transit fare subsidy of about $3.00 per employee per day (value to employee) available to 50 percent of the site employees would translate to an approximately 10 percent reduction in driving trips generated by the project.

TABLE 1: MANDATORY TDM PROGRAM COMPONENTS
OAKLAND TRANSPORTATION IMPACT REVIEW GUIDELINES

TDM Strategy	Consideration
Bus boarding islands, bus shelters, concrete pad	Implement Recommendation TRANS-9 [a]
Curb extensions and bulb-outs	To be established through design and permit review.
Corridor-level bikeway improvements	Not applicable. Telegraph already has a Class IV bikeway facility.
Corridor-level transit improvements	Implement Recommendation TRANS-9 [a]
Amenities such as: lighting, pedestrian-oriented green infrastructure, trees /greening, trash receptacles per the Pedestrian Master Plan and applicable streetscape plans.	To be established through design and permit review.
Safety improvements identified in the Pedestrian Master Plan (such as crosswalk striping, ramps, countdown signals, bus bulbs, etc.)	To be established through design and permit review. In addition, implement Recommendation TRANS-4, Recommendation TRANS-5, Recommendation TRANS-6 [a]
In-street bicycle corral	To be established through design and permit review. In addition, implement Recommendation TRANS-7 [a].
Intersection improvements	Implement Recommendation TRANS-1, Recommendation TRANS-2 and Recommendation TRANS-3 [a].
New sidewalk, curb ramps, curb and gutter meeting current City and ADA standards	To be established through design and permit review.
Prohibit monthly parking permits and establish minimum price floor for public parking	Building management after project completion.
Parking garage is designed with retrofit capability	To be established through design and permit review.
Parking space reserved for car share	To be established through design and permit review.
Paving, lane striping, or restriping (vehicle and bicycle) and signs to midpoint of street section	To be established through design and permit review.
Pedestrian crossing improvements, pedestrian-supportive signal changes.	To be established through design and permit review. In addition, implement Recommendation TRANS-4, Recommendation TRANS-5, Recommendation TRANS-6 [a]
Real-time transit information system.	Implement Recommendation TRANS-10 [a].
Relocating bus stops to far side	Not applicable, bus stops adjacent to project are appropriately located
Signal upgrades	To be established through design and permit review.
Transit queue jump lanes	Not applicable, queue jump lanes would conflict with bus boarding islands.
Trenching and placing conduit for traffic signal interconnect	To be established through design and permit review.
Unbundled parking	Not applicable, residential parking ratio at or below 1 per unit

Notes:
[a] Refer tomemorandum title, *2100 Telegraph Avenue – Non-CEQA Transportation Assessment* (November 29, 2017) for description of recommendation.
Sources: Fehr & Peers, 2017.

TABLE 2: MANDATORY TDM PROGRAM COMPONENTS - OFFICE/RETAIL

TDM Strategy	Responsible Party	Estimated Trip Reduction [a]
Alternative Work Schedule / Flexible Hours / Telecommuting	Project Tenants	1%
Pre-tax Commuter Benefit	Project Tenants	1%
Transit Fare Subsidy	Building Management and Project Tenants	10% [c]
Parking Management	Building Management	5%
Carpool and Ride-Matching Assistance	Building Management	1%
Preferential Parking for Carpoolers	Building Management	1%
Designate On-Site Car-Share Spaces	Building Management	1%
Bicycle Facility Monitoring	Building Management	NA [a]
Guaranteed Ride Home	Project Tenants	NA [a]
TDM Coordinator	Building Management and Project Tenants	NA [a]
TDM Marketing and Employee Education	Building Management and Project Tenants	2%
Total Estimated Vehicle Trip Reduction		***22%***

Notes:
[a] The focus of the CAPCOA document is reductions to VMT but the research used to generate the reductions also indicates vehicle trip reductions are applicable as well. For the purposes of this analysis the VTR is assumed to equal the VMT reduction. See the cited CAPCOA research for more information and related information on page 8 of the BAAQMD *Transportation Demand Management Tool User's Guide* (June 2012)
[b] The effectiveness of this strategy cannot be quantified at this time. This does not necessarily imply that the strategy is ineffective. It only demonstrates that at the time of the CAPCOA report development, existing literature did not provide a robust methodology for calculating its effectiveness. In addition, many strategies are complementary to each other and isolating their specific effectiveness may not be feasible.
[c] This strategy assumes that 50% of employees would receive a transit subsidy of $3.00 per day.
Sources: Fehr & Peers, 2017.

TABLE 3: MANDATORY TDM PROGRAM COMPONENTS - RESIDENTIAL

TDM Strategy	Responsible Party	Estimated Trip Reduction [a]
Transit Fare Subsidy	Project Tenants	1%
Parking Management	Building Management	12%
Designate On-Site Car-Share Spaces	Building Management	1%
Bicycle Facility Monitoring	Building Management	NA [b]
TDM Coordinator	Building Management and Project Tenants	NA [b]
TDM Marketing and Resident Education	Building Management and Project Tenants	1%
Total Estimated Vehicle Trip Reduction		***15%***

Notes:
[a] The focus of the CAPCOA document is reductions to VMT but the research used to generate the reductions also indicates vehicle trip reductions are applicable as well. For the purposes of this analysis the VTR is assumed to equal the VMT reduction. See the cited CAPCOA research for more information and related information on page 8 of the BAAQMD *Transportation Demand Management Tool User's Guide* (June 2012)
[b] The effectiveness of this strategy cannot be quantified at this time. This does not necessarily imply that the strategy is ineffective. It only demonstrates that at the time of the CAPCOA report development, existing literature did not provide a robust methodology for calculating its effectiveness. In addition, many strategies are complementary to each other and isolating their specific effectiveness may not be feasible.
Sources: Fehr & Peers, 2017.

- *Parking Management* – Building management shall charge for all parking spaces in the building unless noted in other strategies, remove the cost of parking from the lease agreements, and set the fee for monthly, daily, and/or hourly parking shall be same as or higher than other nearby garages.
- *Carpool and Ride-Matching Assistance Program* – The building management shall offer personalized ride-matching assistance to pair employees interested in forming commute carpools. As an enhancement, building management may consider using specific services such as ZimRide, ComoVee, or 511.org RideShare.
- *Preferential Parking for Carpoolers* – The building management shall offer free or discounted preferential carpool parking for eligible commuters. To be eligible for carpool parking, the carpool shall consist of three or more people. The building management shall monitor and provide adequate carpool spaces to meet and exceed potential demand. Considering the limited parking supply in Downtown Oakland, all or some of the unoccupied parking spaces designated for carpool shall be available for general use after 10:00 AM.

- *Car-Share Spaces* – Designate at least two on-site parking spaces for Car sharing (such as Getaround, Zip Car, etc.) for free. Monitor the usage of the car sharing spaces and adjust if necessary. As an additional strategy, encourage project tenants to provide free/subsidized car-share membership to their employees.

- *Bicycle Facility Monitoring* – As previously described, the project would meet or exceed the City's requirements for short-term and long-term bicycle parking. Building management shall monitor the usage of these facilities and provide additional bicycle parking if necessary.

- *Guaranteed Ride Home* – Encourage project tenants to register for the Guaranteed Ride Home (GRH) program. Employees may be hesitant to commute by any other means, besides driving alone, since they lose the flexibility of leaving work in case of an emergency. GRH programs encourage alternative modes of transportation by offering free rides home in the case of an illness or crisis, if the employee is required to work unscheduled overtime, if a carpool or vanpool is unexpectedly unavailable, or if a bicycle problem arises. The Alameda County Transportation Commission offers a GRH service for all registered permanent employees who are employed within Alameda County, live within 100 miles of their worksite, and do not drive alone to work. The GRH program is offered at no cost to the employer, and employers are not required to register in order for their employees to enroll and use the program.

- *TDM Coordinator* – Each tenant shall designate a staff person as their TDM coordinator to coordinate, monitor and publicize TDM activities. Building management shall also designate a "Building TDM coordinator."

- *TDM Marketing and Tenant/Employee Education*- Building management shall provide tenants and employees information about various transportation options in the project area and the TDM strategies provided by the building. This information would also be posted at central location(s) and be provided to each building tenant. The information shall be updated as necessary. Marketing strategies can promote alternative trips by making commuters aware of the options and incentives of using non-automobile transportation. Implementing commute trip reduction strategies with a complementary marketing strategy can increase the overall effectiveness of the program.

Building management shall provide information on the Bay Area Commuter Benefits Program to all building tenants. As of September 30, 2014, Bay Area employers with 50 or more full-time employees within the Bay Area Air Quality Management District (Air District) geographic boundaries are required to register and offer commuter benefits to their employees in order to comply with Air District Regulation 14, Rule 1, also known as the Bay Area Commuter Benefits Program. Employers must select one of four Commuter Benefit options to offer their employees: a pre-tax benefit, an employer-provided subsidy, employer-provided transit, or an alternative commute benefit. (Information about Commute Benefits Program is at 511.org/employers/commuter/overview.)

ADDITIONAL TDM STRATEGIES

The project should consider the implementation of some or all of the following additional strategies to limit automobile use and encourage non-automotive travel. If the mandatory TDM strategies do not meet the required goals, the implementation of some or all of these measures may become necessary. **Table 4** lists these additional TDM strategies, the responsible party for implementation, and their estimated effectiveness.

TABLE 4: ADDITIONAL TDM PROGRAM COMPONENTS

TDM Strategy	Responsible Party	Estimated Trip Reduction [a]
Increased Transit Fare Subsidy	Project Tenants	NA [b]
Increased Parking Fee	Building Management	NA [b]
Car-Share Membership	Project Tenants	NA [b]
Bicycle Share Membership	Project Tenants	NA [b]
Personalized Trip Planning	Building Management	NA [b]
TDM Marketing and Resident Education	Building Management and Project Tenants	NA [b]

Notes:
[a] The focus of the CAPCOA document is reductions to VMT but the research used to generate the reductions also indicates vehicle trip reductions are applicable as well. For the purposes of this analysis the VTR is assumed to equal the VMT reduction. See the cited CAPCOA research for more information and related information on page 8 of the BAAQMD *Transportation Demand Management Tool User's Guide* (June 2012)
[b] The effectiveness of this strategy cannot be quantified at this time. Estimated trip reductions will only be recalculated as part of a Corrective Action Plan, if required.
Sources: Fehr & Peers, 2017.

- *Increased Transit Subsidy* – Encourage tenants to increase the transit subsidy provided to employees. Alternatively, the building management can include a specific number of transit passes with each lease agreement.
- *Increased Parking Fees* – Increase the cost of on-site parking to further discourage site employees from driving.
- *Car-Share Membership* – Encourage increased usage of car-share by encouraging tenants to fully or partially pay for their employees' yearly membership fee and insurance associated with car-sharing.
- *Bike-Share Membership* – Encourage increased usage of bike-share by encouraging tenants to fully or partially pay for their employees' yearly membership fee and insurance associated with bike-sharing.

- *Personalized Trip Planning* – In the form of in-person assistance or as a web tool, this provides employees with a customized menu of options for commuting. Trip planning reduces the barriers employees see to making a walk, bike, or transit trip to the site. Transit trip making tools, such as those available from Google or 511.org, could be promoted to inform employees of transit options to/from work. Providing a map of preferred walking routes to destinations within one mile of the site and a map of bicycling routes within five miles of the site would be a proactive strategy to encourage those employees to use alternatives to driving. Building management can make presentation to employers and their employees upon request or at set times.

TDM COMPLIANCE

Since the proposed project would generate more than 100 net peak hour automobile trips and the TDM Plan contains ongoing operational VTR strategies, the project applicant shall submit an annual compliance report for the first five years following completion of the project for review and approval by the City. The annual report shall document the status and effectiveness of the TDM program, including the actual vehicle trip reduction achieved by the project during operation. If deemed necessary, the City may elect to have a peer review consultant, paid for by the project applicant, review the annual report. If timely reports are not submitted and/or the annual reports indicate that the project applicant has failed to implement the TDM Plan, the project will be considered in violation of the Conditions of Approval and the City may initiate enforcement action as provided for in the Project Conditions of Approval. The project shall not be considered in violation of this Condition if the TDM Plan is implemented but the vehicle trip reduction goal is not achieved.

APPENDIX D: CalEEMod

2100 Telegraph Existing Conditions
Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Bank (with Drive-Through)	10.20	1000sqft	0.23	10,200.00	0
Unenclosed Parking Structure	351.00	Space	3.16	140,400.00	0
Fast Food Restaurant with Drive Thru	4.30	1000sqft	0.10	4,300.00	0
Regional Shopping Center	24.00	1000sqft	0.55	24,000.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 63

Climate Zone 5 **Operational Year** 2020

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 427 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E's default 2008 CO2 intensity factor updated to the most recent (2013) emission factor verified by a 3rd party in PG&E’s (2015) Greenhouse Gas Emission Factors: Guidance for PG&E Customers.

Land Use - Square footage based on Fehr & Peers (2016) traffic analysis.

Construction Phase - Arbitrary input for construction. Construction emissions for this scenario do not matter.

Off-road Equipment -

Off-road Equipment -

Demolition -

Grading -

Vehicle Trips - Trip rates adjusted based on Fehr & Peers (2016) traffic analysis. Average travel distances adjusted based on MTC Travel Model results for project vicnity (TAZ 970).

Woodstoves -

Area Coating -

Energy Use - PG&E's default 2008 CO2 intensity factor updated to the most recent (2013) emission factor verified by a 3rd party in PG&E’s (2015) Greenhouse Gas Emission Factors: Guidance for PG&E Customers.

Water And Wastewater - EBMUD would service the proposed project and applies 100 percent aerobic process and 100 percent cogeneration.

Construction Off-road Equipment Mitigation -

Fleet Mix - Fleet mixes adjusted to represent land use type.

Stationary Sources - Emergency Generators and Fire Pumps -

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.04	0.04
tblFleetMix	HHD	0.04	0.04
tblFleetMix	HHD	0.04	0.04
tblFleetMix	HHD	0.04	0.04
tblFleetMix	LDA	0.56	0.56
tblFleetMix	LDA	0.56	0.56
tblFleetMix	LDA	0.56	0.56
tblFleetMix	LDA	0.56	0.56
tblFleetMix	LDT1	0.04	0.04

tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.19	0.19
tblFleetMix	LDT2	0.19	0.19
tblFleetMix	LDT2	0.19	0.19
tblFleetMix	LDT2	0.19	0.19
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD2	5.2280e-003	5.2600e-003
tblFleetMix	LHD2	5.2280e-003	5.2600e-003
tblFleetMix	LHD2	5.2280e-003	5.2600e-003
tblFleetMix	LHD2	5.2280e-003	5.2600e-003
tblFleetMix	MCY	5.5690e-003	5.6030e-003
tblFleetMix	MCY	5.5690e-003	5.6030e-003
tblFleetMix	MCY	5.5690e-003	5.6030e-003
tblFleetMix	MCY	5.5690e-003	5.6030e-003
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MH	7.5900e-004	0.00
tblFleetMix	MH	7.5900e-004	0.00
tblFleetMix	MH	7.5900e-004	0.00
tblFleetMix	MH	7.5900e-004	0.00

tblFleetMix	MHD	0.02	0.02
tblFleetMix	MHD	0.02	0.02
tblFleetMix	MHD	0.02	0.02
tblFleetMix	MHD	0.02	0.02
tblFleetMix	OBUS	2.1180e-003	0.00
tblFleetMix	OBUS	2.1180e-003	0.00
tblFleetMix	OBUS	2.1180e-003	0.00
tblFleetMix	OBUS	2.1180e-003	0.00
tblFleetMix	SBUS	3.0800e-004	0.00
tblFleetMix	SBUS	3.0800e-004	0.00
tblFleetMix	SBUS	3.0800e-004	0.00
tblFleetMix	SBUS	3.0800e-004	0.00
tblFleetMix	UBUS	2.8050e-003	0.00
tblFleetMix	UBUS	2.8050e-003	0.00
tblFleetMix	UBUS	2.8050e-003	0.00
tblFleetMix	UBUS	2.8050e-003	0.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	427
tblProjectCharacteristics	OperationalYear	2018	2020
tblVehicleTrips	CC_TL	7.30	4.00
tblVehicleTrips	CC_TL	7.30	4.10
tblVehicleTrips	CC_TL	7.30	4.10
tblVehicleTrips	CNW_TL	7.30	5.20
tblVehicleTrips	CNW_TL	7.30	5.20
tblVehicleTrips	CNW_TL	7.30	5.20
tblVehicleTrips	CW_TL	9.50	8.90
tblVehicleTrips	CW_TL	9.50	6.30
tblVehicleTrips	CW_TL	9.50	6.30

tblVehicleTrips	ST_TR	86.32	12.37
tblVehicleTrips	ST_TR	722.03	34.72
tblVehicleTrips	ST_TR	49.97	28.34
tblVehicleTrips	SU_TR	31.90	4.57
tblVehicleTrips	SU_TR	542.72	26.10
tblVehicleTrips	SU_TR	25.24	14.32
tblVehicleTrips	WD_TR	148.15	21.23
tblVehicleTrips	WD_TR	496.12	23.86
tblVehicleTrips	WD_TR	42.70	24.22
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2000	0.1330	0.7914	0.4890	4.8700e-003	6.5500e-003	0.0509	0.0575	1.7800e-003	0.0508	0.0525	0.0000	48.5671	48.5671	0.0109	0.0000	48.8404
Maximum	**0.1330**	**0.7914**	**0.4890**	**4.8700e-003**	**6.5500e-003**	**0.0509**	**0.0575**	**1.7800e-003**	**0.0508**	**0.0525**	**0.0000**	**48.5671**	**48.5671**	**0.0109**	**0.0000**	**48.8404**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2000	0.1330	0.7914	0.4890	4.8700e-003	6.5500e-003	0.0509	0.0575	1.7800e-003	0.0508	0.0525	0.0000	48.5670	48.5670	0.0109	0.0000	48.8404
Maximum	**0.1330**	**0.7914**	**0.4890**	**4.8700e-003**	**6.5500e-003**	**0.0509**	**0.0575**	**1.7800e-003**	**0.0508**	**0.0525**	**0.0000**	**48.5670**	**48.5670**	**0.0109**	**0.0000**	**48.8404**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2000	3-31-2000	0.3773	0.3773
		Highest	0.3773	0.3773

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1828	3.0000e-005	3.6000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.9600e-003	6.9600e-003	2.0000e-005	0.0000	7.4300e-003
Energy	5.8600e-003	0.0533	0.0448	3.2000e-004		4.0500e-003	4.0500e-003		4.0500e-003	4.0500e-003	0.0000	218.8850	218.8850	0.0120	3.3200e-003	220.1765
Mobile	0.2065	1.1127	1.6409	4.4100e-003	0.2844	4.4700e-003	0.2889	0.0761	4.2000e-003	0.0803	0.0000	406.5558	406.5558	0.0269	0.0000	407.2275
Waste						0.0000	0.0000		0.0000	0.0000	17.1020	0.0000	17.1020	1.0107	0.0000	42.3695
Water						0.0000	0.0000		0.0000	0.0000	1.2337	4.2772	5.5109	4.5400e-003	2.7400e-003	6.4418
Total	**0.3952**	**1.1660**	**1.6892**	**4.7300e-003**	**0.2844**	**8.5300e-003**	**0.2929**	**0.0761**	**8.2600e-003**	**0.0844**	**18.3357**	**629.7250**	**648.0607**	**1.0542**	**6.0600e-003**	**676.2226**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1828	3.0000e-005	3.6000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.9600e-003	6.9600e-003	2.0000e-005	0.0000	7.4300e-003
Energy	5.8600e-003	0.0533	0.0448	3.2000e-004		4.0500e-003	4.0500e-003		4.0500e-003	4.0500e-003	0.0000	218.8850	218.8850	0.0120	3.3200e-003	220.1765
Mobile	0.2065	1.1127	1.6409	4.4100e-003	0.2844	4.4700e-003	0.2889	0.0761	4.2000e-003	0.0803	0.0000	406.5558	406.5558	0.0269	0.0000	407.2275
Waste						0.0000	0.0000		0.0000	0.0000	17.1020	0.0000	17.1020	1.0107	0.0000	42.3695
Water						0.0000	0.0000		0.0000	0.0000	1.2337	4.2772	5.5109	4.5400e-003	2.7400e-003	6.4418
Total	**0.3952**	**1.1660**	**1.6892**	**4.7300e-003**	**0.2844**	**8.5300e-003**	**0.2929**	**0.0761**	**8.2600e-003**	**0.0844**	**18.3357**	**629.7250**	**648.0607**	**1.0542**	**6.0600e-003**	**676.2226**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2000	1/12/2000	5	20	
2	Construction	Building Construction	1/13/2000	2/3/2000	5	230	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 3.16

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Construction	Cranes	1	7.00	231	0.29
Construction	Forklifts	3	8.00	89	0.20
Construction	Generator Sets	1	8.00	84	0.74
Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Construction	Welders	1	8.00	46	0.45

<u>Trips and VMT</u>

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Construction	9	72.00	29.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2000

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0408	0.3082	0.1169	1.7700e-003		0.0175	0.0175		0.0175	0.0175	0.0000	15.8887	15.8887	3.3200e-003	0.0000	15.9718
Total	**0.0408**	**0.3082**	**0.1169**	**1.7700e-003**		**0.0175**	**0.0175**		**0.0175**	**0.0175**	**0.0000**	**15.8887**	**15.8887**	**3.3200e-003**	**0.0000**	**15.9718**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2900e-003	1.6100e-003	0.0135	1.0000e-005	4.7000e-004	2.0000e-005	4.9000e-004	1.3000e-004	2.0000e-005	1.4000e-004	0.0000	0.5066	0.5066	8.0000e-005	0.0000	0.5086
Total	**1.2900e-003**	**1.6100e-003**	**0.0135**	**1.0000e-005**	**4.7000e-004**	**2.0000e-005**	**4.9000e-004**	**1.3000e-004**	**2.0000e-005**	**1.4000e-004**	**0.0000**	**0.5066**	**0.5066**	**8.0000e-005**	**0.0000**	**0.5086**

3.2 Demolition - 2000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0408	0.3082	0.1169	1.7700e-003		0.0175	0.0175		0.0175	0.0175	0.0000	15.8887	15.8887	3.3200e-003	0.0000	15.9718
Total	**0.0408**	**0.3082**	**0.1169**	**1.7700e-003**		**0.0175**	**0.0175**		**0.0175**	**0.0175**	**0.0000**	**15.8887**	**15.8887**	**3.3200e-003**	**0.0000**	**15.9718**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2900e-003	1.6100e-003	0.0135	1.0000e-005	4.7000e-004	2.0000e-005	4.9000e-004	1.3000e-004	2.0000e-005	1.4000e-004	0.0000	0.5066	0.5066	8.0000e-005	0.0000	0.5086
Total	**1.2900e-003**	**1.6100e-003**	**0.0135**	**1.0000e-005**	**4.7000e-004**	**2.0000e-005**	**4.9000e-004**	**1.3000e-004**	**2.0000e-005**	**1.4000e-004**	**0.0000**	**0.5066**	**0.5066**	**8.0000e-005**	**0.0000**	**0.5086**

3.3 Construction - 2000

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0698	0.3861	0.1789	2.4300e-003		0.0304	0.0304		0.0304	0.0304	0.0000	21.0289	21.0289	5.6800e-003	0.0000	21.1710
Total	**0.0698**	**0.3861**	**0.1789**	**2.4300e-003**		**0.0304**	**0.0304**		**0.0304**	**0.0304**	**0.0000**	**21.0289**	**21.0289**	**5.6800e-003**	**0.0000**	**21.1710**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.7900e-003	0.0801	0.0505	5.8000e-004	1.5200e-003	2.8300e-003	4.3500e-003	4.4000e-004	2.7100e-003	3.1500e-003	0.0000	6.2796	6.2796	1.0800e-003	0.0000	6.3067
Worker	0.0124	0.0155	0.1293	8.0000e-005	4.5500e-003	1.8000e-004	4.7300e-003	1.2100e-003	1.6000e-004	1.3800e-003	0.0000	4.8632	4.8632	7.6000e-004	0.0000	4.8823
Total	**0.0212**	**0.0955**	**0.1798**	**6.6000e-004**	**6.0700e-003**	**3.0100e-003**	**9.0800e-003**	**1.6500e-003**	**2.8700e-003**	**4.5300e-003**	**0.0000**	**11.1428**	**11.1428**	**1.8400e-003**	**0.0000**	**11.1891**

3.3 Construction - 2000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0698	0.3861	0.1789	2.4300e-003		0.0304	0.0304		0.0304	0.0304	0.0000	21.0289	21.0289	5.6800e-003	0.0000	21.1710
Total	**0.0698**	**0.3861**	**0.1789**	**2.4300e-003**		**0.0304**	**0.0304**		**0.0304**	**0.0304**	**0.0000**	**21.0289**	**21.0289**	**5.6800e-003**	**0.0000**	**21.1710**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.7900e-003	0.0801	0.0505	5.8000e-004	1.5200e-003	2.8300e-003	4.3500e-003	4.4000e-004	2.7100e-003	3.1500e-003	0.0000	6.2796	6.2796	1.0800e-003	0.0000	6.3067
Worker	0.0124	0.0155	0.1293	8.0000e-005	4.5500e-003	1.8000e-004	4.7300e-003	1.2100e-003	1.6000e-004	1.3800e-003	0.0000	4.8632	4.8632	7.6000e-004	0.0000	4.8823
Total	**0.0212**	**0.0955**	**0.1798**	**6.6000e-004**	**6.0700e-003**	**3.0100e-003**	**9.0800e-003**	**1.6500e-003**	**2.8700e-003**	**4.5300e-003**	**0.0000**	**11.1428**	**11.1428**	**1.8400e-003**	**0.0000**	**11.1891**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2065	1.1127	1.6409	4.4100e-003	0.2844	4.4700e-003	0.2889	0.0761	4.2000e-003	0.0803	0.0000	406.5558	406.5558	0.0269	0.0000	407.2275
Unmitigated	0.2065	1.1127	1.6409	4.4100e-003	0.2844	4.4700e-003	0.2889	0.0761	4.2000e-003	0.0803	0.0000	406.5558	406.5558	0.0269	0.0000	407.2275

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Bank (with Drive-Through)	216.55	126.17	46.61	102,613	102,613
Fast Food Restaurant with Drive Thru	102.60	149.30	112.23	62,120	62,120
Regional Shopping Center	581.28	680.16	343.68	600,839	600,839
Unenclosed Parking Structure	0.00	0.00	0.00		
Total	900.42	955.63	502.52	765,572	765,572

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Bank (with Drive-Through)	8.90	4.00	5.20	6.60	74.40	19.00	27	26	47
Fast Food Restaurant with Drive Thru	6.30	4.10	5.20	2.20	78.80	19.00	29	21	50
Regional Shopping Center	6.30	4.10	5.20	16.30	64.70	19.00	54	35	11
Unenclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Bank (with Drive-Through)	0.561550	0.041194	0.191920	0.111122	0.017506	0.005260	0.022795	0.043053	0.000000	0.000000	0.005603	0.000000	0.000000
Unenclosed Parking Structure	0.561550	0.041194	0.191920	0.111122	0.017506	0.005260	0.022795	0.043053	0.000000	0.000000	0.005603	0.000000	0.000000
Fast Food Restaurant with Drive Thru	0.561550	0.041194	0.191920	0.111122	0.017506	0.005260	0.022795	0.043053	0.000000	0.000000	0.005603	0.000000	0.000000
Regional Shopping Center	0.561550	0.041194	0.191920	0.111122	0.017506	0.005260	0.022795	0.043053	0.000000	0.000000	0.005603	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	160.8752	160.8752	0.0109	2.2600e-003	161.8220
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	160.8752	160.8752	0.0109	2.2600e-003	161.8220
NaturalGas Mitigated	5.8600e-003	0.0533	0.0448	3.2000e-004		4.0500e-003	4.0500e-003		4.0500e-003	4.0500e-003	0.0000	58.0098	58.0098	1.1100e-003	1.0600e-003	58.3545
NaturalGas Unmitigated	5.8600e-003	0.0533	0.0448	3.2000e-004		4.0500e-003	4.0500e-003		4.0500e-003	4.0500e-003	0.0000	58.0098	58.0098	1.1100e-003	1.0600e-003	58.3545

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Bank (with Drive-Through)	253266	1.3700e-003	0.0124	0.0104	7.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	13.5152	13.5152	2.6000e-004	2.5000e-004	13.5956
Fast Food Restaurant with Drive Thru	722916	3.9000e-003	0.0354	0.0298	2.1000e-004		2.6900e-003	2.6900e-003		2.6900e-003	2.6900e-003	0.0000	38.5776	38.5776	7.4000e-004	7.1000e-004	38.8068
Regional Shopping Center	110880	6.0000e-004	5.4400e-003	4.5700e-003	3.0000e-005		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	5.9170	5.9170	1.1000e-004	1.1000e-004	5.9521
Unenclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.8700e-003**	**0.0533**	**0.0448**	**3.1000e-004**		**4.0400e-003**	**4.0400e-003**		**4.0400e-003**	**4.0400e-003**	**0.0000**	**58.0098**	**58.0098**	**1.1100e-003**	**1.0700e-003**	**58.3545**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Bank (with Drive-Through)	253266	1.3700e-003	0.0124	0.0104	7.0000e-005		9.4000e-004	9.4000e-004		9.4000e-004	9.4000e-004	0.0000	13.5152	13.5152	2.6000e-004	2.5000e-004	13.5956
Fast Food Restaurant with Drive Thru	722916	3.9000e-003	0.0354	0.0298	2.1000e-004		2.6900e-003	2.6900e-003		2.6900e-003	2.6900e-003	0.0000	38.5776	38.5776	7.4000e-004	7.1000e-004	38.8068
Regional Shopping Center	110880	6.0000e-004	5.4400e-003	4.5700e-003	3.0000e-005		4.1000e-004	4.1000e-004		4.1000e-004	4.1000e-004	0.0000	5.9170	5.9170	1.1000e-004	1.1000e-004	5.9521
Unenclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.8700e-003**	**0.0533**	**0.0448**	**3.1000e-004**		**4.0400e-003**	**4.0400e-003**		**4.0400e-003**	**4.0400e-003**	**0.0000**	**58.0098**	**58.0098**	**1.1100e-003**	**1.0700e-003**	**58.3545**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Bank (with Drive-Through)	78540	15.2119	1.0300e-003	2.1000e-004	15.3015
Fast Food Restaurant with Drive Thru	125775	24.3606	1.6500e-003	3.4000e-004	24.5040
Regional Shopping Center	257040	49.7845	3.3800e-003	7.0000e-004	50.0775
Unenclosed Parking Structure	369252	71.5182	4.8600e-003	1.0000e-003	71.9391
Total		**160.8752**	**0.0109**	**2.2500e-003**	**161.8220**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Bank (with Drive-Through)	78540	15.2119	1.0300e-003	2.1000e-004	15.3015
Fast Food Restaurant with Drive Thru	125775	24.3606	1.6500e-003	3.4000e-004	24.5040
Regional Shopping Center	257040	49.7845	3.3800e-003	7.0000e-004	50.0775
Unenclosed Parking Structure	369252	71.5182	4.8600e-003	1.0000e-003	71.9391
Total		**160.8752**	**0.0109**	**2.2500e-003**	**161.8220**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1828	3.0000e-005	3.6000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.9600e-003	6.9600e-003	2.0000e-005	0.0000	7.4300e-003
Unmitigated	0.1828	3.0000e-005	3.6000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.9600e-003	6.9600e-003	2.0000e-005	0.0000	7.4300e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0230					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1594					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.4000e-004	3.0000e-005	3.6000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.9600e-003	6.9600e-003	2.0000e-005	0.0000	7.4300e-003
Total	**0.1828**	**3.0000e-005**	**3.6000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.9600e-003**	**6.9600e-003**	**2.0000e-005**	**0.0000**	**7.4300e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0230					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1594					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.4000e-004	3.0000e-005	3.6000e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.9600e-003	6.9600e-003	2.0000e-005	0.0000	7.4300e-003
Total	**0.1828**	**3.0000e-005**	**3.6000e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.9600e-003**	**6.9600e-003**	**2.0000e-005**	**0.0000**	**7.4300e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.5109	4.5400e-003	2.7400e-003	6.4418
Unmitigated	5.5109	4.5400e-003	2.7400e-003	6.4418

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Bank (with Drive-Through)	0.404154 / 0.247707	0.6950	5.3000e-004	3.2000e-004	0.8032
Fast Food Restaurant with Drive Thru	1.30519 / 0.0833103	1.7587	1.6800e-003	1.0200e-003	2.1054
Regional Shopping Center	1.77774 / 1.08958	3.0572	2.3300e-003	1.4000e-003	3.5332
Unenclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**5.5109**	**4.5400e-003**	**2.7400e-003**	**6.4418**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Bank (with Drive-Through)	0.404154 / 0.247707	0.6950	5.3000e-004	3.2000e-004	0.8032
Fast Food Restaurant with Drive Thru	1.30519 / 0.0833103	1.7587	1.6800e-003	1.0200e-003	2.1054
Regional Shopping Center	1.77774 / 1.08958	3.0572	2.3300e-003	1.4000e-003	3.5332
Unenclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**5.5109**	**4.5400e-003**	**2.7400e-003**	**6.4418**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	17.1020	1.0107	0.0000	42.3695
Unmitigated	17.1020	1.0107	0.0000	42.3695

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Bank (with Drive-Through)	9.52	1.9325	0.1142	0.0000	4.7876
Fast Food Restaurant with Drive Thru	49.53	10.0541	0.5942	0.0000	24.9087
Regional Shopping Center	25.2	5.1154	0.3023	0.0000	12.6731
Unenclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Total		**17.1020**	**1.0107**	**0.0000**	**42.3695**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Bank (with Drive-Through)	9.52	1.9325	0.1142	0.0000	4.7876
Fast Food Restaurant with Drive Thru	49.53	10.0541	0.5942	0.0000	24.9087
Regional Shopping Center	25.2	5.1154	0.3023	0.0000	12.6731
Unenclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Total		**17.1020**	**1.0107**	**0.0000**	**42.3695**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

2100 Telegraph Avenue Project: Preferred Development Scenario

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	880.55	1000sqft	0.00	880,550.00	2642
Day-Care Center	19.00	1000sqft	0.00	19,000.00	0
Enclosed Parking with Elevator	1,821.00	Space	0.00	728,400.00	0
Apartments High Rise	395.00	Dwelling Unit	3.14	359,720.00	830
Regional Shopping Center	85.00	1000sqft	0.00	85,000.00	213

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	427	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E's default 2008 CO2 intensity factor updated to the most recent (2013) emission factor verified by a 3rd party in PG&E's (2015) Greenhouse Gas Emission Factors: Guidance for PG&E Customers.

Land Use - Square footage updated based on project design. Population estimates based on 2.1 persons/residential unit, 3 persons/KSF office, 2.5 persons/KSF retail.

Construction Phase - According to project sponsor, construction expected to last up to 30 months.

Off-road Equipment - Added forklift for general construction activities.

Off-road Equipment - Added crane and drill rig for shoring and piles.

Trips and VMT - Conservatively assuming 1 vendor truck every 5 minutes (96 vendor trucks/8-hour day)

Demolition - Asphalt demo assumption: (Area of pavement)(Depth of pavement)(Density asphalt) = (33 KSF)(0.25 ft)(0.0725 tons/ft^3) = 598 tons
Building demo assumption: (Area of buildings)(CalEEMod conversion factor) = (214.5 KSF)(0.046 tons/ft^2) = 98,670 tons

Grading - Project sponsor anticipates up to 66,000 CY of material export.

Architectural Coating - No exterior paint in the project design.

Vehicle Trips - Trip rates adjusted based on Fehr & Peers (2016) traffic analysis and SCA-TRANS-4 . Average travel distances adjusted based on MTC Travel Model results for project vicnity (TAZ 970).

Woodstoves - No fireplaces or woodstoves.

Consumer Products - ROG emission factor for consumer products reduced by 14.6% based on CARB's 2012 Statewide inventory.

Area Coating - No exterior paint included in the project design.

Energy Use - PG&E's default 2008 CO2 intensity factor updated to the most recent (2013) emission factor verified by a 3rd party in PG&E's (2015) Greenhouse Gas Emission Factors: Guidance for PG&E Customers.

Water And Wastewater - EBMUD would service the proposed project and applies 100 percent aerobic process and 100 percent cogeneration.

Construction Off-road Equipment Mitigation - SCA-AIR-1 (#19) Enhanced Controls require use of Tier 4 engines. These emission reductions are considered part of the project's unmitigated emissions.

Water Mitigation - CALGreen Code mandatory requirement. These emission reductions are considered part of the project's unmitigated emissions.

Fleet Mix - Project is not expected to generate new bus or mobile home trips, amd home-based trips would not include medium heavy-duty or heavy heavy-duty trucks.

Stationary Sources - Emergency Generators and Fire Pumps - Emergency generators for elevators. Limited to 50 hours of testing/maintenance per year. Assume maximum 1 hour operation/test day.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	492,275.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	242,811.00	0.00
tblAreaCoating	Area_Nonresidential_Exterior	492275	0

tblAreaCoating	Area_Residential_Exterior	242811	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	18.00	120.00
tblConstructionPhase	NumDays	230.00	360.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	8.00	80.00
tblConstructionPhase	NumDays	18.00	40.00
tblConstructionPhase	NumDays	5.00	10.00
tblConsumerProducts	ROG_EF	2.14E-05	1.83E-05
tblFireplaces	NumberGas	59.25	0.00
tblFireplaces	NumberNoFireplace	15.80	0.00
tblFireplaces	NumberWood	67.15	0.00
tblFleetMix	HHD	0.04	0.04
tblFleetMix	HHD	0.04	0.00
tblFleetMix	HHD	0.04	0.04
tblFleetMix	LDA	0.56	0.56
tblFleetMix	LDA	0.56	0.60
tblFleetMix	LDA	0.56	0.56
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.19	0.19
tblFleetMix	LDT2	0.19	0.21
tblFleetMix	LDT2	0.19	0.19
tblFleetMix	LHD1	0.02	0.02

tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD2	5.2280e-003	5.2595e-003
tblFleetMix	LHD2	5.2280e-003	5.6302e-003
tblFleetMix	LHD2	5.2280e-003	5.2595e-003
tblFleetMix	MCY	5.5690e-003	5.6026e-003
tblFleetMix	MCY	5.5690e-003	5.9975e-003
tblFleetMix	MCY	5.5690e-003	5.6026e-003
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MDV	0.11	0.12
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MH	7.5900e-004	0.00
tblFleetMix	MH	7.5900e-004	0.00
tblFleetMix	MH	7.5900e-004	0.00
tblFleetMix	MHD	0.02	0.02
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.02
tblFleetMix	OBUS	2.1180e-003	0.00
tblFleetMix	OBUS	2.1180e-003	0.00
tblFleetMix	OBUS	2.1180e-003	0.00
tblFleetMix	SBUS	3.0800e-004	0.00
tblFleetMix	SBUS	3.0800e-004	0.00
tblFleetMix	SBUS	3.0800e-004	0.00
tblFleetMix	UBUS	2.8050e-003	0.00
tblFleetMix	UBUS	2.8050e-003	0.00
tblFleetMix	UBUS	2.8050e-003	0.00
tblGrading	MaterialExported	0.00	66,000.00

tblLandUse	BuildingSpaceSquareFeet	395,000.00	359,720.00
tblLandUse	LandUseSquareFeet	395,000.00	359,720.00
tblLandUse	LotAcreage	20.21	0.00
tblLandUse	LotAcreage	0.44	0.00
tblLandUse	LotAcreage	16.39	0.00
tblLandUse	LotAcreage	6.37	3.14
tblLandUse	LotAcreage	1.95	0.00
tblLandUse	Population	0.00	2,642.00
tblLandUse	Population	1,130.00	830.00
tblLandUse	Population	0.00	213.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	427
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	VendorTripNumber	323.00	96.00
tblVehicleTrips	CC_TL	7.30	2.20
tblVehicleTrips	CC_TL	7.30	4.10
tblVehicleTrips	CNW_TL	7.30	5.20
tblVehicleTrips	CNW_TL	7.30	5.20
tblVehicleTrips	CW_TL	9.50	8.40
tblVehicleTrips	CW_TL	9.50	6.30
tblVehicleTrips	HO_TL	5.70	2.80
tblVehicleTrips	HS_TL	4.80	2.00
tblVehicleTrips	HW_TL	10.80	7.30
tblVehicleTrips	ST_TR	4.98	2.27
tblVehicleTrips	ST_TR	6.21	0.00
tblVehicleTrips	ST_TR	2.46	1.12
tblVehicleTrips	ST_TR	49.97	22.78
tblVehicleTrips	SU_TR	3.65	1.66

tblVehicleTrips	SU_TR	5.83	0.00
tblVehicleTrips	SU_TR	1.05	0.48
tblVehicleTrips	SU_TR	25.24	11.51
tblVehicleTrips	WD_TR	4.20	3.04
tblVehicleTrips	WD_TR	74.06	0.00
tblVehicleTrips	WD_TR	11.03	3.55
tblVehicleTrips	WD_TR	42.70	32.83
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00

tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	7.90	0.00
tblWoodstoves	NumberNoncatalytic	7.90	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.7897	8.2063	5.2298	0.0186	2.0917	0.2492	2.3409	0.5272	0.2323	0.7595	0.0000	1,734.5006	1,734.5006	0.1761	0.0000	1,738.9033
2019	0.7345	4.3242	5.5113	0.0148	0.8958	0.1741	1.0699	0.2400	0.1635	0.4035	0.0000	1,344.2968	1,344.2968	0.1134	0.0000	1,347.1317
2020	5.3262	0.2345	0.4984	1.1700e-003	0.0865	0.0142	0.1007	0.0230	0.0136	0.0366	0.0000	104.8038	104.8038	7.1800e-003	0.0000	104.9834
Maximum	**5.3262**	**8.2063**	**5.5113**	**0.0186**	**2.0917**	**0.2492**	**2.3409**	**0.5272**	**0.2323**	**0.7595**	**0.0000**	**1,734.5006**	**1,734.5006**	**0.1761**	**0.0000**	**1,738.9033**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.4263	4.2912	5.3714	0.0186	2.0917	0.0279	2.1195	0.5272	0.0268	0.5541	0.0000	1,734.5001	1,734.5001	0.1761	0.0000	1,738.9028
2019	0.4849	1.9776	5.5647	0.0148	0.8958	0.0200	0.9158	0.2400	0.0191	0.2591	0.0000	1,344.2964	1,344.2964	0.1134	0.0000	1,347.1314
2020	5.3040	0.0431	0.5026	1.1700e-003	0.0865	1.0700e-003	0.0876	0.0230	1.0200e-003	0.0240	0.0000	104.8038	104.8038	7.1800e-003	0.0000	104.9834
Maximum	**5.3040**	**4.2912**	**5.5647**	**0.0186**	**2.0917**	**0.0279**	**2.1195**	**0.5272**	**0.0268**	**0.5541**	**0.0000**	**1,734.5001**	**1,734.5001**	**0.1761**	**0.0000**	**1,738.9028**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	9.27	50.55	-1.77	0.00	0.00	88.82	11.07	0.00	88.52	30.21	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2018	3-31-2018	3.3074	1.9597
2	4-1-2018	6-30-2018	2.5708	1.1997
3	7-1-2018	9-30-2018	1.5097	0.7374
4	10-1-2018	12-31-2018	1.5431	0.7708
5	1-1-2019	3-31-2019	1.3761	0.7051
6	4-1-2019	6-30-2019	1.3626	0.6840
7	7-1-2019	9-30-2019	1.3775	0.6916
8	10-1-2019	12-31-2019	0.9362	0.3820
9	1-1-2020	3-31-2020	2.7058	2.5834
10	4-1-2020	6-30-2020	2.8520	2.7658
		Highest	3.3074	2.7658

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.1549	0.0343	2.9686	1.6000e-004		0.0163	0.0163		0.0163	0.0163	0.0000	4.8410	4.8410	4.8100e-003	0.0000	4.9612
Energy	0.1204	1.0811	0.8219	6.5700e-003		0.0832	0.0832		0.0832	0.0832	0.0000	4,859.1189	4,859.1189	0.2719	0.0734	4,887.7842
Mobile	1.5212	7.3034	13.6041	0.0384	2.7772	0.0376	2.8148	0.7428	0.0353	0.7781	0.0000	3,529.3854	3,529.3854	0.1914	0.0000	3,534.1691
Stationary	0.1101	0.4461	0.2807	5.3000e-004		0.0162	0.0162		0.0162	0.0162	0.0000	51.0839	51.0839	7.1600e-003	0.0000	51.2630
Waste						0.0000	0.0000		0.0000	0.0000	226.2456	0.0000	226.2456	13.3707	0.0000	560.5139
Water						0.0000	0.0000		0.0000	0.0000	66.9925	260.0196	327.0121	0.2482	0.1493	377.7215
Total	**6.9066**	**8.8648**	**17.6753**	**0.0457**	**2.7772**	**0.1532**	**2.9304**	**0.7428**	**0.1509**	**0.8937**	**293.2381**	**8,704.4489**	**8,997.6870**	**14.0942**	**0.2227**	**9,416.4130**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.1549	0.0343	2.9686	1.6000e-004		0.0163	0.0163		0.0163	0.0163	0.0000	4.8410	4.8410	4.8100e-003	0.0000	4.9612
Energy	0.1204	1.0811	0.8219	6.5700e-003		0.0832	0.0832		0.0832	0.0832	0.0000	4,859.1189	4,859.1189	0.2719	0.0734	4,887.7842
Mobile	1.5212	7.3034	13.6041	0.0384	2.7772	0.0376	2.8148	0.7428	0.0353	0.7781	0.0000	3,529.3854	3,529.3854	0.1914	0.0000	3,534.1691
Stationary	0.1101	0.4461	0.2807	5.3000e-004		0.0162	0.0162		0.0162	0.0162	0.0000	51.0839	51.0839	7.1600e-003	0.0000	51.2630
Waste						0.0000	0.0000		0.0000	0.0000	226.2456	0.0000	226.2456	13.3707	0.0000	560.5139
Water						0.0000	0.0000		0.0000	0.0000	53.5940	224.0276	277.6216	0.1997	0.1197	318.2834
Total	**6.9066**	**8.8648**	**17.6753**	**0.0457**	**2.7772**	**0.1532**	**2.9304**	**0.7428**	**0.1509**	**0.8937**	**279.8396**	**8,668.4569**	**8,948.2965**	**14.0457**	**0.1931**	**9,356.9748**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**4.57**	**0.41**	**0.55**	**0.34**	**13.31**	**0.63**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2018	2/23/2018	5	40	
2	Site Preparation	Site Preparation	2/24/2018	3/9/2018	5	10	
3	Grading, Excavation, Shoring, and Trenching	Grading	3/10/2018	6/29/2018	5	80	
4	Building Construction	Building Construction	6/30/2018	11/15/2019	5	360	
5	Paving	Paving	11/16/2019	1/10/2020	5	40	
6	Architectural Coatings and General Construction	Architectural Coating	1/11/2020	6/26/2020	5	120	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 728,433; Residential Outdoor: 0; Non-Residential Indoor: 1,476,825; Non-Residential Outdoor: 0; Striped Parking Area: 43,704 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading, Excavation, Shoring, and Trenching	Bore/Drill Rigs	1	8.00	221	0.50
Grading, Excavation, Shoring, and Trenching	Cranes	1	8.00	231	0.29
Grading, Excavation, Shoring, and Trenching	Excavators	1	8.00	158	0.38
Grading, Excavation, Shoring, and Trenching	Graders	1	8.00	187	0.41
Grading, Excavation, Shoring, and Trenching	Rubber Tired Dozers	1	8.00	247	0.40
Grading, Excavation, Shoring, and Trenching	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coatings and General Construction	Air Compressors	1	6.00	78	0.48
Architectural Coatings and General Construction	Forklifts	1	6.00	89	0.20

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	9,816.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading, Excavation, Shoring, and Trenchin	8	20.00	0.00	8,250.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	907.00	96.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coatings and General Construct	2	181.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0621	0.0000	1.0621	0.1608	0.0000	0.1608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0744	0.7665	0.4461	7.8000e-004		0.0388	0.0388		0.0361	0.0361	0.0000	70.2482	70.2482	0.0194	0.0000	70.7320
Total	**0.0744**	**0.7665**	**0.4461**	**7.8000e-004**	**1.0621**	**0.0388**	**1.1009**	**0.1608**	**0.0361**	**0.1969**	**0.0000**	**70.2482**	**70.2482**	**0.0194**	**0.0000**	**70.7320**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0467	1.6041	0.2657	3.9900e-003	0.0831	6.0600e-003	0.0892	0.0229	5.8000e-003	0.0287	0.0000	383.5836	383.5836	0.0202	0.0000	384.0891
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2600e-003	9.9000e-004	9.8500e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	2.0000e-005	6.5000e-004	0.0000	2.2414	2.2414	7.0000e-005	0.0000	2.2432
Total	**0.0480**	**1.6051**	**0.2755**	**4.0100e-003**	**0.0855**	**6.0800e-003**	**0.0916**	**0.0235**	**5.8200e-003**	**0.0293**	**0.0000**	**385.8250**	**385.8250**	**0.0203**	**0.0000**	**386.3322**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0621	0.0000	1.0621	0.1608	0.0000	0.1608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.2500e-003	0.0401	0.4656	7.8000e-004		1.2300e-003	1.2300e-003		1.2300e-003	1.2300e-003	0.0000	70.2481	70.2481	0.0194	0.0000	70.7319
Total	**9.2500e-003**	**0.0401**	**0.4656**	**7.8000e-004**	**1.0621**	**1.2300e-003**	**1.0634**	**0.1608**	**1.2300e-003**	**0.1620**	**0.0000**	**70.2481**	**70.2481**	**0.0194**	**0.0000**	**70.7319**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0467	1.6041	0.2657	3.9900e-003	0.0831	6.0600e-003	0.0892	0.0229	5.8000e-003	0.0287	0.0000	383.5836	383.5836	0.0202	0.0000	384.0891
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2600e-003	9.9000e-004	9.8500e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	2.0000e-005	6.5000e-004	0.0000	2.2414	2.2414	7.0000e-005	0.0000	2.2432
Total	**0.0480**	**1.6051**	**0.2755**	**4.0100e-003**	**0.0855**	**6.0800e-003**	**0.0916**	**0.0235**	**5.8200e-003**	**0.0293**	**0.0000**	**385.8250**	**385.8250**	**0.0203**	**0.0000**	**386.3322**

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2410	0.1124	1.9000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	17.3800	17.3800	5.4100e-003	0.0000	17.5152
Total	**0.0228**	**0.2410**	**0.1124**	**1.9000e-004**	**0.0903**	**0.0129**	**0.1032**	**0.0497**	**0.0119**	**0.0615**	**0.0000**	**17.3800**	**17.3800**	**5.4100e-003**	**0.0000**	**17.5152**

3.3 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	3.0000e-004	2.9600e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6724	0.6724	2.0000e-005	0.0000	0.6730
Total	**3.8000e-004**	**3.0000e-004**	**2.9600e-003**	**1.0000e-005**	**7.1000e-004**	**1.0000e-005**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6724**	**0.6724**	**2.0000e-005**	**0.0000**	**0.6730**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3300e-003	0.0101	0.1043	1.9000e-004		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	17.3799	17.3799	5.4100e-003	0.0000	17.5152
Total	**2.3300e-003**	**0.0101**	**0.1043**	**1.9000e-004**	**0.0903**	**3.1000e-004**	**0.0906**	**0.0497**	**3.1000e-004**	**0.0500**	**0.0000**	**17.3799**	**17.3799**	**5.4100e-003**	**0.0000**	**17.5152**

3.3 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	3.0000e-004	2.9600e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6724	0.6724	2.0000e-005	0.0000	0.6730
Total	**3.8000e-004**	**3.0000e-004**	**2.9600e-003**	**1.0000e-005**	**7.1000e-004**	**1.0000e-005**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6724**	**0.6724**	**2.0000e-005**	**0.0000**	**0.6730**

3.4 Grading, Excavation, Shoring, and Trenching - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2658	0.0000	0.2658	0.1353	0.0000	0.1353	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1458	1.6676	0.8476	1.7900e-003		0.0786	0.0786		0.0723	0.0723	0.0000	163.7640	163.7640	0.0510	0.0000	165.0386
Total	**0.1458**	**1.6676**	**0.8476**	**1.7900e-003**	**0.2658**	**0.0786**	**0.3444**	**0.1353**	**0.0723**	**0.2076**	**0.0000**	**163.7640**	**163.7640**	**0.0510**	**0.0000**	**165.0386**

3.4 Grading, Excavation, Shoring, and Trenching - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0393	1.3482	0.2233	3.3500e-003	0.0699	5.0900e-003	0.0750	0.0192	4.8700e-003	0.0241	0.0000	322.3884	322.3884	0.0170	0.0000	322.8133
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3500e-003	2.6300e-003	0.0263	7.0000e-005	6.3300e-003	5.0000e-005	6.3700e-003	1.6800e-003	4.0000e-005	1.7300e-003	0.0000	5.9771	5.9771	1.9000e-004	0.0000	5.9818
Total	**0.0426**	**1.3508**	**0.2495**	**3.4200e-003**	**0.0762**	**5.1400e-003**	**0.0813**	**0.0209**	**4.9100e-003**	**0.0258**	**0.0000**	**328.3655**	**328.3655**	**0.0172**	**0.0000**	**328.7950**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2658	0.0000	0.2658	0.1353	0.0000	0.1353	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0220	0.0955	0.9856	1.7900e-003		2.9400e-003	2.9400e-003		2.9400e-003	2.9400e-003	0.0000	163.7638	163.7638	0.0510	0.0000	165.0384
Total	**0.0220**	**0.0955**	**0.9856**	**1.7900e-003**	**0.2658**	**2.9400e-003**	**0.2688**	**0.1353**	**2.9400e-003**	**0.1382**	**0.0000**	**163.7638**	**163.7638**	**0.0510**	**0.0000**	**165.0384**

3.4 Grading, Excavation, Shoring, and Trenching - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0393	1.3482	0.2233	3.3500e-003	0.0699	5.0900e-003	0.0750	0.0192	4.8700e-003	0.0241	0.0000	322.3884	322.3884	0.0170	0.0000	322.8133
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3500e-003	2.6300e-003	0.0263	7.0000e-005	6.3300e-003	5.0000e-005	6.3700e-003	1.6800e-003	4.0000e-005	1.7300e-003	0.0000	5.9771	5.9771	1.9000e-004	0.0000	5.9818
Total	**0.0426**	**1.3508**	**0.2495**	**3.4200e-003**	**0.0762**	**5.1400e-003**	**0.0813**	**0.0209**	**4.9100e-003**	**0.0258**	**0.0000**	**328.3655**	**328.3655**	**0.0172**	**0.0000**	**328.7950**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1755	1.5321	1.1515	1.7600e-003		0.0982	0.0982		0.0924	0.0924	0.0000	155.7375	155.7375	0.0382	0.0000	156.6914
Total	**0.1755**	**1.5321**	**1.1515**	**1.7600e-003**		**0.0982**	**0.0982**		**0.0924**	**0.0924**	**0.0000**	**155.7375**	**155.7375**	**0.0382**	**0.0000**	**156.6914**

3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0312	0.8476	0.1936	1.7600e-003	0.0413	6.0500e-003	0.0473	0.0120	5.7900e-003	0.0177	0.0000	168.6444	168.6444	0.0108	0.0000	168.9142
Worker	0.2490	0.1955	1.9506	4.9200e-003	0.4697	3.4300e-003	0.4732	0.1250	3.1600e-003	0.1281	0.0000	443.8637	443.8637	0.0139	0.0000	444.2117
Total	**0.2802**	**1.0431**	**2.1442**	**6.6800e-003**	**0.5110**	**9.4800e-003**	**0.5205**	**0.1369**	**8.9500e-003**	**0.1459**	**0.0000**	**612.5080**	**612.5080**	**0.0247**	**0.0000**	**613.1259**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0215	0.1464	1.1436	1.7600e-003		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	155.7374	155.7374	0.0382	0.0000	156.6912
Total	**0.0215**	**0.1464**	**1.1436**	**1.7600e-003**		**2.6700e-003**	**2.6700e-003**		**2.6700e-003**	**2.6700e-003**	**0.0000**	**155.7374**	**155.7374**	**0.0382**	**0.0000**	**156.6912**

3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0312	0.8476	0.1936	1.7600e-003	0.0413	6.0500e-003	0.0473	0.0120	5.7900e-003	0.0177	0.0000	168.6444	168.6444	0.0108	0.0000	168.9142
Worker	0.2490	0.1955	1.9506	4.9200e-003	0.4697	3.4300e-003	0.4732	0.1250	3.1600e-003	0.1281	0.0000	443.8637	443.8637	0.0139	0.0000	444.2117
Total	**0.2802**	**1.0431**	**2.1442**	**6.6800e-003**	**0.5110**	**9.4800e-003**	**0.5205**	**0.1369**	**8.9500e-003**	**0.1459**	**0.0000**	**612.5080**	**612.5080**	**0.0247**	**0.0000**	**613.1259**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2704	2.4135	1.9653	3.0800e-003		0.1477	0.1477		0.1389	0.1389	0.0000	269.1943	269.1943	0.0656	0.0000	270.8338
Total	**0.2704**	**2.4135**	**1.9653**	**3.0800e-003**		**0.1477**	**0.1477**		**0.1389**	**0.1389**	**0.0000**	**269.1943**	**269.1943**	**0.0656**	**0.0000**	**270.8338**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0495	1.4058	0.3110	3.0600e-003	0.0722	8.9800e-003	0.0812	0.0209	8.5900e-003	0.0295	0.0000	292.7993	292.7993	0.0180	0.0000	293.2504
Worker	0.3931	0.2998	3.0287	8.3400e-003	0.8211	5.8500e-003	0.8270	0.2184	5.3900e-003	0.2238	0.0000	753.2265	753.2265	0.0215	0.0000	753.7635
Total	**0.4426**	**1.7056**	**3.3397**	**0.0114**	**0.8933**	**0.0148**	**0.9081**	**0.2393**	**0.0140**	**0.2533**	**0.0000**	**1,046.0259**	**1,046.0259**	**0.0395**	**0.0000**	**1,047.0139**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0375	0.2559	1.9992	3.0800e-003		4.6700e-003	4.6700e-003		4.6700e-003	4.6700e-003	0.0000	269.1940	269.1940	0.0656	0.0000	270.8334
Total	**0.0375**	**0.2559**	**1.9992**	**3.0800e-003**		**4.6700e-003**	**4.6700e-003**		**4.6700e-003**	**4.6700e-003**	**0.0000**	**269.1940**	**269.1940**	**0.0656**	**0.0000**	**270.8334**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0495	1.4058	0.3110	3.0600e-003	0.0722	8.9800e-003	0.0812	0.0209	8.5900e-003	0.0295	0.0000	292.7993	292.7993	0.0180	0.0000	293.2504
Worker	0.3931	0.2998	3.0287	8.3400e-003	0.8211	5.8500e-003	0.8270	0.2184	5.3900e-003	0.2238	0.0000	753.2265	753.2265	0.0215	0.0000	753.7635
Total	**0.4426**	**1.7056**	**3.3397**	**0.0114**	**0.8933**	**0.0148**	**0.9081**	**0.2393**	**0.0140**	**0.2533**	**0.0000**	**1,046.0259**	**1,046.0259**	**0.0395**	**0.0000**	**1,047.0139**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0203	0.2042	0.1970	3.0000e-004		0.0115	0.0115		0.0106	0.0106	0.0000	26.7557	26.7557	8.2300e-003	0.0000	26.9615
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0203**	**0.2042**	**0.1970**	**3.0000e-004**		**0.0115**	**0.0115**		**0.0106**	**0.0106**	**0.0000**	**26.7557**	**26.7557**	**8.2300e-003**	**0.0000**	**26.9615**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2100e-003	9.2000e-004	9.3300e-003	3.0000e-005	2.5300e-003	2.0000e-005	2.5500e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.3209	2.3209	7.0000e-005	0.0000	2.3226
Total	**1.2100e-003**	**9.2000e-004**	**9.3300e-003**	**3.0000e-005**	**2.5300e-003**	**2.0000e-005**	**2.5500e-003**	**6.7000e-004**	**2.0000e-005**	**6.9000e-004**	**0.0000**	**2.3209**	**2.3209**	**7.0000e-005**	**0.0000**	**2.3226**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.5100e-003	0.0152	0.2165	3.0000e-004		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	26.7557	26.7557	8.2300e-003	0.0000	26.9615
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.5100e-003**	**0.0152**	**0.2165**	**3.0000e-004**		**4.7000e-004**	**4.7000e-004**		**4.7000e-004**	**4.7000e-004**	**0.0000**	**26.7557**	**26.7557**	**8.2300e-003**	**0.0000**	**26.9615**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2100e-003	9.2000e-004	9.3300e-003	3.0000e-005	2.5300e-003	2.0000e-005	2.5500e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.3209	2.3209	7.0000e-005	0.0000	2.3226
Total	**1.2100e-003**	**9.2000e-004**	**9.3300e-003**	**3.0000e-005**	**2.5300e-003**	**2.0000e-005**	**2.5500e-003**	**6.7000e-004**	**2.0000e-005**	**6.9000e-004**	**0.0000**	**2.3209**	**2.3209**	**7.0000e-005**	**0.0000**	**2.3226**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.7300e-003	0.0472	0.0491	8.0000e-005		2.6000e-003	2.6000e-003		2.4000e-003	2.4000e-003	0.0000	6.5488	6.5488	2.0600e-003	0.0000	6.6003
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.7300e-003**	**0.0472**	**0.0491**	**8.0000e-005**		**2.6000e-003**	**2.6000e-003**		**2.4000e-003**	**2.4000e-003**	**0.0000**	**6.5488**	**6.5488**	**2.0600e-003**	**0.0000**	**6.6003**

3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.0000e-004	2.0900e-003	1.0000e-005	6.3000e-004	0.0000	6.4000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5623	0.5623	1.0000e-005	0.0000	0.5627
Total	**2.8000e-004**	**2.0000e-004**	**2.0900e-003**	**1.0000e-005**	**6.3000e-004**	**0.0000**	**6.4000e-004**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.5623**	**0.5623**	**1.0000e-005**	**0.0000**	**0.5627**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.8000e-004	3.8000e-003	0.0541	8.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	6.5488	6.5488	2.0600e-003	0.0000	6.6002
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.8000e-004**	**3.8000e-003**	**0.0541**	**8.0000e-005**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**	**0.0000**	**6.5488**	**6.5488**	**2.0600e-003**	**0.0000**	**6.6002**

3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.0000e-004	2.0900e-003	1.0000e-005	6.3000e-004	0.0000	6.4000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5623	0.5623	1.0000e-005	0.0000	0.5627
Total	**2.8000e-004**	**2.0000e-004**	**2.0900e-003**	**1.0000e-005**	**6.3000e-004**	**0.0000**	**6.4000e-004**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.5623**	**0.5623**	**1.0000e-005**	**0.0000**	**0.5627**

3.7 Architectural Coatings and General Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.2626					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0210	0.1594	0.1630	2.5000e-004		0.0110	0.0110		0.0107	0.0107	0.0000	21.3626	21.3626	3.1400e-003	0.0000	21.4412
Total	**5.2836**	**0.1594**	**0.1630**	**2.5000e-004**		**0.0110**	**0.0110**		**0.0107**	**0.0107**	**0.0000**	**21.3626**	**21.3626**	**3.1400e-003**	**0.0000**	**21.4412**

3.7 Architectural Coatings and General Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0376	0.0277	0.2841	8.4000e-004	0.0859	6.0000e-004	0.0865	0.0228	5.5000e-004	0.0234	0.0000	76.3301	76.3301	1.9700e-003	0.0000	76.3794
Total	**0.0376**	**0.0277**	**0.2841**	**8.4000e-004**	**0.0859**	**6.0000e-004**	**0.0865**	**0.0228**	**5.5000e-004**	**0.0234**	**0.0000**	**76.3301**	**76.3301**	**1.9700e-003**	**0.0000**	**76.3794**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.2626					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6300e-003	0.0114	0.1622	2.5000e-004		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	21.3626	21.3626	3.1400e-003	0.0000	21.4411
Total	**5.2652**	**0.0114**	**0.1622**	**2.5000e-004**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**	**0.0000**	**21.3626**	**21.3626**	**3.1400e-003**	**0.0000**	**21.4411**

3.7 Architectural Coatings and General Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0376	0.0277	0.2841	8.4000e-004	0.0859	6.0000e-004	0.0865	0.0228	5.5000e-004	0.0234	0.0000	76.3301	76.3301	1.9700e-003	0.0000	76.3794
Total	**0.0376**	**0.0277**	**0.2841**	**8.4000e-004**	**0.0859**	**6.0000e-004**	**0.0865**	**0.0228**	**5.5000e-004**	**0.0234**	**0.0000**	**76.3301**	**76.3301**	**1.9700e-003**	**0.0000**	**76.3794**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5212	7.3034	13.6041	0.0384	2.7772	0.0376	2.8148	0.7428	0.0353	0.7781	0.0000	3,529.385 4	3,529.385 4	0.1914	0.0000	3,534.169 1
Unmitigated	1.5212	7.3034	13.6041	0.0384	2.7772	0.0376	2.8148	0.7428	0.0353	0.7781	0.0000	3,529.385 4	3,529.385 4	0.1914	0.0000	3,534.169 1

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	1,200.80	897.44	657.28	1,422,681	1,422,681
Day-Care Center	0.00	0.00	0.00		
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	3,127.71	986.22	422.66	3,493,639	3,493,639
Regional Shopping Center	2,790.72	1,936.64	978.52	2,578,825	2,578,825
Total	7,119.23	3,820.30	2,058.46	7,495,145	7,495,145

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments High Rise	7.30	2.00	2.80	31.00	15.00	54.00	86	11	3
Day-Care Center	9.50	7.30	7.30	12.70	82.30	5.00	28	58	14
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Office Building	8.40	2.20	5.20	33.00	48.00	19.00	77	19	4
Regional Shopping Center	6.30	4.10	5.20	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.561550	0.041194	0.191920	0.111122	0.017506	0.005260	0.022795	0.043053	0.000000	0.000000	0.005603	0.000000	0.000000
Day-Care Center	0.558186	0.040947	0.190770	0.110456	0.017401	0.005228	0.022658	0.042795	0.002118	0.002805	0.005569	0.000308	0.000759
Enclosed Parking with Elevator	0.558186	0.040947	0.190770	0.110456	0.017401	0.005228	0.022658	0.042795	0.002118	0.002805	0.005569	0.000308	0.000759
Apartments High Rise	0.601133	0.044097	0.205448	0.118954	0.018740	0.005630	0.000000	0.000000	0.000000	0.000000	0.005997	0.000000	0.000000
Regional Shopping Center	0.561550	0.041194	0.191920	0.111122	0.017506	0.005260	0.022795	0.043053	0.000000	0.000000	0.005603	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,667.7151	3,667.7151	0.2491	0.0515	3,689.3005
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,667.7151	3,667.7151	0.2491	0.0515	3,689.3005
NaturalGas Mitigated	0.1204	1.0811	0.8219	6.5700e-003		0.0832	0.0832		0.0832	0.0832	0.0000	1,191.4039	1,191.4039	0.0228	0.0218	1,198.4838
NaturalGas Unmitigated	0.1204	1.0811	0.8219	6.5700e-003		0.0832	0.0832		0.0832	0.0832	0.0000	1,191.4039	1,191.4039	0.0228	0.0218	1,198.4838

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments High Rise	4.51863e+006	0.0244	0.2082	0.0886	1.3300e-003		0.0168	0.0168		0.0168	0.0168	0.0000	241.1315	241.1315	4.6200e-003	4.4200e-003	242.5645
Day-Care Center	314450	1.7000e-003	0.0154	0.0130	9.0000e-005		1.1700e-003	1.1700e-003		1.1700e-003	1.1700e-003	0.0000	16.7803	16.7803	3.2000e-004	3.1000e-004	16.8800
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	1.71003e+007	0.0922	0.8383	0.7041	5.0300e-003		0.0637	0.0637		0.0637	0.0637	0.0000	912.5361	912.5361	0.0175	0.0167	917.9589
Regional Shopping Center	392700	2.1200e-003	0.0193	0.0162	1.2000e-004		1.4600e-003	1.4600e-003		1.4600e-003	1.4600e-003	0.0000	20.9560	20.9560	4.0000e-004	3.8000e-004	21.0805
Total		**0.1204**	**1.0811**	**0.8219**	**6.5700e-003**		**0.0832**	**0.0832**		**0.0832**	**0.0832**	**0.0000**	**1,191.4039**	**1,191.4039**	**0.0228**	**0.0218**	**1,198.4838**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments High Rise	4.51863e +006	0.0244	0.2082	0.0886	1.3300e-003		0.0168	0.0168		0.0168	0.0168	0.0000	241.1315	241.1315	4.6200e-003	4.4200e-003	242.5645
Day-Care Center	314450	1.7000e-003	0.0154	0.0130	9.0000e-005		1.1700e-003	1.1700e-003		1.1700e-003	1.1700e-003	0.0000	16.7803	16.7803	3.2000e-004	3.1000e-004	16.8800
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	1.71003e +007	0.0922	0.8383	0.7041	5.0300e-003		0.0637	0.0637		0.0637	0.0637	0.0000	912.5361	912.5361	0.0175	0.0167	917.9589
Regional Shopping Center	392700	2.1200e-003	0.0193	0.0162	1.2000e-004		1.4600e-003	1.4600e-003		1.4600e-003	1.4600e-003	0.0000	20.9560	20.9560	4.0000e-004	3.8000e-004	21.0805
Total		**0.1204**	**1.0811**	**0.8219**	**6.5700e-003**		**0.0832**	**0.0832**		**0.0832**	**0.0832**	**0.0000**	**1,191.4039**	**1,191.4039**	**0.0228**	**0.0218**	**1,198.4838**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	1.78595e +006	345.9097	0.0235	4.8600e-003	347.9454
Day-Care Center	86260	16.7072	1.1300e-003	2.3000e-004	16.8055
Enclosed Parking with Elevator	4.90942e +006	950.8750	0.0646	0.0134	956.4712
General Office Building	1.12446e +007	2,177.903 0	0.1479	0.0306	2,190.720 5
Regional Shopping Center	910350	176.3202	0.0120	2.4800e-003	177.3579
Total		**3,667.715 1**	**0.2491**	**0.0515**	**3,689.300 5**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	1.78595e +006	345.9097	0.0235	4.8600e-003	347.9454
Day-Care Center	86260	16.7072	1.1300e-003	2.3000e-004	16.8055
Enclosed Parking with Elevator	4.90942e +006	950.8750	0.0646	0.0134	956.4712
General Office Building	1.12446e +007	2,177.903 0	0.1479	0.0306	2,190.720 5
Regional Shopping Center	910350	176.3202	0.0120	2.4800e-003	177.3579
Total		**3,667.715 1**	**0.2491**	**0.0515**	**3,689.300 5**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.1549	0.0343	2.9686	1.6000e-004		0.0163	0.0163		0.0163	0.0163	0.0000	4.8410	4.8410	4.8100e-003	0.0000	4.9612
Unmitigated	5.1549	0.0343	2.9686	1.6000e-004		0.0163	0.0163		0.0163	0.0163	0.0000	4.8410	4.8410	4.8100e-003	0.0000	4.9612

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5263					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.5366					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0921	0.0343	2.9686	1.6000e-004		0.0163	0.0163		0.0163	0.0163	0.0000	4.8410	4.8410	4.8100e-003	0.0000	4.9612
Total	**5.1549**	**0.0343**	**2.9686**	**1.6000e-004**		**0.0163**	**0.0163**		**0.0163**	**0.0163**	**0.0000**	**4.8410**	**4.8410**	**4.8100e-003**	**0.0000**	**4.9612**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5263					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	4.5366					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0921	0.0343	2.9686	1.6000e-004		0.0163	0.0163		0.0163	0.0163	0.0000	4.8410	4.8410	4.8100e-003	0.0000	4.9612
Total	**5.1549**	**0.0343**	**2.9686**	**1.6000e-004**		**0.0163**	**0.0163**		**0.0163**	**0.0163**	**0.0000**	**4.8410**	**4.8410**	**4.8100e-003**	**0.0000**	**4.9612**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	277.6216	0.1997	0.1197	318.2834
Unmitigated	327.0121	0.2482	0.1493	377.7215

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	25.7358 / 16.2248	44.5636	0.0338	0.0203	51.4565
Day-Care Center	0.814902 / 2.09546	2.4833	1.1400e-003	6.6000e-004	2.7079
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	156.503 / 95.9215	269.1377	0.2051	0.1234	311.0438
Regional Shopping Center	6.29616 / 3.85894	10.8275	8.2500e-003	4.9700e-003	12.5134
Total		**327.0121**	**0.2482**	**0.1494**	**377.7215**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	20.5887 / 16.2248	37.8506	0.0272	0.0163	43.3779
Day-Care Center	0.651921 / 2.09546	2.2707	9.3000e-004	5.3000e-004	2.4521
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	125.203 / 95.9215	228.3151	0.1650	0.0989	261.9165
Regional Shopping Center	5.03693 / 3.85894	9.1852	6.6400e-003	3.9800e-003	10.5370
Total		**277.6216**	**0.1997**	**0.1197**	**318.2834**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	226.2456	13.3707	0.0000	560.5139
Unmitigated	226.2456	13.3707	0.0000	560.5139

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	181.7	36.8835	2.1798	0.0000	91.3772
Day-Care Center	24.7	5.0139	0.2963	0.0000	12.4217
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	818.91	166.2313	9.8240	0.0000	411.8311
Regional Shopping Center	89.25	18.1169	1.0707	0.0000	44.8840
Total		**226.2456**	**13.3707**	**0.0000**	**560.5139**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	181.7	36.8835	2.1798	0.0000	91.3772
Day-Care Center	24.7	5.0139	0.2963	0.0000	12.4217
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	818.91	166.2313	9.8240	0.0000	411.8311
Regional Shopping Center	89.25	18.1169	1.0707	0.0000	44.8840
Total		**226.2456**	**13.3707**	**0.0000**	**560.5139**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	50	671	0.73	Diesel
Emergency Generator	1	1	50	2012	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (600 - 750 HP)	0.0275	0.0769	0.0702	1.3000e-004		4.0500e-003	4.0500e-003		4.0500e-003	4.0500e-003	0.0000	12.7758	12.7758	1.7900e-003	0.0000	12.8205
Emergency Generator - Diesel (750 - 9999 HP)	0.0826	0.3691	0.2105	4.0000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	38.3082	38.3082	5.3700e-003	0.0000	38.4425
Total	**0.1101**	**0.4461**	**0.2807**	**5.3000e-004**		**0.0162**	**0.0162**		**0.0162**	**0.0162**	**0.0000**	**51.0840**	**51.0840**	**7.1600e-003**	**0.0000**	**51.2630**

11.0 Vegetation

2100 Telegraph Avenue Project: Maximum Residential Scenario

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Day-Care Center	37.00	1000sqft	0.00	37,000.00	0
Enclosed Parking with Elevator	2,130.00	Space	0.00	852,000.00	0
Apartments High Rise	1,556.00	Dwelling Unit	3.14	1,652,385.00	3268
Regional Shopping Center	99.22	1000sqft	0.00	99,220.00	249

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 63

Climate Zone 5 **Operational Year** 2020

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 427 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E's default 2008 CO2 intensity factor updated to the most recent (2013) emission factor verified by a 3rd party in PG&E's (2015) Greenhouse Gas Emission Factors: Guidance for PG&E Customers.

Land Use - Square footage updated based on project design. Population estimates based on 2.1 persons/residential unit, 3 persons/KSF office, 2.5 persons/KSF retail.

Construction Phase - According to project sponsor, construction expected to last up to 30 months.

Off-road Equipment - Added forklift for general construction activities.

Off-road Equipment - Added crane and drill rig for shoring and piles.

Trips and VMT - Conservatively assuming 1 vendor truck every 5 minutes (96 vendor trucks/8-hour day)

Demolition - Asphalt demo assumption: (Area of pavement)(Depth of pavement)(Density asphalt) = (33 KSF)(0.25 ft)(0.0725 tons/ft^3) = 598 tons
Building demo assumption: (Area of buildings)(CalEEMod conversion factor) = (214.5 KSF)(0.046 tons/ft^2) = 98,670 tons

Grading - Project sponsor anticipates up to 66,000 CY of material export.

Architectural Coating - No exterior paint in the project design.

Vehicle Trips - Trip rates adjusted based on Fehr & Peers (2016) traffic analysis and SCA-TRANS-4 . Average travel distances adjusted based on MTC Travel Model results for project vicnity (TAZ 970).

Woodstoves - No fireplaces or woodstoves.

Consumer Products - ROG emission factor for consumer products reduced by 14.6% based on CARB's 2012 Statewide inventory.

Area Coating - No exterior paint included in the project design.

Energy Use - PG&E's default 2008 CO2 intensity factor updated to the most recent (2013) emission factor verified by a 3rd party in PG&E's (2015) Greenhouse Gas Emission Factors: Guidance for PG&E Customers.

Water And Wastewater - EBMUD would service the proposed project and applies 100 percent aerobic process and 100 percent cogeneration.

Construction Off-road Equipment Mitigation - SCA-AIR-1 (#19) Enhanced Controls require use of Tier 4 engines. These emission reductions are considered part of the project's unmitigated emissions.

Water Mitigation - CALGreen Code mandatory requirement. These emission reductions are considered part of the project's unmitigated emissions.

Fleet Mix - Project is not expected to generate new bus or mobile home trips, amd home-based trips would not include medium heavy-duty or heavy heavy-duty trucks.

Stationary Sources - Emergency Generators and Fire Pumps - Emergency generator for elevator. Limited to 50 hours of testing/maintenance per year. Assume maximum 1 hour operation/test day.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	68,110.00	0.00
tblArchitecturalCoating	ConstArea_Residential_Exterior	1,115,360.00	0.00
tblAreaCoating	Area_Nonresidential_Exterior	68110	0

tblAreaCoating	Area_Residential_Exterior	1115363	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	18.00	120.00
tblConstructionPhase	NumDays	230.00	360.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	8.00	80.00
tblConstructionPhase	NumDays	18.00	40.00
tblConstructionPhase	NumDays	5.00	10.00
tblConsumerProducts	ROG_EF	2.14E-05	1.83E-05
tblFireplaces	NumberGas	233.40	0.00
tblFireplaces	NumberNoFireplace	62.24	0.00
tblFireplaces	NumberWood	264.52	0.00
tblFleetMix	HHD	0.04	0.00
tblFleetMix	HHD	0.04	0.04
tblFleetMix	LDA	0.56	0.60
tblFleetMix	LDA	0.56	0.56
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.19	0.21
tblFleetMix	LDT2	0.19	0.19
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD2	5.2280e-003	5.6300e-003
tblFleetMix	LHD2	5.2280e-003	5.2600e-003
tblFleetMix	MCY	5.5690e-003	5.9970e-003

tblFleetMix	MCY	5.5690e-003	5.6030e-003
tblFleetMix	MDV	0.11	0.12
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MH	7.5900e-004	0.00
tblFleetMix	MH	7.5900e-004	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.02
tblFleetMix	OBUS	2.1180e-003	0.00
tblFleetMix	OBUS	2.1180e-003	0.00
tblFleetMix	SBUS	3.0800e-004	0.00
tblFleetMix	SBUS	3.0800e-004	0.00
tblFleetMix	UBUS	2.8050e-003	0.00
tblFleetMix	UBUS	2.8050e-003	0.00
tblGrading	MaterialExported	0.00	66,000.00
tblLandUse	BuildingSpaceSquareFeet	1,556,000.00	1,652,385.00
tblLandUse	LandUseSquareFeet	1,556,000.00	1,652,385.00
tblLandUse	LotAcreage	0.85	0.00
tblLandUse	LotAcreage	19.17	0.00
tblLandUse	LotAcreage	25.10	3.14
tblLandUse	LotAcreage	2.28	0.00
tblLandUse	Population	4,450.00	3,268.00
tblLandUse	Population	0.00	249.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	427
tblProjectCharacteristics	OperationalYear	2018	2020
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	2,012.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00

tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	VendorTripNumber	328.00	96.00
tblVehicleTrips	CC_TL	7.30	4.10
tblVehicleTrips	CNW_TL	7.30	5.20
tblVehicleTrips	CW_TL	9.50	6.30
tblVehicleTrips	HO_TL	5.70	2.80
tblVehicleTrips	HS_TL	4.80	2.00
tblVehicleTrips	HW_TL	10.80	7.30
tblVehicleTrips	ST_TR	4.98	2.27
tblVehicleTrips	ST_TR	6.21	0.00
tblVehicleTrips	ST_TR	49.97	22.78
tblVehicleTrips	SU_TR	3.65	1.66
tblVehicleTrips	SU_TR	5.83	0.00
tblVehicleTrips	SU_TR	25.24	11.50
tblVehicleTrips	WD_TR	4.20	3.03
tblVehicleTrips	WD_TR	74.06	0.00
tblVehicleTrips	WD_TR	42.70	31.07
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00

tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWoodstoves	NumberCatalytic	31.12	0.00
tblWoodstoves	NumberNoncatalytic	31.12	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.9594	8.3395	6.5589	0.0220	2.4117	0.2515	2.6633	0.6124	0.2345	0.8468	0.0000	2,036.9347	2,036.9347	0.1856	0.0000	2,041.5745
2019	1.0023	4.5285	7.5749	0.0205	1.4553	0.1780	1.6334	0.3888	0.1672	0.5560	0.0000	1,857.5206	1,857.5206	0.1280	0.0000	1,860.7214
2020	8.4951	0.2535	0.6930	1.7500e-003	0.1453	0.0146	0.1599	0.0387	0.0140	0.0527	0.0000	157.0963	157.0963	8.5300e-003	0.0000	157.3096
Maximum	**8.4951**	**8.3395**	**7.5749**	**0.0220**	**2.4117**	**0.2515**	**2.6633**	**0.6124**	**0.2345**	**0.8468**	**0.0000**	**2,036.9347**	**2,036.9347**	**0.1856**	**0.0000**	**2,041.5745**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.5959	4.4244	6.7004	0.0220	2.4117	0.0302	2.4419	0.6124	0.0290	0.6414	0.0000	2,036.9342	2,036.9342	0.1856	0.0000	2,041.5741
2019	0.7527	2.1819	7.6284	0.0205	1.4553	0.0240	1.4793	0.3888	0.0228	0.4116	0.0000	1,857.5202	1,857.5202	0.1280	0.0000	1,860.7211
2020	8.4729	0.0621	0.6972	1.7500e-003	0.1453	1.4800e-003	0.1468	0.0387	1.4000e-003	0.0401	0.0000	157.0962	157.0962	8.5300e-003	0.0000	157.3096
Maximum	**8.4729**	**4.4244**	**7.6284**	**0.0220**	**2.4117**	**0.0302**	**2.4419**	**0.6124**	**0.0290**	**0.6414**	**0.0000**	**2,036.9342**	**2,036.9342**	**0.1856**	**0.0000**	**2,041.5741**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	6.08	49.18	-1.34	0.00	0.00	87.48	8.72	0.00	87.20	24.90	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2018	3-31-2018	3.3074	1.9597
2	4-1-2018	6-30-2018	2.5725	1.2013
3	7-1-2018	9-30-2018	1.6585	0.8861
4	10-1-2018	12-31-2018	1.7104	0.9380
5	1-1-2019	3-31-2019	1.5221	0.8510
6	4-1-2019	6-30-2019	1.4941	0.8156
7	7-1-2019	9-30-2019	1.5105	0.8245
8	10-1-2019	12-31-2019	1.0108	0.4566
9	1-1-2020	3-31-2020	4.2450	4.1226
10	4-1-2020	6-30-2020	4.5024	4.4163
		Highest	4.5024	4.4163

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	7.2241	0.1343	11.6128	6.1000e-004		0.0638	0.0638		0.0638	0.0638	0.0000	18.9129	18.9129	0.0185	0.0000	19.3757
Energy	0.1018	0.8727	0.3931	5.5500e-003		0.0703	0.0703		0.0703	0.0703	0.0000	3,720.2142	3,720.2142	0.2036	0.0566	3,742.1662
Mobile	1.7194	4.8165	15.3778	0.0381	3.1187	0.0343	3.1531	0.8320	0.0320	0.8640	0.0000	3,468.0441	3,468.0441	0.1648	0.0000	3,472.1635
Stationary	0.0826	0.3691	0.2105	4.0000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	38.3082	38.3082	5.3700e-003	0.0000	38.4425
Waste						0.0000	0.0000		0.0000	0.0000	176.2043	0.0000	176.2043	10.4134	0.0000	436.5386
Water						0.0000	0.0000		0.0000	0.0000	39.0300	153.9914	193.0214	0.1448	0.0870	222.5796
Total	**9.1278**	**6.1926**	**27.5942**	**0.0446**	**3.1187**	**0.1806**	**3.2993**	**0.8320**	**0.1783**	**1.0103**	**215.2343**	**7,399.4708**	**7,614.7050**	**10.9504**	**0.1436**	**7,931.2660**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	7.2241	0.1343	11.6128	6.1000e-004		0.0638	0.0638		0.0638	0.0638	0.0000	18.9129	18.9129	0.0185	0.0000	19.3757
Energy	0.1018	0.8727	0.3931	5.5500e-003		0.0703	0.0703		0.0703	0.0703	0.0000	3,720.2142	3,720.2142	0.2036	0.0566	3,742.1662
Mobile	1.7194	4.8165	15.3778	0.0381	3.1187	0.0343	3.1531	0.8320	0.0320	0.8640	0.0000	3,468.0441	3,468.0441	0.1648	0.0000	3,472.1635
Stationary	0.0826	0.3691	0.2105	4.0000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	38.3082	38.3082	5.3700e-003	0.0000	38.4425
Waste						0.0000	0.0000		0.0000	0.0000	176.2043	0.0000	176.2043	10.4134	0.0000	436.5386
Water						0.0000	0.0000		0.0000	0.0000	31.2240	133.0224	164.2464	0.1165	0.0698	187.9508
Total	**9.1278**	**6.1926**	**27.5942**	**0.0446**	**3.1187**	**0.1806**	**3.2993**	**0.8320**	**0.1783**	**1.0103**	**207.4283**	**7,378.5017**	**7,585.9300**	**10.9221**	**0.1264**	**7,896.6372**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**3.63**	**0.28**	**0.38**	**0.26**	**12.02**	**0.44**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2018	2/23/2018	5	40	
2	Site Preparation	Site Preparation	2/24/2018	3/9/2018	5	10	
3	Grading, Excavation, Shoring, and Trenching	Grading	3/10/2018	6/29/2018	5	80	
4	Building Construction	Building Construction	6/30/2018	11/15/2019	5	360	
5	Paving	Paving	11/16/2019	1/10/2020	5	40	
6	Architectural Coatings and General Construction	Architectural Coating	1/11/2020	6/26/2020	5	120	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 3,346,080; Residential Outdoor: 0; Non-Residential Indoor: 204,330; Non-Residential Outdoor: 0; Striped Parking Area: 51,120 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading, Excavation, Shoring, and Trenching	Bore/Drill Rigs	1	8.00	221	0.50
Grading, Excavation, Shoring, and Trenching	Cranes	1	8.00	231	0.29
Grading, Excavation, Shoring, and Trenching	Excavators	1	8.00	158	0.38
Grading, Excavation, Shoring, and Trenching	Graders	1	8.00	187	0.41
Grading, Excavation, Shoring, and Trenching	Rubber Tired Dozers	1	8.00	247	0.40
Grading, Excavation, Shoring, and Trenching	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coatings and General Construction	Air Compressors	1	6.00	78	0.48
Architectural Coatings and General Construction	Forklifts	1	6.00	89	0.20

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	9,816.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading, Excavation, Shoring, and Trenchin	8	20.00	0.00	8,250.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,525.00	96.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coatings and General Construct	2	305.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0621	0.0000	1.0621	0.1608	0.0000	0.1608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0744	0.7665	0.4461	7.8000e-004		0.0388	0.0388		0.0361	0.0361	0.0000	70.2482	70.2482	0.0194	0.0000	70.7320
Total	**0.0744**	**0.7665**	**0.4461**	**7.8000e-004**	**1.0621**	**0.0388**	**1.1009**	**0.1608**	**0.0361**	**0.1969**	**0.0000**	**70.2482**	**70.2482**	**0.0194**	**0.0000**	**70.7320**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0467	1.6041	0.2657	3.9900e-003	0.0831	6.0600e-003	0.0892	0.0229	5.8000e-003	0.0287	0.0000	383.5836	383.5836	0.0202	0.0000	384.0891
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2600e-003	9.9000e-004	9.8500e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	2.0000e-005	6.5000e-004	0.0000	2.2414	2.2414	7.0000e-005	0.0000	2.2432
Total	**0.0480**	**1.6051**	**0.2755**	**4.0100e-003**	**0.0855**	**6.0800e-003**	**0.0916**	**0.0235**	**5.8200e-003**	**0.0293**	**0.0000**	**385.8250**	**385.8250**	**0.0203**	**0.0000**	**386.3322**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0621	0.0000	1.0621	0.1608	0.0000	0.1608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.2500e-003	0.0401	0.4656	7.8000e-004		1.2300e-003	1.2300e-003		1.2300e-003	1.2300e-003	0.0000	70.2481	70.2481	0.0194	0.0000	70.7319
Total	**9.2500e-003**	**0.0401**	**0.4656**	**7.8000e-004**	**1.0621**	**1.2300e-003**	**1.0634**	**0.1608**	**1.2300e-003**	**0.1620**	**0.0000**	**70.2481**	**70.2481**	**0.0194**	**0.0000**	**70.7319**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0467	1.6041	0.2657	3.9900e-003	0.0831	6.0600e-003	0.0892	0.0229	5.8000e-003	0.0287	0.0000	383.5836	383.5836	0.0202	0.0000	384.0891
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2600e-003	9.9000e-004	9.8500e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	2.0000e-005	6.5000e-004	0.0000	2.2414	2.2414	7.0000e-005	0.0000	2.2432
Total	**0.0480**	**1.6051**	**0.2755**	**4.0100e-003**	**0.0855**	**6.0800e-003**	**0.0916**	**0.0235**	**5.8200e-003**	**0.0293**	**0.0000**	**385.8250**	**385.8250**	**0.0203**	**0.0000**	**386.3322**

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2410	0.1124	1.9000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	17.3800	17.3800	5.4100e-003	0.0000	17.5152
Total	**0.0228**	**0.2410**	**0.1124**	**1.9000e-004**	**0.0903**	**0.0129**	**0.1032**	**0.0497**	**0.0119**	**0.0615**	**0.0000**	**17.3800**	**17.3800**	**5.4100e-003**	**0.0000**	**17.5152**

3.3 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	3.0000e-004	2.9600e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6724	0.6724	2.0000e-005	0.0000	0.6730
Total	**3.8000e-004**	**3.0000e-004**	**2.9600e-003**	**1.0000e-005**	**7.1000e-004**	**1.0000e-005**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6724**	**0.6724**	**2.0000e-005**	**0.0000**	**0.6730**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3300e-003	0.0101	0.1043	1.9000e-004		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	17.3799	17.3799	5.4100e-003	0.0000	17.5152
Total	**2.3300e-003**	**0.0101**	**0.1043**	**1.9000e-004**	**0.0903**	**3.1000e-004**	**0.0906**	**0.0497**	**3.1000e-004**	**0.0500**	**0.0000**	**17.3799**	**17.3799**	**5.4100e-003**	**0.0000**	**17.5152**

3.3 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	3.0000e-004	2.9600e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6724	0.6724	2.0000e-005	0.0000	0.6730
Total	**3.8000e-004**	**3.0000e-004**	**2.9600e-003**	**1.0000e-005**	**7.1000e-004**	**1.0000e-005**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6724**	**0.6724**	**2.0000e-005**	**0.0000**	**0.6730**

3.4 Grading, Excavation, Shoring, and Trenching - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2658	0.0000	0.2658	0.1353	0.0000	0.1353	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1458	1.6676	0.8476	1.7900e-003		0.0786	0.0786		0.0723	0.0723	0.0000	163.7640	163.7640	0.0510	0.0000	165.0386
Total	**0.1458**	**1.6676**	**0.8476**	**1.7900e-003**	**0.2658**	**0.0786**	**0.3444**	**0.1353**	**0.0723**	**0.2076**	**0.0000**	**163.7640**	**163.7640**	**0.0510**	**0.0000**	**165.0386**

3.4 Grading, Excavation, Shoring, and Trenching - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0393	1.3482	0.2233	3.3500e-003	0.0699	5.0900e-003	0.0750	0.0192	4.8700e-003	0.0241	0.0000	322.3884	322.3884	0.0170	0.0000	322.8133
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3500e-003	2.6300e-003	0.0263	7.0000e-005	6.3300e-003	5.0000e-005	6.3700e-003	1.6800e-003	4.0000e-005	1.7300e-003	0.0000	5.9771	5.9771	1.9000e-004	0.0000	5.9818
Total	**0.0426**	**1.3508**	**0.2495**	**3.4200e-003**	**0.0762**	**5.1400e-003**	**0.0813**	**0.0209**	**4.9100e-003**	**0.0258**	**0.0000**	**328.3655**	**328.3655**	**0.0172**	**0.0000**	**328.7950**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2658	0.0000	0.2658	0.1353	0.0000	0.1353	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0220	0.0955	0.9856	1.7900e-003		2.9400e-003	2.9400e-003		2.9400e-003	2.9400e-003	0.0000	163.7638	163.7638	0.0510	0.0000	165.0384
Total	**0.0220**	**0.0955**	**0.9856**	**1.7900e-003**	**0.2658**	**2.9400e-003**	**0.2688**	**0.1353**	**2.9400e-003**	**0.1382**	**0.0000**	**163.7638**	**163.7638**	**0.0510**	**0.0000**	**165.0384**

3.4 Grading, Excavation, Shoring, and Trenching - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0393	1.3482	0.2233	3.3500e-003	0.0699	5.0900e-003	0.0750	0.0192	4.8700e-003	0.0241	0.0000	322.3884	322.3884	0.0170	0.0000	322.8133
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3500e-003	2.6300e-003	0.0263	7.0000e-005	6.3300e-003	5.0000e-005	6.3700e-003	1.6800e-003	4.0000e-005	1.7300e-003	0.0000	5.9771	5.9771	1.9000e-004	0.0000	5.9818
Total	**0.0426**	**1.3508**	**0.2495**	**3.4200e-003**	**0.0762**	**5.1400e-003**	**0.0813**	**0.0209**	**4.9100e-003**	**0.0258**	**0.0000**	**328.3655**	**328.3655**	**0.0172**	**0.0000**	**328.7950**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1755	1.5321	1.1515	1.7600e-003		0.0982	0.0982		0.0924	0.0924	0.0000	155.7375	155.7375	0.0382	0.0000	156.6914
Total	**0.1755**	**1.5321**	**1.1515**	**1.7600e-003**		**0.0982**	**0.0982**		**0.0924**	**0.0924**	**0.0000**	**155.7375**	**155.7375**	**0.0382**	**0.0000**	**156.6914**

3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0312	0.8476	0.1936	1.7600e-003	0.0413	6.0500e-003	0.0473	0.0120	5.7900e-003	0.0177	0.0000	168.6444	168.6444	0.0108	0.0000	168.9142
Worker	0.4186	0.3286	3.2797	8.2700e-003	0.7898	5.7600e-003	0.7955	0.2101	5.3200e-003	0.2154	0.0000	746.2978	746.2978	0.0234	0.0000	746.8829
Total	**0.4499**	**1.1762**	**3.4733**	**0.0100**	**0.8311**	**0.0118**	**0.8429**	**0.2221**	**0.0111**	**0.2331**	**0.0000**	**914.9421**	**914.9421**	**0.0342**	**0.0000**	**915.7971**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0215	0.1464	1.1436	1.7600e-003		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	155.7374	155.7374	0.0382	0.0000	156.6912
Total	**0.0215**	**0.1464**	**1.1436**	**1.7600e-003**		**2.6700e-003**	**2.6700e-003**		**2.6700e-003**	**2.6700e-003**	**0.0000**	**155.7374**	**155.7374**	**0.0382**	**0.0000**	**156.6912**

3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0312	0.8476	0.1936	1.7600e-003	0.0413	6.0500e-003	0.0473	0.0120	5.7900e-003	0.0177	0.0000	168.6444	168.6444	0.0108	0.0000	168.9142
Worker	0.4186	0.3286	3.2797	8.2700e-003	0.7898	5.7600e-003	0.7955	0.2101	5.3200e-003	0.2154	0.0000	746.2978	746.2978	0.0234	0.0000	746.8829
Total	**0.4499**	**1.1762**	**3.4733**	**0.0100**	**0.8311**	**0.0118**	**0.8429**	**0.2221**	**0.0111**	**0.2331**	**0.0000**	**914.9421**	**914.9421**	**0.0342**	**0.0000**	**915.7971**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2704	2.4135	1.9653	3.0800e-003		0.1477	0.1477		0.1389	0.1389	0.0000	269.1943	269.1943	0.0656	0.0000	270.8338
Total	**0.2704**	**2.4135**	**1.9653**	**3.0800e-003**		**0.1477**	**0.1477**		**0.1389**	**0.1389**	**0.0000**	**269.1943**	**269.1943**	**0.0656**	**0.0000**	**270.8338**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0495	1.4058	0.3110	3.0600e-003	0.0722	8.9800e-003	0.0812	0.0209	8.5900e-003	0.0295	0.0000	292.7993	292.7993	0.0180	0.0000	293.2504
Worker	0.6609	0.5042	5.0924	0.0140	1.3806	9.8400e-003	1.3904	0.3673	9.0700e-003	0.3763	0.0000	1,266.4503	1,266.4503	0.0361	0.0000	1,267.3532
Total	**0.7105**	**1.9099**	**5.4034**	**0.0171**	**1.4528**	**0.0188**	**1.4716**	**0.3882**	**0.0177**	**0.4058**	**0.0000**	**1,559.2497**	**1,559.2497**	**0.0542**	**0.0000**	**1,560.6036**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0375	0.2559	1.9992	3.0800e-003		4.6700e-003	4.6700e-003		4.6700e-003	4.6700e-003	0.0000	269.1940	269.1940	0.0656	0.0000	270.8334
Total	**0.0375**	**0.2559**	**1.9992**	**3.0800e-003**		**4.6700e-003**	**4.6700e-003**		**4.6700e-003**	**4.6700e-003**	**0.0000**	**269.1940**	**269.1940**	**0.0656**	**0.0000**	**270.8334**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0495	1.4058	0.3110	3.0600e-003	0.0722	8.9800e-003	0.0812	0.0209	8.5900e-003	0.0295	0.0000	292.7993	292.7993	0.0180	0.0000	293.2504
Worker	0.6609	0.5042	5.0924	0.0140	1.3806	9.8400e-003	1.3904	0.3673	9.0700e-003	0.3763	0.0000	1,266.4503	1,266.4503	0.0361	0.0000	1,267.3532
Total	**0.7105**	**1.9099**	**5.4034**	**0.0171**	**1.4528**	**0.0188**	**1.4716**	**0.3882**	**0.0177**	**0.4058**	**0.0000**	**1,559.2497**	**1,559.2497**	**0.0542**	**0.0000**	**1,560.6036**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0203	0.2042	0.1970	3.0000e-004		0.0115	0.0115		0.0106	0.0106	0.0000	26.7557	26.7557	8.2300e-003	0.0000	26.9615
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0203**	**0.2042**	**0.1970**	**3.0000e-004**		**0.0115**	**0.0115**		**0.0106**	**0.0106**	**0.0000**	**26.7557**	**26.7557**	**8.2300e-003**	**0.0000**	**26.9615**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2100e-003	9.2000e-004	9.3300e-003	3.0000e-005	2.5300e-003	2.0000e-005	2.5500e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.3209	2.3209	7.0000e-005	0.0000	2.3226
Total	**1.2100e-003**	**9.2000e-004**	**9.3300e-003**	**3.0000e-005**	**2.5300e-003**	**2.0000e-005**	**2.5500e-003**	**6.7000e-004**	**2.0000e-005**	**6.9000e-004**	**0.0000**	**2.3209**	**2.3209**	**7.0000e-005**	**0.0000**	**2.3226**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.5100e-003	0.0152	0.2165	3.0000e-004		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	26.7557	26.7557	8.2300e-003	0.0000	26.9615
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.5100e-003**	**0.0152**	**0.2165**	**3.0000e-004**		**4.7000e-004**	**4.7000e-004**		**4.7000e-004**	**4.7000e-004**	**0.0000**	**26.7557**	**26.7557**	**8.2300e-003**	**0.0000**	**26.9615**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2100e-003	9.2000e-004	9.3300e-003	3.0000e-005	2.5300e-003	2.0000e-005	2.5500e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.3209	2.3209	7.0000e-005	0.0000	2.3226
Total	**1.2100e-003**	**9.2000e-004**	**9.3300e-003**	**3.0000e-005**	**2.5300e-003**	**2.0000e-005**	**2.5500e-003**	**6.7000e-004**	**2.0000e-005**	**6.9000e-004**	**0.0000**	**2.3209**	**2.3209**	**7.0000e-005**	**0.0000**	**2.3226**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.7300e-003	0.0472	0.0491	8.0000e-005		2.6000e-003	2.6000e-003		2.4000e-003	2.4000e-003	0.0000	6.5488	6.5488	2.0600e-003	0.0000	6.6003
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.7300e-003**	**0.0472**	**0.0491**	**8.0000e-005**		**2.6000e-003**	**2.6000e-003**		**2.4000e-003**	**2.4000e-003**	**0.0000**	**6.5488**	**6.5488**	**2.0600e-003**	**0.0000**	**6.6003**

3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.0000e-004	2.0900e-003	1.0000e-005	6.3000e-004	0.0000	6.4000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5623	0.5623	1.0000e-005	0.0000	0.5627
Total	**2.8000e-004**	**2.0000e-004**	**2.0900e-003**	**1.0000e-005**	**6.3000e-004**	**0.0000**	**6.4000e-004**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.5623**	**0.5623**	**1.0000e-005**	**0.0000**	**0.5627**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.8000e-004	3.8000e-003	0.0541	8.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	6.5488	6.5488	2.0600e-003	0.0000	6.6002
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.8000e-004**	**3.8000e-003**	**0.0541**	**8.0000e-005**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**	**0.0000**	**6.5488**	**6.5488**	**2.0600e-003**	**0.0000**	**6.6002**

3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.0000e-004	2.0900e-003	1.0000e-005	6.3000e-004	0.0000	6.4000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5623	0.5623	1.0000e-005	0.0000	0.5627
Total	**2.8000e-004**	**2.0000e-004**	**2.0900e-003**	**1.0000e-005**	**6.3000e-004**	**0.0000**	**6.4000e-004**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.5623**	**0.5623**	**1.0000e-005**	**0.0000**	**0.5627**

3.7 Architectural Coatings and General Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	8.4058					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0210	0.1594	0.1630	2.5000e-004		0.0110	0.0110		0.0107	0.0107	0.0000	21.3626	21.3626	3.1400e-003	0.0000	21.4412
Total	**8.4268**	**0.1594**	**0.1630**	**2.5000e-004**		**0.0110**	**0.0110**		**0.0107**	**0.0107**	**0.0000**	**21.3626**	**21.3626**	**3.1400e-003**	**0.0000**	**21.4412**

3.7 Architectural Coatings and General Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0633	0.0467	0.4788	1.4200e-003	0.1447	1.0000e-003	0.1457	0.0385	9.3000e-004	0.0394	0.0000	128.6225	128.6225	3.3200e-003	0.0000	128.7056
Total	**0.0633**	**0.0467**	**0.4788**	**1.4200e-003**	**0.1447**	**1.0000e-003**	**0.1457**	**0.0385**	**9.3000e-004**	**0.0394**	**0.0000**	**128.6225**	**128.6225**	**3.3200e-003**	**0.0000**	**128.7056**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	8.4058					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6300e-003	0.0114	0.1622	2.5000e-004		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	21.3626	21.3626	3.1400e-003	0.0000	21.4411
Total	**8.4084**	**0.0114**	**0.1622**	**2.5000e-004**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**	**0.0000**	**21.3626**	**21.3626**	**3.1400e-003**	**0.0000**	**21.4411**

3.7 Architectural Coatings and General Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0633	0.0467	0.4788	1.4200e-003	0.1447	1.0000e-003	0.1457	0.0385	9.3000e-004	0.0394	0.0000	128.6225	128.6225	3.3200e-003	0.0000	128.7056
Total	**0.0633**	**0.0467**	**0.4788**	**1.4200e-003**	**0.1447**	**1.0000e-003**	**0.1457**	**0.0385**	**9.3000e-004**	**0.0394**	**0.0000**	**128.6225**	**128.6225**	**3.3200e-003**	**0.0000**	**128.7056**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.7194	4.8165	15.3778	0.0381	3.1187	0.0343	3.1531	0.8320	0.0320	0.8640	0.0000	3,468.0441	3,468.0441	0.1648	0.0000	3,472.1635
Unmitigated	1.7194	4.8165	15.3778	0.0381	3.1187	0.0343	3.1531	0.8320	0.0320	0.8640	0.0000	3,468.0441	3,468.0441	0.1648	0.0000	3,472.1635

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	4,717.79	3,535.23	2589.18	5,592,570	5,592,570
Day-Care Center	0.00	0.00	0.00		
Enclosed Parking with Elevator	0.00	0.00	0.00		
Regional Shopping Center	3,082.96	2,260.63	1140.63	2,876,523	2,876,523
Total	7,800.76	5,795.86	3,729.82	8,469,093	8,469,093

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments High Rise	7.30	2.00	2.80	31.00	15.00	54.00	86	11	3
Day-Care Center	9.50	7.30	7.30	12.70	82.30	5.00	28	58	14
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Regional Shopping Center	6.30	4.10	5.20	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Day-Care Center	0.558186	0.040947	0.190770	0.110456	0.017401	0.005228	0.022658	0.042795	0.002118	0.002805	0.005569	0.000308	0.000759
Enclosed Parking with Elevator	0.558186	0.040947	0.190770	0.110456	0.017401	0.005228	0.022658	0.042795	0.002118	0.002805	0.005569	0.000308	0.000759
Apartments High Rise	0.601133	0.044097	0.205448	0.118954	0.018740	0.005630	0.000000	0.000000	0.000000	0.000000	0.005997	0.000000	0.000000
Regional Shopping Center	0.561550	0.041194	0.191920	0.111122	0.017506	0.005260	0.022795	0.043053	0.000000	0.000000	0.005603	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,713.2000	2,713.2000	0.1843	0.0381	2,729.1679
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	2,713.2000	2,713.2000	0.1843	0.0381	2,729.1679
NaturalGas Mitigated	0.1018	0.8727	0.3931	5.5500e-003		0.0703	0.0703		0.0703	0.0703	0.0000	1,007.0142	1,007.0142	0.0193	0.0185	1,012.9984
NaturalGas Unmitigated	0.1018	0.8727	0.3931	5.5500e-003		0.0703	0.0703		0.0703	0.0703	0.0000	1,007.0142	1,007.0142	0.0193	0.0185	1,012.9984

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments High Rise	1.78e+007	0.0960	0.8202	0.3490	5.2400e-003		0.0663	0.0663		0.0663	0.0663	0.0000	949.8751	949.8751	0.0182	0.0174	955.5197
Day-Care Center	612350	3.3000e-003	0.0300	0.0252	1.8000e-004		2.2800e-003	2.2800e-003		2.2800e-003	2.2800e-003	0.0000	32.6773	32.6773	6.3000e-004	6.0000e-004	32.8715
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	458396	2.4700e-003	0.0225	0.0189	1.3000e-004		1.7100e-003	1.7100e-003		1.7100e-003	1.7100e-003	0.0000	24.4618	24.4618	4.7000e-004	4.5000e-004	24.6071
Total		**0.1018**	**0.8727**	**0.3931**	**5.5500e-003**		**0.0703**	**0.0703**		**0.0703**	**0.0703**	**0.0000**	**1,007.0142**	**1,007.0142**	**0.0193**	**0.0185**	**1,012.9984**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments High Rise	1.78e+007	0.0960	0.8202	0.3490	5.2400e-003		0.0663	0.0663		0.0663	0.0663	0.0000	949.8751	949.8751	0.0182	0.0174	955.5197
Day-Care Center	612350	3.3000e-003	0.0300	0.0252	1.8000e-004		2.2800e-003	2.2800e-003		2.2800e-003	2.2800e-003	0.0000	32.6773	32.6773	6.3000e-004	6.0000e-004	32.8715
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	458396	2.4700e-003	0.0225	0.0189	1.3000e-004		1.7100e-003	1.7100e-003		1.7100e-003	1.7100e-003	0.0000	24.4618	24.4618	4.7000e-004	4.5000e-004	24.6071
Total		**0.1018**	**0.8727**	**0.3931**	**5.5500e-003**		**0.0703**	**0.0703**		**0.0703**	**0.0703**	**0.0000**	**1,007.0142**	**1,007.0142**	**0.0193**	**0.0185**	**1,012.9984**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	7.03528e +006	1,362.621 3	0.0925	0.0192	1,370.640 7
Day-Care Center	167980	32.5350	2.2100e-003	4.6000e-004	32.7265
Enclosed Parking with Elevator	5.74248e +006	1,112.226 2	0.0755	0.0156	1,118.771 9
Regional Shopping Center	1.06265e +006	205.8175	0.0140	2.8900e-003	207.0288
Total		**2,713.200 0**	**0.1843**	**0.0381**	**2,729.167 9**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	7.03528e+006	1,362.6213	0.0925	0.0192	1,370.6407
Day-Care Center	167980	32.5350	2.2100e-003	4.6000e-004	32.7265
Enclosed Parking with Elevator	5.74248e+006	1,112.2262	0.0755	0.0156	1,118.7719
Regional Shopping Center	1.06265e+006	205.8175	0.0140	2.8900e-003	207.0288
Total		**2,713.2000**	**0.1843**	**0.0381**	**2,729.1679**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	7.2241	0.1343	11.6128	6.1000e-004		0.0638	0.0638		0.0638	0.0638	0.0000	18.9129	18.9129	0.0185	0.0000	19.3757
Unmitigated	7.2241	0.1343	11.6128	6.1000e-004		0.0638	0.0638		0.0638	0.0638	0.0000	18.9129	18.9129	0.0185	0.0000	19.3757

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.8406					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	6.0286					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.3550	0.1343	11.6128	6.1000e-004		0.0638	0.0638		0.0638	0.0638	0.0000	18.9129	18.9129	0.0185	0.0000	19.3757
Total	**7.2241**	**0.1343**	**11.6128**	**6.1000e-004**		**0.0638**	**0.0638**		**0.0638**	**0.0638**	**0.0000**	**18.9129**	**18.9129**	**0.0185**	**0.0000**	**19.3757**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.8406					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	6.0286					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.3550	0.1343	11.6128	6.1000e-004		0.0638	0.0638		0.0638	0.0638	0.0000	18.9129	18.9129	0.0185	0.0000	19.3757
Total	**7.2241**	**0.1343**	**11.6128**	**6.1000e-004**		**0.0638**	**0.0638**		**0.0638**	**0.0638**	**0.0000**	**18.9129**	**18.9129**	**0.0185**	**0.0000**	**19.3757**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	164.2464	0.1165	0.0698	187.9508
Unmitigated	193.0214	0.1448	0.0870	222.5796

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	101.38 / 63.9133	175.5466	0.1329	0.0800	202.6996
Day-Care Center	1.58691 / 4.08064	4.8359	2.2200e-003	1.2800e-003	5.2732
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	7.34948 / 4.50452	12.6388	9.6300e-003	5.8000e-003	14.6068
Total		**193.0214**	**0.1448**	**0.0870**	**222.5796**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	81.1037 / 63.9133	149.1026	0.1069	0.0641	170.8760
Day-Care Center	1.26953 / 4.08064	4.4220	1.8200e-003	1.0300e-003	4.7751
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	5.87958 / 4.50452	10.7218	7.7500e-003	4.6500e-003	12.2997
Total		**164.2464**	**0.1165**	**0.0698**	**187.9508**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	176.2043	10.4134	0.0000	436.5386
Unmitigated	176.2043	10.4134	0.0000	436.5386

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	715.76	145.2928	8.5866	0.0000	359.9568
Day-Care Center	48.1	9.7639	0.5770	0.0000	24.1896
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	104.18	21.1476	1.2498	0.0000	52.3923
Total		**176.2043**	**10.4134**	**0.0000**	**436.5386**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	715.76	145.2928	8.5866	0.0000	359.9568
Day-Care Center	48.1	9.7639	0.5770	0.0000	24.1896
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	104.18	21.1476	1.2498	0.0000	52.3923
Total		**176.2043**	**10.4134**	**0.0000**	**436.5386**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	1	50	2012	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (750 - 9999 HP)	0.0826	0.3691	0.2105	4.0000e-004		0.0121	0.0121		0.0121	0.0121	0.0000	38.3082	38.3082	5.3700e-003	0.0000	38.4425
Total	**0.0826**	**0.3691**	**0.2105**	**4.0000e-004**		**0.0121**	**0.0121**		**0.0121**	**0.0121**	**0.0000**	**38.3082**	**38.3082**	**5.3700e-003**	**0.0000**	**38.4425**

11.0 Vegetation

2100 Telegraph Avenue Project: Maximum Office Scenario

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	2,689.00	1000sqft	3.14	2,689,000.00	8067
Enclosed Parking with Elevator	3,238.00	Space	0.00	1,295,200.00	0
Regional Shopping Center	87.00	1000sqft	0.00	87,000.00	218

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 63

Climate Zone 5 **Operational Year** 2020

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 427 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E's default 2008 CO2 intensity factor updated to the most recent (2013) emission factor verified by a 3rd party in PG&E’s (2015) Greenhouse Gas Emission Factors: Guidance for PG&E Customers.

Land Use - Square footage updated based on project design. Population estimates based on 2.1 persons/residential unit, 3 persons/KSF office, 2.5 persons/KSF retail.

Construction Phase - According to project sponsor, construction expected to last up to 30 months.

Off-road Equipment - Added forklift for general construction activities.

Off-road Equipment - Added crane and drill rig for shoring and piles.

Trips and VMT - Conservatively assuming 1 vendor truck every 5 minutes (96 vendor trucks/8-hour day)

Demolition - Asphalt demo assumption: (Area of pavement)(Depth of pavement)(Density asphalt) = (33 KSF)(0.25 ft)(0.0725 tons/ft^3) = 598 tons
Building demo assumption: (Area of buildings)(CalEEMod conversion factor) = (214.5 KSF)(0.046 tons/ft^2) = 98,670 tons

Grading - Project sponsor anticipates up to 66,000 CY of material export.

Architectural Coating - No exterior paint in the project design.

Vehicle Trips - Trip rates adjusted based on Fehr & Peers (2016) traffic analysis and SCA-TRANS-4 . Average travel distances adjusted based on MTC Travel Model results for project vicnity (TAZ 970).

Consumer Products - ROG emission factor for consumer products reduced by 14.6% based on CARB's 2012 Statewide inventory.

Area Coating - No exterior paint included in the project design.

Energy Use - PG&E's default 2008 CO2 intensity factor updated to the most recent (2013) emission factor verified by a 3rd party in PG&E’s (2015) Greenhouse Gas Emission Factors: Guidance for PG&E Customers.

Water And Wastewater - EBMUD would service the proposed project and applies 100 percent aerobic process and 100 percent cogeneration.

Construction Off-road Equipment Mitigation - SCA-AIR-1 (#19) Enhanced Controls require use of Tier 4 engines. These emission reductions are considered part of the project's unmitigated emissions.

Water Mitigation - CALGreen Code mandatory requirement. These emission reductions are considered part of the project's unmitigated emissions.

Fleet Mix - Project is not expected to generate new bus or mobile home trips.

Stationary Sources - Emergency Generators and Fire Pumps - Emergency generator for elevator. Limited to 50 hours of testing/maintenance per year. Assume maximum 1 hour operation/test day. Maximum Office Scenario = 3,353 HP (2,500kW)

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	1,388,000.00	0.00
tblAreaCoating	Area_Nonresidential_Exterior	1388000	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	18.00	120.00
tblConstructionPhase	NumDays	230.00	360.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	8.00	80.00
tblConstructionPhase	NumDays	18.00	40.00
tblConstructionPhase	NumDays	5.00	10.00
tblConsumerProducts	ROG_EF	2.14E-05	1.83E-05
tblFleetMix	HHD	0.04	0.04
tblFleetMix	HHD	0.04	0.04
tblFleetMix	LDA	0.56	0.56
tblFleetMix	LDA	0.56	0.56
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.19	0.19
tblFleetMix	LDT2	0.19	0.19
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD2	5.2280e-003	5.2600e-003
tblFleetMix	LHD2	5.2280e-003	5.2600e-003
tblFleetMix	MCY	5.5690e-003	5.6030e-003
tblFleetMix	MCY	5.5690e-003	5.6030e-003
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MH	7.5900e-004	0.00
tblFleetMix	MH	7.5900e-004	0.00
tblFleetMix	MHD	0.02	0.02

tblFleetMix	MHD	0.02	0.02
tblFleetMix	OBUS	2.1180e-003	0.00
tblFleetMix	OBUS	2.1180e-003	0.00
tblFleetMix	SBUS	3.0800e-004	0.00
tblFleetMix	SBUS	3.0800e-004	0.00
tblFleetMix	UBUS	2.8050e-003	0.00
tblFleetMix	UBUS	2.8050e-003	0.00
tblGrading	MaterialExported	0.00	66,000.00
tblLandUse	LotAcreage	61.73	3.14
tblLandUse	LotAcreage	29.14	0.00
tblLandUse	LotAcreage	2.00	0.00
tblLandUse	Population	0.00	8,067.00
tblLandUse	Population	0.00	218.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	427
tblProjectCharacteristics	OperationalYear	2018	2020
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	3,353.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	2.00
tblTripsAndVMT	VendorTripNumber	667.00	96.00
tblVehicleTrips	CC_TL	7.30	2.20
tblVehicleTrips	CC_TL	7.30	4.10
tblVehicleTrips	CNW_TL	7.30	5.20
tblVehicleTrips	CNW_TL	7.30	5.20
tblVehicleTrips	CW_TL	9.50	8.40
tblVehicleTrips	CW_TL	9.50	6.30
tblVehicleTrips	ST_TR	2.46	1.12

tblVehicleTrips	ST_TR	49.97	22.78
tblVehicleTrips	SU_TR	1.05	0.48
tblVehicleTrips	SU_TR	25.24	11.51
tblVehicleTrips	WD_TR	11.03	2.72
tblVehicleTrips	WD_TR	42.70	32.01
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.9338	8.3194	6.3589	0.0215	2.3636	0.2512	2.6148	0.5996	0.2341	0.8337	0.0000	1,991.4228	1,991.4228	0.1842	0.0000	1,996.0269
2019	0.9620	4.4978	7.2644	0.0196	1.3711	0.1774	1.5486	0.3664	0.1666	0.5330	0.0000	1,780.2879	1,780.2879	0.1258	0.0000	1,783.4336
2020	10.0056	0.2506	0.6632	1.6600e-003	0.1363	0.0146	0.1509	0.0363	0.0139	0.0502	0.0000	149.0837	149.0837	8.3300e-003	0.0000	149.2919
Maximum	**10.0056**	**8.3194**	**7.2644**	**0.0215**	**2.3636**	**0.2512**	**2.6148**	**0.5996**	**0.2341**	**0.8337**	**0.0000**	**1,991.4228**	**1,991.4228**	**0.1842**	**0.0000**	**1,996.0269**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.5704	4.4044	6.5004	0.0215	2.3636	0.0298	2.3934	0.5996	0.0287	0.6282	0.0000	1,991.4223	1,991.4223	0.1842	0.0000	1,996.0264
2019	0.7124	2.1512	7.3178	0.0196	1.3711	0.0234	1.3945	0.3664	0.0223	0.3887	0.0000	1,780.2875	1,780.2875	0.1258	0.0000	1,783.4333
2020	9.9833	0.0592	0.6674	1.6600e-003	0.1363	1.4100e-003	0.1377	0.0363	1.3400e-003	0.0376	0.0000	149.0837	149.0837	8.3300e-003	0.0000	149.2918
Maximum	**9.9833**	**4.4044**	**7.3178**	**0.0215**	**2.3636**	**0.0298**	**2.3934**	**0.5996**	**0.0287**	**0.6282**	**0.0000**	**1,991.4223**	**1,991.4223**	**0.1842**	**0.0000**	**1,996.0264**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**5.34**	**49.38**	**-1.39**	**0.00**	**0.00**	**87.68**	**9.01**	**0.00**	**87.40**	**25.58**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2018**	**3-31-2018**	3.3074	1.9597
2	**4-1-2018**	**6-30-2018**	2.5722	1.2011
3	**7-1-2018**	**9-30-2018**	1.6361	0.8637
4	**10-1-2018**	**12-31-2018**	1.6852	0.9129
5	**1-1-2019**	**3-31-2019**	1.5001	0.8291
6	**4-1-2019**	**6-30-2019**	1.4743	0.7958
7	**7-1-2019**	**9-30-2019**	1.4905	0.8045
8	**10-1-2019**	**12-31-2019**	0.9996	0.4454
9	**1-1-2020**	**3-31-2020**	4.9715	4.8491
10	**4-1-2020**	**6-30-2020**	5.2832	5.1970
		Highest	5.2832	5.1970

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	10.3521	5.1000e-004	0.0556	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	0.1075	0.1075	2.9000e-004	0.0000	0.1147
Energy	0.2838	2.5795	2.1668	0.0155		0.1960	0.1960		0.1960	0.1960	0.0000	11,330.2108	11,330.2108	0.6326	0.1712	11,397.0526
Mobile	2.1668	12.2034	19.6095	0.0587	4.0715	0.0589	4.1304	1.0901	0.0553	1.1454	0.0000	5,402.4966	5,402.4966	0.3006	0.0000	5,410.0110
Stationary	0.2751	1.2303	0.7015	1.3200e-003		0.0405	0.0405		0.0405	0.0405	0.0000	127.6813	127.6813	0.0179	0.0000	128.1288
Waste						0.0000	0.0000		0.0000	0.0000	526.1769	0.0000	526.1769	31.0962	0.0000	1,303.5811
Water						0.0000	0.0000		0.0000	0.0000	171.3710	661.5968	832.9678	0.6348	0.3820	962.6649
Total	**13.0778**	**16.0137**	**22.5334**	**0.0755**	**4.0715**	**0.2956**	**4.3671**	**1.0901**	**0.2920**	**1.3821**	**697.5479**	**17,522.0930**	**18,219.6409**	**32.6823**	**0.5532**	**19,201.5531**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	10.3521	5.1000e-004	0.0556	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	0.1075	0.1075	2.9000e-004	0.0000	0.1147
Energy	0.2838	2.5795	2.1668	0.0155		0.1960	0.1960		0.1960	0.1960	0.0000	11,330.2108	11,330.2108	0.6326	0.1712	11,397.0526
Mobile	2.1668	12.2034	19.6095	0.0587	4.0715	0.0589	4.1304	1.0901	0.0553	1.1454	0.0000	5,402.4966	5,402.4966	0.3006	0.0000	5,410.0110
Stationary	0.2751	1.2303	0.7015	1.3200e-003		0.0405	0.0405		0.0405	0.0405	0.0000	127.6813	127.6813	0.0179	0.0000	128.1288
Waste						0.0000	0.0000		0.0000	0.0000	526.1769	0.0000	526.1769	31.0962	0.0000	1,303.5811
Water						0.0000	0.0000		0.0000	0.0000	137.0968	569.5270	706.6238	0.5106	0.3061	810.6184
Total	**13.0778**	**16.0137**	**22.5334**	**0.0755**	**4.0715**	**0.2956**	**4.3671**	**1.0901**	**0.2920**	**1.3821**	**663.2737**	**17,430.0232**	**18,093.2969**	**32.5581**	**0.4774**	**19,049.5066**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**4.91**	**0.53**	**0.69**	**0.38**	**13.71**	**0.79**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2018	2/23/2018	5	40	
2	Site Preparation	Site Preparation	2/24/2018	3/9/2018	5	10	
3	Grading, Excavation, Shoring, and Trenching	Grading	3/10/2018	6/29/2018	5	80	
4	Building Construction	Building Construction	6/30/2018	11/15/2019	5	360	
5	Paving	Paving	11/16/2019	1/10/2020	5	40	
6	Architectural Coatings and General Construction	Architectural Coating	1/11/2020	6/26/2020	5	120	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 4,164,000; Non-Residential Outdoor: 0; Striped Parking Area: 77,712 (Architectural Coating – sqft)

OffRoad Equipment

2100 Telegraph Avenue Project: Maximum Office Scenario - Alameda County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading, Excavation, Shoring, and Trenching	Bore/Drill Rigs	1	8.00	221	0.50
Grading, Excavation, Shoring, and Trenching	Cranes	1	8.00	231	0.29
Grading, Excavation, Shoring, and Trenching	Excavators	1	8.00	158	0.38
Grading, Excavation, Shoring, and Trenching	Graders	1	8.00	187	0.41
Grading, Excavation, Shoring, and Trenching	Rubber Tired Dozers	1	8.00	247	0.40
Grading, Excavation, Shoring, and Trenching	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coatings and General Construction	Air Compressors	1	6.00	78	0.48
Architectural Coatings and General Construction	Forklifts	1	6.00	89	0.20

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	9,816.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading, Excavation, Shoring, and Trenchin	8	20.00	0.00	8,250.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	1,432.00	96.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coatings and General Construct	2	286.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0621	0.0000	1.0621	0.1608	0.0000	0.1608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0744	0.7665	0.4461	7.8000e-004		0.0388	0.0388		0.0361	0.0361	0.0000	70.2482	70.2482	0.0194	0.0000	70.7320
Total	**0.0744**	**0.7665**	**0.4461**	**7.8000e-004**	**1.0621**	**0.0388**	**1.1009**	**0.1608**	**0.0361**	**0.1969**	**0.0000**	**70.2482**	**70.2482**	**0.0194**	**0.0000**	**70.7320**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0467	1.6041	0.2657	3.9900e-003	0.0831	6.0600e-003	0.0892	0.0229	5.8000e-003	0.0287	0.0000	383.5836	383.5836	0.0202	0.0000	384.0891
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2600e-003	9.9000e-004	9.8500e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	2.0000e-005	6.5000e-004	0.0000	2.2414	2.2414	7.0000e-005	0.0000	2.2432
Total	**0.0480**	**1.6051**	**0.2755**	**4.0100e-003**	**0.0855**	**6.0800e-003**	**0.0916**	**0.0235**	**5.8200e-003**	**0.0293**	**0.0000**	**385.8250**	**385.8250**	**0.0203**	**0.0000**	**386.3322**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0621	0.0000	1.0621	0.1608	0.0000	0.1608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.2500e-003	0.0401	0.4656	7.8000e-004		1.2300e-003	1.2300e-003		1.2300e-003	1.2300e-003	0.0000	70.2481	70.2481	0.0194	0.0000	70.7319
Total	**9.2500e-003**	**0.0401**	**0.4656**	**7.8000e-004**	**1.0621**	**1.2300e-003**	**1.0634**	**0.1608**	**1.2300e-003**	**0.1620**	**0.0000**	**70.2481**	**70.2481**	**0.0194**	**0.0000**	**70.7319**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0467	1.6041	0.2657	3.9900e-003	0.0831	6.0600e-003	0.0892	0.0229	5.8000e-003	0.0287	0.0000	383.5836	383.5836	0.0202	0.0000	384.0891
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2600e-003	9.9000e-004	9.8500e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	2.0000e-005	6.5000e-004	0.0000	2.2414	2.2414	7.0000e-005	0.0000	2.2432
Total	**0.0480**	**1.6051**	**0.2755**	**4.0100e-003**	**0.0855**	**6.0800e-003**	**0.0916**	**0.0235**	**5.8200e-003**	**0.0293**	**0.0000**	**385.8250**	**385.8250**	**0.0203**	**0.0000**	**386.3322**

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2410	0.1124	1.9000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	17.3800	17.3800	5.4100e-003	0.0000	17.5152
Total	**0.0228**	**0.2410**	**0.1124**	**1.9000e-004**	**0.0903**	**0.0129**	**0.1032**	**0.0497**	**0.0119**	**0.0615**	**0.0000**	**17.3800**	**17.3800**	**5.4100e-003**	**0.0000**	**17.5152**

3.3 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	3.0000e-004	2.9600e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6724	0.6724	2.0000e-005	0.0000	0.6730
Total	**3.8000e-004**	**3.0000e-004**	**2.9600e-003**	**1.0000e-005**	**7.1000e-004**	**1.0000e-005**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6724**	**0.6724**	**2.0000e-005**	**0.0000**	**0.6730**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3300e-003	0.0101	0.1043	1.9000e-004		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	17.3799	17.3799	5.4100e-003	0.0000	17.5152
Total	**2.3300e-003**	**0.0101**	**0.1043**	**1.9000e-004**	**0.0903**	**3.1000e-004**	**0.0906**	**0.0497**	**3.1000e-004**	**0.0500**	**0.0000**	**17.3799**	**17.3799**	**5.4100e-003**	**0.0000**	**17.5152**

3.3 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	3.0000e-004	2.9600e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6724	0.6724	2.0000e-005	0.0000	0.6730
Total	**3.8000e-004**	**3.0000e-004**	**2.9600e-003**	**1.0000e-005**	**7.1000e-004**	**1.0000e-005**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6724**	**0.6724**	**2.0000e-005**	**0.0000**	**0.6730**

3.4 Grading, Excavation, Shoring, and Trenching - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2658	0.0000	0.2658	0.1353	0.0000	0.1353	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1458	1.6676	0.8476	1.7900e-003		0.0786	0.0786		0.0723	0.0723	0.0000	163.7640	163.7640	0.0510	0.0000	165.0386
Total	**0.1458**	**1.6676**	**0.8476**	**1.7900e-003**	**0.2658**	**0.0786**	**0.3444**	**0.1353**	**0.0723**	**0.2076**	**0.0000**	**163.7640**	**163.7640**	**0.0510**	**0.0000**	**165.0386**

3.4 Grading, Excavation, Shoring, and Trenching - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0393	1.3482	0.2233	3.3500e-003	0.0699	5.0900e-003	0.0750	0.0192	4.8700e-003	0.0241	0.0000	322.3884	322.3884	0.0170	0.0000	322.8133
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3500e-003	2.6300e-003	0.0263	7.0000e-005	6.3300e-003	5.0000e-005	6.3700e-003	1.6800e-003	4.0000e-005	1.7300e-003	0.0000	5.9771	5.9771	1.9000e-004	0.0000	5.9818
Total	**0.0426**	**1.3508**	**0.2495**	**3.4200e-003**	**0.0762**	**5.1400e-003**	**0.0813**	**0.0209**	**4.9100e-003**	**0.0258**	**0.0000**	**328.3655**	**328.3655**	**0.0172**	**0.0000**	**328.7950**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2658	0.0000	0.2658	0.1353	0.0000	0.1353	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0220	0.0955	0.9856	1.7900e-003		2.9400e-003	2.9400e-003		2.9400e-003	2.9400e-003	0.0000	163.7638	163.7638	0.0510	0.0000	165.0384
Total	**0.0220**	**0.0955**	**0.9856**	**1.7900e-003**	**0.2658**	**2.9400e-003**	**0.2688**	**0.1353**	**2.9400e-003**	**0.1382**	**0.0000**	**163.7638**	**163.7638**	**0.0510**	**0.0000**	**165.0384**

3.4 Grading, Excavation, Shoring, and Trenching - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0393	1.3482	0.2233	3.3500e-003	0.0699	5.0900e-003	0.0750	0.0192	4.8700e-003	0.0241	0.0000	322.3884	322.3884	0.0170	0.0000	322.8133
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3500e-003	2.6300e-003	0.0263	7.0000e-005	6.3300e-003	5.0000e-005	6.3700e-003	1.6800e-003	4.0000e-005	1.7300e-003	0.0000	5.9771	5.9771	1.9000e-004	0.0000	5.9818
Total	**0.0426**	**1.3508**	**0.2495**	**3.4200e-003**	**0.0762**	**5.1400e-003**	**0.0813**	**0.0209**	**4.9100e-003**	**0.0258**	**0.0000**	**328.3655**	**328.3655**	**0.0172**	**0.0000**	**328.7950**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1755	1.5321	1.1515	1.7600e-003		0.0982	0.0982		0.0924	0.0924	0.0000	155.7375	155.7375	0.0382	0.0000	156.6914
Total	**0.1755**	**1.5321**	**1.1515**	**1.7600e-003**		**0.0982**	**0.0982**		**0.0924**	**0.0924**	**0.0000**	**155.7375**	**155.7375**	**0.0382**	**0.0000**	**156.6914**

3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0312	0.8476	0.1936	1.7600e-003	0.0413	6.0500e-003	0.0473	0.0120	5.7900e-003	0.0177	0.0000	168.6444	168.6444	0.0108	0.0000	168.9142
Worker	0.3931	0.3086	3.0797	7.7600e-003	0.7416	5.4100e-003	0.7470	0.1973	4.9900e-003	0.2023	0.0000	700.7858	700.7858	0.0220	0.0000	701.3353
Total	**0.4243**	**1.1562**	**3.2733**	**9.5200e-003**	**0.7829**	**0.0115**	**0.7944**	**0.2092**	**0.0108**	**0.2200**	**0.0000**	**869.4302**	**869.4302**	**0.0328**	**0.0000**	**870.2495**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0215	0.1464	1.1436	1.7600e-003		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	155.7374	155.7374	0.0382	0.0000	156.6912
Total	**0.0215**	**0.1464**	**1.1436**	**1.7600e-003**		**2.6700e-003**	**2.6700e-003**		**2.6700e-003**	**2.6700e-003**	**0.0000**	**155.7374**	**155.7374**	**0.0382**	**0.0000**	**156.6912**

3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0312	0.8476	0.1936	1.7600e-003	0.0413	6.0500e-003	0.0473	0.0120	5.7900e-003	0.0177	0.0000	168.6444	168.6444	0.0108	0.0000	168.9142
Worker	0.3931	0.3086	3.0797	7.7600e-003	0.7416	5.4100e-003	0.7470	0.1973	4.9900e-003	0.2023	0.0000	700.7858	700.7858	0.0220	0.0000	701.3353
Total	**0.4243**	**1.1562**	**3.2733**	**9.5200e-003**	**0.7829**	**0.0115**	**0.7944**	**0.2092**	**0.0108**	**0.2200**	**0.0000**	**869.4302**	**869.4302**	**0.0328**	**0.0000**	**870.2495**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2704	2.4135	1.9653	3.0800e-003		0.1477	0.1477		0.1389	0.1389	0.0000	269.1943	269.1943	0.0656	0.0000	270.8338
Total	**0.2704**	**2.4135**	**1.9653**	**3.0800e-003**		**0.1477**	**0.1477**		**0.1389**	**0.1389**	**0.0000**	**269.1943**	**269.1943**	**0.0656**	**0.0000**	**270.8338**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0495	1.4058	0.3110	3.0600e-003	0.0722	8.9800e-003	0.0812	0.0209	8.5900e-003	0.0295	0.0000	292.7993	292.7993	0.0180	0.0000	293.2504
Worker	0.6206	0.4734	4.7819	0.0132	1.2964	9.2400e-003	1.3057	0.3449	8.5100e-003	0.3534	0.0000	1,189.2176	1,189.2176	0.0339	0.0000	1,190.0654
Total	**0.6701**	**1.8792**	**5.0928**	**0.0162**	**1.3686**	**0.0182**	**1.3868**	**0.3658**	**0.0171**	**0.3829**	**0.0000**	**1,482.0170**	**1,482.0170**	**0.0520**	**0.0000**	**1,483.3158**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0375	0.2559	1.9992	3.0800e-003		4.6700e-003	4.6700e-003		4.6700e-003	4.6700e-003	0.0000	269.1940	269.1940	0.0656	0.0000	270.8334
Total	**0.0375**	**0.2559**	**1.9992**	**3.0800e-003**		**4.6700e-003**	**4.6700e-003**		**4.6700e-003**	**4.6700e-003**	**0.0000**	**269.1940**	**269.1940**	**0.0656**	**0.0000**	**270.8334**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0495	1.4058	0.3110	3.0600e-003	0.0722	8.9800e-003	0.0812	0.0209	8.5900e-003	0.0295	0.0000	292.7993	292.7993	0.0180	0.0000	293.2504
Worker	0.6206	0.4734	4.7819	0.0132	1.2964	9.2400e-003	1.3057	0.3449	8.5100e-003	0.3534	0.0000	1,189.2176	1,189.2176	0.0339	0.0000	1,190.0654
Total	**0.6701**	**1.8792**	**5.0928**	**0.0162**	**1.3686**	**0.0182**	**1.3868**	**0.3658**	**0.0171**	**0.3829**	**0.0000**	**1,482.0170**	**1,482.0170**	**0.0520**	**0.0000**	**1,483.3158**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0203	0.2042	0.1970	3.0000e-004		0.0115	0.0115		0.0106	0.0106	0.0000	26.7557	26.7557	8.2300e-003	0.0000	26.9615
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0203**	**0.2042**	**0.1970**	**3.0000e-004**		**0.0115**	**0.0115**		**0.0106**	**0.0106**	**0.0000**	**26.7557**	**26.7557**	**8.2300e-003**	**0.0000**	**26.9615**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2100e-003	9.2000e-004	9.3300e-003	3.0000e-005	2.5300e-003	2.0000e-005	2.5500e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.3209	2.3209	7.0000e-005	0.0000	2.3226
Total	**1.2100e-003**	**9.2000e-004**	**9.3300e-003**	**3.0000e-005**	**2.5300e-003**	**2.0000e-005**	**2.5500e-003**	**6.7000e-004**	**2.0000e-005**	**6.9000e-004**	**0.0000**	**2.3209**	**2.3209**	**7.0000e-005**	**0.0000**	**2.3226**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.5100e-003	0.0152	0.2165	3.0000e-004		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	26.7557	26.7557	8.2300e-003	0.0000	26.9615
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.5100e-003**	**0.0152**	**0.2165**	**3.0000e-004**		**4.7000e-004**	**4.7000e-004**		**4.7000e-004**	**4.7000e-004**	**0.0000**	**26.7557**	**26.7557**	**8.2300e-003**	**0.0000**	**26.9615**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2100e-003	9.2000e-004	9.3300e-003	3.0000e-005	2.5300e-003	2.0000e-005	2.5500e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.3209	2.3209	7.0000e-005	0.0000	2.3226
Total	**1.2100e-003**	**9.2000e-004**	**9.3300e-003**	**3.0000e-005**	**2.5300e-003**	**2.0000e-005**	**2.5500e-003**	**6.7000e-004**	**2.0000e-005**	**6.9000e-004**	**0.0000**	**2.3209**	**2.3209**	**7.0000e-005**	**0.0000**	**2.3226**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.7300e-003	0.0472	0.0491	8.0000e-005		2.6000e-003	2.6000e-003		2.4000e-003	2.4000e-003	0.0000	6.5488	6.5488	2.0600e-003	0.0000	6.6003
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.7300e-003**	**0.0472**	**0.0491**	**8.0000e-005**		**2.6000e-003**	**2.6000e-003**		**2.4000e-003**	**2.4000e-003**	**0.0000**	**6.5488**	**6.5488**	**2.0600e-003**	**0.0000**	**6.6003**

3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.0000e-004	2.0900e-003	1.0000e-005	6.3000e-004	0.0000	6.4000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5623	0.5623	1.0000e-005	0.0000	0.5627
Total	**2.8000e-004**	**2.0000e-004**	**2.0900e-003**	**1.0000e-005**	**6.3000e-004**	**0.0000**	**6.4000e-004**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.5623**	**0.5623**	**1.0000e-005**	**0.0000**	**0.5627**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.8000e-004	3.8000e-003	0.0541	8.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	6.5488	6.5488	2.0600e-003	0.0000	6.6002
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.8000e-004**	**3.8000e-003**	**0.0541**	**8.0000e-005**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**	**0.0000**	**6.5488**	**6.5488**	**2.0600e-003**	**0.0000**	**6.6002**

3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.0000e-004	2.0900e-003	1.0000e-005	6.3000e-004	0.0000	6.4000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5623	0.5623	1.0000e-005	0.0000	0.5627
Total	**2.8000e-004**	**2.0000e-004**	**2.0900e-003**	**1.0000e-005**	**6.3000e-004**	**0.0000**	**6.4000e-004**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.5623**	**0.5623**	**1.0000e-005**	**0.0000**	**0.5627**

3.7 Architectural Coatings and General Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	9.9202					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0210	0.1594	0.1630	2.5000e-004		0.0110	0.0110		0.0107	0.0107	0.0000	21.3626	21.3626	3.1400e-003	0.0000	21.4412
Total	**9.9412**	**0.1594**	**0.1630**	**2.5000e-004**		**0.0110**	**0.0110**		**0.0107**	**0.0107**	**0.0000**	**21.3626**	**21.3626**	**3.1400e-003**	**0.0000**	**21.4412**

3.7 Architectural Coatings and General Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0593	0.0438	0.4490	1.3300e-003	0.1357	9.4000e-004	0.1366	0.0361	8.7000e-004	0.0370	0.0000	120.6100	120.6100	3.1100e-003	0.0000	120.6878
Total	**0.0593**	**0.0438**	**0.4490**	**1.3300e-003**	**0.1357**	**9.4000e-004**	**0.1366**	**0.0361**	**8.7000e-004**	**0.0370**	**0.0000**	**120.6100**	**120.6100**	**3.1100e-003**	**0.0000**	**120.6878**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	9.9202					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6300e-003	0.0114	0.1622	2.5000e-004		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	21.3626	21.3626	3.1400e-003	0.0000	21.4411
Total	**9.9229**	**0.0114**	**0.1622**	**2.5000e-004**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**	**0.0000**	**21.3626**	**21.3626**	**3.1400e-003**	**0.0000**	**21.4411**

3.7 Architectural Coatings and General Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0593	0.0438	0.4490	1.3300e-003	0.1357	9.4000e-004	0.1366	0.0361	8.7000e-004	0.0370	0.0000	120.6100	120.6100	3.1100e-003	0.0000	120.6878
Total	**0.0593**	**0.0438**	**0.4490**	**1.3300e-003**	**0.1357**	**9.4000e-004**	**0.1366**	**0.0361**	**8.7000e-004**	**0.0370**	**0.0000**	**120.6100**	**120.6100**	**3.1100e-003**	**0.0000**	**120.6878**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.1668	12.2034	19.6095	0.0587	4.0715	0.0589	4.1304	1.0901	0.0553	1.1454	0.0000	5,402.4966	5,402.4966	0.3006	0.0000	5,410.0110
Unmitigated	2.1668	12.2034	19.6095	0.0587	4.0715	0.0589	4.1304	1.0901	0.0553	1.1454	0.0000	5,402.4966	5,402.4966	0.3006	0.0000	5,410.0110

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	7,314.08	3,011.68	1290.72	8,376,315	8,376,315
Regional Shopping Center	2,784.70	1,982.21	1001.54	2,584,706	2,584,706
Total	10,098.78	4,993.89	2,292.26	10,961,021	10,961,021

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Office Building	8.40	2.20	5.20	33.00	48.00	19.00	77	19	4
Regional Shopping Center	6.30	4.10	5.20	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.561550	0.041194	0.191920	0.111122	0.017506	0.005260	0.022795	0.043053	0.000000	0.000000	0.005603	0.000000	0.000000
Enclosed Parking with Elevator	0.558186	0.040947	0.190770	0.110456	0.017401	0.005228	0.022658	0.042795	0.002118	0.002805	0.005569	0.000308	0.000759
Regional Shopping Center	0.561550	0.041194	0.191920	0.111122	0.017506	0.005260	0.022795	0.043053	0.000000	0.000000	0.005603	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	8,522.0834	8,522.0834	0.5788	0.1198	8,572.2379
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	8,522.0834	8,522.0834	0.5788	0.1198	8,572.2379
NaturalGas Mitigated	0.2838	2.5795	2.1668	0.0155		0.1960	0.1960		0.1960	0.1960	0.0000	2,808.1274	2,808.1274	0.0538	0.0515	2,824.8147
NaturalGas Unmitigated	0.2838	2.5795	2.1668	0.0155		0.1960	0.1960		0.1960	0.1960	0.0000	2,808.1274	2,808.1274	0.0538	0.0515	2,824.8147

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	5.22204e+007	0.2816	2.5598	2.1503	0.0154		0.1946	0.1946		0.1946	0.1946	0.0000	2,786.6783	2,786.6783	0.0534	0.0511	2,803.2382
Regional Shopping Center	401940	2.1700e-003	0.0197	0.0166	1.2000e-004		1.5000e-003	1.5000e-003		1.5000e-003	1.5000e-003	0.0000	21.4491	21.4491	4.1000e-004	3.9000e-004	21.5765
Total		**0.2838**	**2.5795**	**2.1668**	**0.0155**		**0.1961**	**0.1961**		**0.1961**	**0.1961**	**0.0000**	**2,808.1274**	**2,808.1274**	**0.0538**	**0.0515**	**2,824.8147**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	5.22204e+007	0.2816	2.5598	2.1503	0.0154		0.1946	0.1946		0.1946	0.1946	0.0000	2,786.6783	2,786.6783	0.0534	0.0511	2,803.2382
Regional Shopping Center	401940	2.1700e-003	0.0197	0.0166	1.2000e-004		1.5000e-003	1.5000e-003		1.5000e-003	1.5000e-003	0.0000	21.4491	21.4491	4.1000e-004	3.9000e-004	21.5765
Total		**0.2838**	**2.5795**	**2.1668**	**0.0155**		**0.1961**	**0.1961**		**0.1961**	**0.1961**	**0.0000**	**2,808.1274**	**2,808.1274**	**0.0538**	**0.0515**	**2,824.8147**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	8.72965e +006	1,690.792 6	0.1148	0.0238	1,700.743 4
General Office Building	3.43385e +007	6,650.821 9	0.4517	0.0935	6,689.963 6
Regional Shopping Center	931770	180.4689	0.0123	2.5400e-003	181.5310
Total		**8,522.083 4**	**0.5788**	**0.1198**	**8,572.237 9**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	8.72965e +006	1,690.792 6	0.1148	0.0238	1,700.743 4
General Office Building	3.43385e +007	6,650.821 9	0.4517	0.0935	6,689.963 6
Regional Shopping Center	931770	180.4689	0.0123	2.5400e-003	181.5310
Total		**8,522.083 4**	**0.5788**	**0.1198**	**8,572.237 9**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	10.3521	5.1000e-004	0.0556	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	0.1075	0.1075	2.9000e-004	0.0000	0.1147
Unmitigated	10.3521	5.1000e-004	0.0556	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	0.1075	0.1075	2.9000e-004	0.0000	0.1147

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.9920					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	9.3549					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.2300e-003	5.1000e-004	0.0556	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	0.1075	0.1075	2.9000e-004	0.0000	0.1147
Total	**10.3521**	**5.1000e-004**	**0.0556**	**0.0000**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**	**0.0000**	**0.1075**	**0.1075**	**2.9000e-004**	**0.0000**	**0.1147**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.9920					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	9.3549					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.2300e-003	5.1000e-004	0.0556	0.0000		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	0.1075	0.1075	2.9000e-004	0.0000	0.1147
Total	**10.3521**	**5.1000e-004**	**0.0556**	**0.0000**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**	**0.0000**	**0.1075**	**0.1075**	**2.9000e-004**	**0.0000**	**0.1147**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	706.6238	0.5106	0.3061	810.6184
Unmitigated	832.9678	0.6348	0.3820	962.6649

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	477.926 / 292.922	821.8856	0.6263	0.3769	949.8571
Regional Shopping Center	6.44431 / 3.94974	11.0822	8.4500e-003	5.0800e-003	12.8078
Total		**832.9678**	**0.6348**	**0.3820**	**962.6649**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	382.341 / 292.922	697.2225	0.5038	0.3021	799.8335
Regional Shopping Center	5.15545 / 3.94974	9.4013	6.7900e-003	4.0700e-003	10.7849
Total		**706.6238**	**0.5106**	**0.3061**	**810.6184**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	526.1769	31.0962	0.0000	1,303.581 1
Unmitigated	526.1769	31.0962	0.0000	1,303.581 1

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	2500.77	507.6337	30.0003	0.0000	1,257.641 0
Regional Shopping Center	91.35	18.5432	1.0959	0.0000	45.9401
Total		**526.1769**	**31.0962**	**0.0000**	**1,303.581 1**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	2500.77	507.6337	30.0003	0.0000	1,257.641 0
Regional Shopping Center	91.35	18.5432	1.0959	0.0000	45.9401
Total		**526.1769**	**31.0962**	**0.0000**	**1,303.581 1**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	2	1	50	3353	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (750 - 9999 HP)	0.2751	1.2303	0.7015	1.3200e-003		0.0405	0.0405		0.0405	0.0405	0.0000	127.6813	127.6813	0.0179	0.0000	128.1288
Total	**0.2751**	**1.2303**	**0.7015**	**1.3200e-003**		**0.0405**	**0.0405**		**0.0405**	**0.0405**	**0.0000**	**127.6813**	**127.6813**	**0.0179**	**0.0000**	**128.1288**

11.0 Vegetation

2100 Telegraph Avenue Project: All Office Scenario

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	1,450.00	1000sqft	3.14	1,450,000.00	4350
Enclosed Parking with Elevator	1,750.00	Space	0.00	700,000.00	0
Regional Shopping Center	80.00	1000sqft	0.00	80,000.00	200

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 63

Climate Zone 5 **Operational Year** 2020

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 427 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E's default 2008 CO2 intensity factor updated to the most recent (2013) emission factor verified by a 3rd party in PG&E's (2015) Greenhouse Gas Emission Factors: Guidance for PG&E Customers.

Land Use - Square footage updated based on project design. Population estimates based on 2.1 persons/residential unit, 3 persons/KSF office, 2.5 persons/KSF retail.

Construction Phase - According to project sponsor, construction expected to last up to 30 months.

Off-road Equipment - Added forklift for general construction activities.

Off-road Equipment - Added crane and drill rig for shoring and piles.

Trips and VMT - Conservatively assuming 1 vendor truck every 5 minutes (96 vendor trucks/8-hour day)

Demolition - Asphalt demo assumption: (Area of pavement)(Depth of pavement)(Density asphalt) = (33 KSF)(0.25 ft)(0.0725 tons/ft^3) = 598 tons
Building demo assumption: (Area of buildings)(CalEEMod conversion factor) = (214.5 KSF)(0.046 tons/ft^2) = 98,670 tons

Grading - Project sponsor anticipates up to 66,000 CY of material export.

Architectural Coating - No exterior paint in the project design.

Vehicle Trips - Trip rates adjusted based on Fehr & Peers (2016) traffic analysis and SCA-TRANS-4 . Average travel distances adjusted based on MTC Travel Model results for project vicnity (TAZ 970).

Consumer Products - ROG emission factor for consumer products reduced by 14.6% based on CARB's 2012 Statewide inventory.

Area Coating - No exterior paint included in the project design.

Energy Use - PG&E's default 2008 CO2 intensity factor updated to the most recent (2013) emission factor verified by a 3rd party in PG&E's (2015) Greenhouse Gas Emission Factors: Guidance for PG&E Customers.

Water And Wastewater - EBMUD would service the proposed project and applies 100 percent aerobic process and 100 percent cogeneration.

Construction Off-road Equipment Mitigation - SCA-AIR-1 (#19) Enhanced Controls require use of Tier 4 engines. These emission reductions are considered part of the project's unmitigated emissions.

Water Mitigation - CALGreen Code mandatory requirement. These emission reductions are considered part of the project's unmitigated emissions.

Fleet Mix - Project is not expected to generate new bus or mobile home trips.

Stationary Sources - Emergency Generators and Fire Pumps - Emergency generator for elevator. Limited to 50 hours of testing/maintenance per year. Assume maximum 1 hour operation/test day. Maximum Office Scenario = 3,353 HP (2,500kW)

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	765,000.00	0.00
tblAreaCoating	Area_Nonresidential_Exterior	765000	0
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	18.00	120.00
tblConstructionPhase	NumDays	230.00	360.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	8.00	80.00
tblConstructionPhase	NumDays	18.00	40.00
tblConstructionPhase	NumDays	5.00	10.00
tblConsumerProducts	ROG_EF	2.14E-05	1.83E-05
tblFleetMix	HHD	0.04	0.04
tblFleetMix	HHD	0.04	0.04
tblFleetMix	LDA	0.56	0.56
tblFleetMix	LDA	0.56	0.56
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT1	0.04	0.04
tblFleetMix	LDT2	0.19	0.19
tblFleetMix	LDT2	0.19	0.19
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD1	0.02	0.02
tblFleetMix	LHD2	5.2280e-003	5.2600e-003
tblFleetMix	LHD2	5.2280e-003	5.2600e-003
tblFleetMix	MCY	5.5690e-003	5.6030e-003
tblFleetMix	MCY	5.5690e-003	5.6030e-003
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MDV	0.11	0.11
tblFleetMix	MH	7.5900e-004	0.00
tblFleetMix	MH	7.5900e-004	0.00
tblFleetMix	MHD	0.02	0.02

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tblFleetMix	MHD	0.02	0.02
tblFleetMix	OBUS	2.1180e-003	0.00
tblFleetMix	OBUS	2.1180e-003	0.00
tblFleetMix	SBUS	3.0800e-004	0.00
tblFleetMix	SBUS	3.0800e-004	0.00
tblFleetMix	UBUS	2.8050e-003	0.00
tblFleetMix	UBUS	2.8050e-003	0.00
tblGrading	MaterialExported	0.00	66,000.00
tblLandUse	LotAcreage	33.29	3.14
tblLandUse	LotAcreage	15.75	0.00
tblLandUse	LotAcreage	1.84	0.00
tblLandUse	Population	0.00	4,350.00
tblLandUse	Population	0.00	200.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	427
tblProjectCharacteristics	OperationalYear	2018	2020
tblTripsAndVMT	VendorTripNumber	365.00	96.00
tblVehicleTrips	CC_TL	7.30	2.20
tblVehicleTrips	CC_TL	7.30	4.10
tblVehicleTrips	CNW_TL	7.30	5.20
tblVehicleTrips	CNW_TL	7.30	5.20
tblVehicleTrips	CW_TL	9.50	8.40
tblVehicleTrips	CW_TL	9.50	6.30
tblVehicleTrips	ST_TR	2.46	1.12
tblVehicleTrips	ST_TR	49.97	22.78
tblVehicleTrips	SU_TR	1.05	0.48
tblVehicleTrips	SU_TR	25.24	11.51
tblVehicleTrips	WD_TR	11.03	2.72

tblVehicleTrips	WD_TR	42.70	32.01
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.7559	8.1798	4.9653	0.0180	2.0280	0.2487	2.2767	0.5103	0.2319	0.7422	0.0000	1,674.3074	1,674.3074	0.1742	0.0000	1,678.6629
2019	0.6812	4.2836	5.1005	0.0137	0.7845	0.1733	0.9578	0.2104	0.1628	0.3731	0.0000	1,242.1503	1,242.1503	0.1105	0.0000	1,244.9124
2020	5.5233	0.2309	0.4607	1.0600e-003	0.0751	0.0141	0.0892	0.0200	0.0135	0.0335	0.0000	94.6827	94.6827	6.9200e-003	0.0000	94.8558
Maximum	**5.5233**	**8.1798**	**5.1005**	**0.0180**	**2.0280**	**0.2487**	**2.2767**	**0.5103**	**0.2319**	**0.7422**	**0.0000**	**1,674.3074**	**1,674.3074**	**0.1742**	**0.0000**	**1,678.6629**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.3925	4.2647	5.1068	0.0180	2.0280	0.0274	2.0554	0.5103	0.0264	0.5367	0.0000	1,674.3069	1,674.3069	0.1742	0.0000	1,678.6624
2019	0.4316	1.9370	5.1540	0.0137	0.7845	0.0192	0.8037	0.2104	0.0184	0.2288	0.0000	1,242.1500	1,242.1500	0.1105	0.0000	1,244.9121
2020	5.5010	0.0394	0.4649	1.0600e-003	0.0751	9.9000e-004	0.0761	0.0200	9.5000e-004	0.0209	0.0000	94.6827	94.6827	6.9200e-003	0.0000	94.8557
Maximum	**5.5010**	**4.2647**	**5.1540**	**0.0180**	**2.0280**	**0.0274**	**2.0554**	**0.5103**	**0.0264**	**0.5367**	**0.0000**	**1,674.3069**	**1,674.3069**	**0.1742**	**0.0000**	**1,678.6624**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	9.13	50.83	-1.89	0.00	0.00	89.09	11.69	0.00	88.79	31.54	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2018	3-31-2018	3.3074	1.9597
2	4-1-2018	6-30-2018	2.5705	1.1994
3	7-1-2018	9-30-2018	1.4801	0.7077
4	10-1-2018	12-31-2018	1.5098	0.7375
5	1-1-2019	3-31-2019	1.3471	0.6760
6	4-1-2019	6-30-2019	1.3364	0.6579
7	7-1-2019	9-30-2019	1.3511	0.6651
8	10-1-2019	12-31-2019	0.9214	0.3672
9	1-1-2020	3-31-2020	2.7986	2.6762
10	4-1-2020	6-30-2020	2.9522	2.8660
		Highest	3.3074	2.8660

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.7044	2.8000e-004	0.0303	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0586	0.0586	1.6000e-004	0.0000	0.0625
Energy	0.1538	1.3985	1.1747	8.3900e-003		0.1063	0.1063		0.1063	0.1063	0.0000	6,188.4927	6,188.4927	0.3461	0.0935	6,225.0007
Mobile	1.3986	7.8438	12.5087	0.0371	2.5607	0.0373	2.5979	0.6856	0.0350	0.7206	0.0000	3,416.6785	3,416.6785	0.1929	0.0000	3,421.4996
Stationary	0.2751	1.2303	0.7015	1.3200e-003		0.0405	0.0405		0.0405	0.0405	0.0000	127.6813	127.6813	0.0179	0.0000	128.1288
Waste						0.0000	0.0000		0.0000	0.0000	290.7846	0.0000	290.7846	17.1849	0.0000	720.4064
Water						0.0000	0.0000		0.0000	0.0000	93.2762	360.1030	453.3791	0.3455	0.2079	523.9725
Total	**7.5319**	**10.4729**	**14.4153**	**0.0468**	**2.5607**	**0.1841**	**2.7448**	**0.6856**	**0.1819**	**0.8674**	**384.0607**	**10,093.0140**	**10,477.0747**	**18.0874**	**0.3014**	**11,019.0705**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	5.7044	2.8000e-004	0.0303	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0586	0.0586	1.6000e-004	0.0000	0.0625
Energy	0.1538	1.3985	1.1747	8.3900e-003		0.1063	0.1063		0.1063	0.1063	0.0000	6,188.4927	6,188.4927	0.3461	0.0935	6,225.0007
Mobile	1.3986	7.8438	12.5087	0.0371	2.5607	0.0373	2.5979	0.6856	0.0350	0.7206	0.0000	3,416.6785	3,416.6785	0.1929	0.0000	3,421.4996
Stationary	0.2751	1.2303	0.7015	1.3200e-003		0.0405	0.0405		0.0405	0.0405	0.0000	127.6813	127.6813	0.0179	0.0000	128.1288
Waste						0.0000	0.0000		0.0000	0.0000	290.7846	0.0000	290.7846	17.1849	0.0000	720.4064
Water						0.0000	0.0000		0.0000	0.0000	74.6209	309.9900	384.6109	0.2779	0.1666	441.2145
Total	**7.5319**	**10.4729**	**14.4153**	**0.0468**	**2.5607**	**0.1841**	**2.7448**	**0.6856**	**0.1819**	**0.8674**	**365.4055**	**10,042.9010**	**10,408.3065**	**18.0198**	**0.2601**	**10,936.3126**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**4.86**	**0.50**	**0.66**	**0.37**	**13.70**	**0.75**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2018	2/23/2018	5	40	
2	Site Preparation	Site Preparation	2/24/2018	3/9/2018	5	10	
3	Grading, Excavation, Shoring, and Trenching	Grading	3/10/2018	6/29/2018	5	80	
4	Building Construction	Building Construction	6/30/2018	11/15/2019	5	360	
5	Paving	Paving	11/16/2019	1/10/2020	5	40	
6	Architectural Coatings and General Construction	Architectural Coating	1/11/2020	6/26/2020	5	120	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 2,295,000; Non-Residential Outdoor: 0; Striped Parking Area: 42,000 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading, Excavation, Shoring, and Trenching	Bore/Drill Rigs	1	8.00	221	0.50
Grading, Excavation, Shoring, and Trenching	Cranes	1	8.00	231	0.29
Grading, Excavation, Shoring, and Trenching	Excavators	1	8.00	158	0.38
Grading, Excavation, Shoring, and Trenching	Graders	1	8.00	187	0.41
Grading, Excavation, Shoring, and Trenching	Rubber Tired Dozers	1	8.00	247	0.40
Grading, Excavation, Shoring, and Trenching	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coatings and General Construction	Air Compressors	1	6.00	78	0.48
Architectural Coatings and General Construction	Forklifts	1	6.00	89	0.20

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	9,816.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading, Excavation, Shoring, and Trenchin	8	20.00	0.00	8,250.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	784.00	96.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coatings and General Construct	2	157.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0621	0.0000	1.0621	0.1608	0.0000	0.1608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0744	0.7665	0.4461	7.8000e-004		0.0388	0.0388		0.0361	0.0361	0.0000	70.2482	70.2482	0.0194	0.0000	70.7320
Total	**0.0744**	**0.7665**	**0.4461**	**7.8000e-004**	**1.0621**	**0.0388**	**1.1009**	**0.1608**	**0.0361**	**0.1969**	**0.0000**	**70.2482**	**70.2482**	**0.0194**	**0.0000**	**70.7320**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0467	1.6041	0.2657	3.9900e-003	0.0831	6.0600e-003	0.0892	0.0229	5.8000e-003	0.0287	0.0000	383.5836	383.5836	0.0202	0.0000	384.0891
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2600e-003	9.9000e-004	9.8500e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	2.0000e-005	6.5000e-004	0.0000	2.2414	2.2414	7.0000e-005	0.0000	2.2432
Total	**0.0480**	**1.6051**	**0.2755**	**4.0100e-003**	**0.0855**	**6.0800e-003**	**0.0916**	**0.0235**	**5.8200e-003**	**0.0293**	**0.0000**	**385.8250**	**385.8250**	**0.0203**	**0.0000**	**386.3322**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0621	0.0000	1.0621	0.1608	0.0000	0.1608	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.2500e-003	0.0401	0.4656	7.8000e-004		1.2300e-003	1.2300e-003		1.2300e-003	1.2300e-003	0.0000	70.2481	70.2481	0.0194	0.0000	70.7319
Total	**9.2500e-003**	**0.0401**	**0.4656**	**7.8000e-004**	**1.0621**	**1.2300e-003**	**1.0634**	**0.1608**	**1.2300e-003**	**0.1620**	**0.0000**	**70.2481**	**70.2481**	**0.0194**	**0.0000**	**70.7319**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0467	1.6041	0.2657	3.9900e-003	0.0831	6.0600e-003	0.0892	0.0229	5.8000e-003	0.0287	0.0000	383.5836	383.5836	0.0202	0.0000	384.0891
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2600e-003	9.9000e-004	9.8500e-003	2.0000e-005	2.3700e-003	2.0000e-005	2.3900e-003	6.3000e-004	2.0000e-005	6.5000e-004	0.0000	2.2414	2.2414	7.0000e-005	0.0000	2.2432
Total	**0.0480**	**1.6051**	**0.2755**	**4.0100e-003**	**0.0855**	**6.0800e-003**	**0.0916**	**0.0235**	**5.8200e-003**	**0.0293**	**0.0000**	**385.8250**	**385.8250**	**0.0203**	**0.0000**	**386.3322**

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0228	0.2410	0.1124	1.9000e-004		0.0129	0.0129		0.0119	0.0119	0.0000	17.3800	17.3800	5.4100e-003	0.0000	17.5152
Total	**0.0228**	**0.2410**	**0.1124**	**1.9000e-004**	**0.0903**	**0.0129**	**0.1032**	**0.0497**	**0.0119**	**0.0615**	**0.0000**	**17.3800**	**17.3800**	**5.4100e-003**	**0.0000**	**17.5152**

3.3 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	3.0000e-004	2.9600e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6724	0.6724	2.0000e-005	0.0000	0.6730
Total	**3.8000e-004**	**3.0000e-004**	**2.9600e-003**	**1.0000e-005**	**7.1000e-004**	**1.0000e-005**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6724**	**0.6724**	**2.0000e-005**	**0.0000**	**0.6730**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3300e-003	0.0101	0.1043	1.9000e-004		3.1000e-004	3.1000e-004		3.1000e-004	3.1000e-004	0.0000	17.3799	17.3799	5.4100e-003	0.0000	17.5152
Total	**2.3300e-003**	**0.0101**	**0.1043**	**1.9000e-004**	**0.0903**	**3.1000e-004**	**0.0906**	**0.0497**	**3.1000e-004**	**0.0500**	**0.0000**	**17.3799**	**17.3799**	**5.4100e-003**	**0.0000**	**17.5152**

3.3 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	3.0000e-004	2.9600e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.6724	0.6724	2.0000e-005	0.0000	0.6730
Total	**3.8000e-004**	**3.0000e-004**	**2.9600e-003**	**1.0000e-005**	**7.1000e-004**	**1.0000e-005**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.6724**	**0.6724**	**2.0000e-005**	**0.0000**	**0.6730**

3.4 Grading, Excavation, Shoring, and Trenching - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2658	0.0000	0.2658	0.1353	0.0000	0.1353	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1458	1.6676	0.8476	1.7900e-003		0.0786	0.0786		0.0723	0.0723	0.0000	163.7640	163.7640	0.0510	0.0000	165.0386
Total	**0.1458**	**1.6676**	**0.8476**	**1.7900e-003**	**0.2658**	**0.0786**	**0.3444**	**0.1353**	**0.0723**	**0.2076**	**0.0000**	**163.7640**	**163.7640**	**0.0510**	**0.0000**	**165.0386**

3.4 Grading, Excavation, Shoring, and Trenching - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0393	1.3482	0.2233	3.3500e-003	0.0699	5.0900e-003	0.0750	0.0192	4.8700e-003	0.0241	0.0000	322.3884	322.3884	0.0170	0.0000	322.8133
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3500e-003	2.6300e-003	0.0263	7.0000e-005	6.3300e-003	5.0000e-005	6.3700e-003	1.6800e-003	4.0000e-005	1.7300e-003	0.0000	5.9771	5.9771	1.9000e-004	0.0000	5.9818
Total	**0.0426**	**1.3508**	**0.2495**	**3.4200e-003**	**0.0762**	**5.1400e-003**	**0.0813**	**0.0209**	**4.9100e-003**	**0.0258**	**0.0000**	**328.3655**	**328.3655**	**0.0172**	**0.0000**	**328.7950**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2658	0.0000	0.2658	0.1353	0.0000	0.1353	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0220	0.0955	0.9856	1.7900e-003		2.9400e-003	2.9400e-003		2.9400e-003	2.9400e-003	0.0000	163.7638	163.7638	0.0510	0.0000	165.0384
Total	**0.0220**	**0.0955**	**0.9856**	**1.7900e-003**	**0.2658**	**2.9400e-003**	**0.2688**	**0.1353**	**2.9400e-003**	**0.1382**	**0.0000**	**163.7638**	**163.7638**	**0.0510**	**0.0000**	**165.0384**

3.4 Grading, Excavation, Shoring, and Trenching - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0393	1.3482	0.2233	3.3500e-003	0.0699	5.0900e-003	0.0750	0.0192	4.8700e-003	0.0241	0.0000	322.3884	322.3884	0.0170	0.0000	322.8133
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3500e-003	2.6300e-003	0.0263	7.0000e-005	6.3300e-003	5.0000e-005	6.3700e-003	1.6800e-003	4.0000e-005	1.7300e-003	0.0000	5.9771	5.9771	1.9000e-004	0.0000	5.9818
Total	**0.0426**	**1.3508**	**0.2495**	**3.4200e-003**	**0.0762**	**5.1400e-003**	**0.0813**	**0.0209**	**4.9100e-003**	**0.0258**	**0.0000**	**328.3655**	**328.3655**	**0.0172**	**0.0000**	**328.7950**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1755	1.5321	1.1515	1.7600e-003		0.0982	0.0982		0.0924	0.0924	0.0000	155.7375	155.7375	0.0382	0.0000	156.6914
Total	**0.1755**	**1.5321**	**1.1515**	**1.7600e-003**		**0.0982**	**0.0982**		**0.0924**	**0.0924**	**0.0000**	**155.7375**	**155.7375**	**0.0382**	**0.0000**	**156.6914**

3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0312	0.8476	0.1936	1.7600e-003	0.0413	6.0500e-003	0.0473	0.0120	5.7900e-003	0.0177	0.0000	168.6444	168.6444	0.0108	0.0000	168.9142
Worker	0.2152	0.1690	1.6861	4.2500e-003	0.4060	2.9600e-003	0.4090	0.1080	2.7300e-003	0.1107	0.0000	383.6705	383.6705	0.0120	0.0000	383.9713
Total	**0.2465**	**1.0166**	**1.8797**	**6.0100e-003**	**0.4473**	**9.0100e-003**	**0.4563**	**0.1200**	**8.5200e-003**	**0.1285**	**0.0000**	**552.3148**	**552.3148**	**0.0228**	**0.0000**	**552.8855**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0215	0.1464	1.1436	1.7600e-003		2.6700e-003	2.6700e-003		2.6700e-003	2.6700e-003	0.0000	155.7374	155.7374	0.0382	0.0000	156.6912
Total	**0.0215**	**0.1464**	**1.1436**	**1.7600e-003**		**2.6700e-003**	**2.6700e-003**		**2.6700e-003**	**2.6700e-003**	**0.0000**	**155.7374**	**155.7374**	**0.0382**	**0.0000**	**156.6912**

3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0312	0.8476	0.1936	1.7600e-003	0.0413	6.0500e-003	0.0473	0.0120	5.7900e-003	0.0177	0.0000	168.6444	168.6444	0.0108	0.0000	168.9142
Worker	0.2152	0.1690	1.6861	4.2500e-003	0.4060	2.9600e-003	0.4090	0.1080	2.7300e-003	0.1107	0.0000	383.6705	383.6705	0.0120	0.0000	383.9713
Total	**0.2465**	**1.0166**	**1.8797**	**6.0100e-003**	**0.4473**	**9.0100e-003**	**0.4563**	**0.1200**	**8.5200e-003**	**0.1285**	**0.0000**	**552.3148**	**552.3148**	**0.0228**	**0.0000**	**552.8855**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2704	2.4135	1.9653	3.0800e-003		0.1477	0.1477		0.1389	0.1389	0.0000	269.1943	269.1943	0.0656	0.0000	270.8338
Total	**0.2704**	**2.4135**	**1.9653**	**3.0800e-003**		**0.1477**	**0.1477**		**0.1389**	**0.1389**	**0.0000**	**269.1943**	**269.1943**	**0.0656**	**0.0000**	**270.8338**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0495	1.4058	0.3110	3.0600e-003	0.0722	8.9800e-003	0.0812	0.0209	8.5900e-003	0.0295	0.0000	292.7993	292.7993	0.0180	0.0000	293.2504
Worker	0.3398	0.2592	2.6180	7.2100e-003	0.7098	5.0600e-003	0.7148	0.1888	4.6600e-003	0.1935	0.0000	651.0800	651.0800	0.0186	0.0000	651.5442
Total	**0.3893**	**1.6649**	**2.9289**	**0.0103**	**0.7820**	**0.0140**	**0.7960**	**0.2097**	**0.0133**	**0.2230**	**0.0000**	**943.8794**	**943.8794**	**0.0366**	**0.0000**	**944.7946**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0375	0.2559	1.9992	3.0800e-003		4.6700e-003	4.6700e-003		4.6700e-003	4.6700e-003	0.0000	269.1940	269.1940	0.0656	0.0000	270.8334
Total	**0.0375**	**0.2559**	**1.9992**	**3.0800e-003**		**4.6700e-003**	**4.6700e-003**		**4.6700e-003**	**4.6700e-003**	**0.0000**	**269.1940**	**269.1940**	**0.0656**	**0.0000**	**270.8334**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0495	1.4058	0.3110	3.0600e-003	0.0722	8.9800e-003	0.0812	0.0209	8.5900e-003	0.0295	0.0000	292.7993	292.7993	0.0180	0.0000	293.2504
Worker	0.3398	0.2592	2.6180	7.2100e-003	0.7098	5.0600e-003	0.7148	0.1888	4.6600e-003	0.1935	0.0000	651.0800	651.0800	0.0186	0.0000	651.5442
Total	**0.3893**	**1.6649**	**2.9289**	**0.0103**	**0.7820**	**0.0140**	**0.7960**	**0.2097**	**0.0133**	**0.2230**	**0.0000**	**943.8794**	**943.8794**	**0.0366**	**0.0000**	**944.7946**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0203	0.2042	0.1970	3.0000e-004		0.0115	0.0115		0.0106	0.0106	0.0000	26.7557	26.7557	8.2300e-003	0.0000	26.9615
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0203**	**0.2042**	**0.1970**	**3.0000e-004**		**0.0115**	**0.0115**		**0.0106**	**0.0106**	**0.0000**	**26.7557**	**26.7557**	**8.2300e-003**	**0.0000**	**26.9615**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2100e-003	9.2000e-004	9.3300e-003	3.0000e-005	2.5300e-003	2.0000e-005	2.5500e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.3209	2.3209	7.0000e-005	0.0000	2.3226
Total	**1.2100e-003**	**9.2000e-004**	**9.3300e-003**	**3.0000e-005**	**2.5300e-003**	**2.0000e-005**	**2.5500e-003**	**6.7000e-004**	**2.0000e-005**	**6.9000e-004**	**0.0000**	**2.3209**	**2.3209**	**7.0000e-005**	**0.0000**	**2.3226**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.5100e-003	0.0152	0.2165	3.0000e-004		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	26.7557	26.7557	8.2300e-003	0.0000	26.9615
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.5100e-003**	**0.0152**	**0.2165**	**3.0000e-004**		**4.7000e-004**	**4.7000e-004**		**4.7000e-004**	**4.7000e-004**	**0.0000**	**26.7557**	**26.7557**	**8.2300e-003**	**0.0000**	**26.9615**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2100e-003	9.2000e-004	9.3300e-003	3.0000e-005	2.5300e-003	2.0000e-005	2.5500e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.3209	2.3209	7.0000e-005	0.0000	2.3226
Total	**1.2100e-003**	**9.2000e-004**	**9.3300e-003**	**3.0000e-005**	**2.5300e-003**	**2.0000e-005**	**2.5500e-003**	**6.7000e-004**	**2.0000e-005**	**6.9000e-004**	**0.0000**	**2.3209**	**2.3209**	**7.0000e-005**	**0.0000**	**2.3226**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.7300e-003	0.0472	0.0491	8.0000e-005		2.6000e-003	2.6000e-003		2.4000e-003	2.4000e-003	0.0000	6.5488	6.5488	2.0600e-003	0.0000	6.6003
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.7300e-003**	**0.0472**	**0.0491**	**8.0000e-005**		**2.6000e-003**	**2.6000e-003**		**2.4000e-003**	**2.4000e-003**	**0.0000**	**6.5488**	**6.5488**	**2.0600e-003**	**0.0000**	**6.6003**

3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.0000e-004	2.0900e-003	1.0000e-005	6.3000e-004	0.0000	6.4000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5623	0.5623	1.0000e-005	0.0000	0.5627
Total	**2.8000e-004**	**2.0000e-004**	**2.0900e-003**	**1.0000e-005**	**6.3000e-004**	**0.0000**	**6.4000e-004**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.5623**	**0.5623**	**1.0000e-005**	**0.0000**	**0.5627**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.8000e-004	3.8000e-003	0.0541	8.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	6.5488	6.5488	2.0600e-003	0.0000	6.6002
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.8000e-004**	**3.8000e-003**	**0.0541**	**8.0000e-005**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**	**0.0000**	**6.5488**	**6.5488**	**2.0600e-003**	**0.0000**	**6.6002**

3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.0000e-004	2.0900e-003	1.0000e-005	6.3000e-004	0.0000	6.4000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5623	0.5623	1.0000e-005	0.0000	0.5627
Total	**2.8000e-004**	**2.0000e-004**	**2.0900e-003**	**1.0000e-005**	**6.3000e-004**	**0.0000**	**6.4000e-004**	**1.7000e-004**	**0.0000**	**1.7000e-004**	**0.0000**	**0.5623**	**0.5623**	**1.0000e-005**	**0.0000**	**0.5627**

3.7 Architectural Coatings and General Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.4647					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0210	0.1594	0.1630	2.5000e-004		0.0110	0.0110		0.0107	0.0107	0.0000	21.3626	21.3626	3.1400e-003	0.0000	21.4412
Total	**5.4857**	**0.1594**	**0.1630**	**2.5000e-004**		**0.0110**	**0.0110**		**0.0107**	**0.0107**	**0.0000**	**21.3626**	**21.3626**	**3.1400e-003**	**0.0000**	**21.4412**

3.7 Architectural Coatings and General Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0326	0.0240	0.2465	7.3000e-004	0.0745	5.2000e-004	0.0750	0.0198	4.8000e-004	0.0203	0.0000	66.2090	66.2090	1.7100e-003	0.0000	66.2517
Total	**0.0326**	**0.0240**	**0.2465**	**7.3000e-004**	**0.0745**	**5.2000e-004**	**0.0750**	**0.0198**	**4.8000e-004**	**0.0203**	**0.0000**	**66.2090**	**66.2090**	**1.7100e-003**	**0.0000**	**66.2517**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.4647					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6300e-003	0.0114	0.1622	2.5000e-004		3.5000e-004	3.5000e-004		3.5000e-004	3.5000e-004	0.0000	21.3626	21.3626	3.1400e-003	0.0000	21.4411
Total	**5.4673**	**0.0114**	**0.1622**	**2.5000e-004**		**3.5000e-004**	**3.5000e-004**		**3.5000e-004**	**3.5000e-004**	**0.0000**	**21.3626**	**21.3626**	**3.1400e-003**	**0.0000**	**21.4411**

3.7 Architectural Coatings and General Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0326	0.0240	0.2465	7.3000e-004	0.0745	5.2000e-004	0.0750	0.0198	4.8000e-004	0.0203	0.0000	66.2090	66.2090	1.7100e-003	0.0000	66.2517
Total	**0.0326**	**0.0240**	**0.2465**	**7.3000e-004**	**0.0745**	**5.2000e-004**	**0.0750**	**0.0198**	**4.8000e-004**	**0.0203**	**0.0000**	**66.2090**	**66.2090**	**1.7100e-003**	**0.0000**	**66.2517**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.3986	7.8438	12.5087	0.0371	2.5607	0.0373	2.5979	0.6856	0.0350	0.7206	0.0000	3,416.678 5	3,416.678 5	0.1929	0.0000	3,421.499 6
Unmitigated	1.3986	7.8438	12.5087	0.0371	2.5607	0.0373	2.5979	0.6856	0.0350	0.7206	0.0000	3,416.678 5	3,416.678 5	0.1929	0.0000	3,421.499 6

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	3,944.00	1,624.00	696.00	4,516,793	4,516,793
Regional Shopping Center	2,560.80	1,822.40	920.80	2,376,790	2,376,790
Total	6,504.80	3,446.40	1,616.80	6,893,583	6,893,583

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
General Office Building	8.40	2.20	5.20	33.00	48.00	19.00	77	19	4
Regional Shopping Center	6.30	4.10	5.20	16.30	64.70	19.00	54	35	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.561550	0.041194	0.191920	0.111122	0.017506	0.005260	0.022795	0.043053	0.000000	0.000000	0.005603	0.000000	0.000000
Enclosed Parking with Elevator	0.558186	0.040947	0.190770	0.110456	0.017401	0.005228	0.022658	0.042795	0.002118	0.002805	0.005569	0.000308	0.000759
Regional Shopping Center	0.561550	0.041194	0.191920	0.111122	0.017506	0.005260	0.022795	0.043053	0.000000	0.000000	0.005603	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4,666.098 0	4,666.098 0	0.3169	0.0656	4,693.559 1
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	4,666.098 0	4,666.098 0	0.3169	0.0656	4,693.559 1
NaturalGas Mitigated	0.1538	1.3985	1.1747	8.3900e-003		0.1063	0.1063		0.1063	0.1063	0.0000	1,522.394 7	1,522.394 7	0.0292	0.0279	1,531.441 6
NaturalGas Unmitigated	0.1538	1.3985	1.1747	8.3900e-003		0.1063	0.1063		0.1063	0.1063	0.0000	1,522.394 7	1,522.394 7	0.0292	0.0279	1,531.441 6

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	2.8159e+007	0.1518	1.3803	1.1595	8.2800e-003		0.1049	0.1049		0.1049	0.1049	0.0000	1,502.6715	1,502.6715	0.0288	0.0276	1,511.6011
Regional Shopping Center	369600	1.9900e-003	0.0181	0.0152	1.1000e-004		1.3800e-003	1.3800e-003		1.3800e-003	1.3800e-003	0.0000	19.7233	19.7233	3.8000e-004	3.6000e-004	19.8405
Total		**0.1538**	**1.3985**	**1.1747**	**8.3900e-003**		**0.1063**	**0.1063**		**0.1063**	**0.1063**	**0.0000**	**1,522.3947**	**1,522.3947**	**0.0292**	**0.0279**	**1,531.4416**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	2.8159e+007	0.1518	1.3803	1.1595	8.2800e-003		0.1049	0.1049		0.1049	0.1049	0.0000	1,502.6715	1,502.6715	0.0288	0.0276	1,511.6011
Regional Shopping Center	369600	1.9900e-003	0.0181	0.0152	1.1000e-004		1.3800e-003	1.3800e-003		1.3800e-003	1.3800e-003	0.0000	19.7233	19.7233	3.8000e-004	3.6000e-004	19.8405
Total		**0.1538**	**1.3985**	**1.1747**	**8.3900e-003**		**0.1063**	**0.1063**		**0.1063**	**0.1063**	**0.0000**	**1,522.3947**	**1,522.3947**	**0.0292**	**0.0279**	**1,531.4416**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	4.718e +006	913.8008	0.0621	0.0128	919.1788
General Office Building	1.85165e +007	3,586.348 7	0.2436	0.0504	3,607.455 3
Regional Shopping Center	856800	165.9484	0.0113	2.3300e-003	166.9251
Total		**4,666.098 0**	**0.3169**	**0.0656**	**4,693.559 1**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	4.718e +006	913.8008	0.0621	0.0128	919.1788
General Office Building	1.85165e +007	3,586.348 7	0.2436	0.0504	3,607.455 3
Regional Shopping Center	856800	165.9484	0.0113	2.3300e-003	166.9251
Total		**4,666.098 0**	**0.3169**	**0.0656**	**4,693.559 1**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	5.7044	2.8000e-004	0.0303	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0586	0.0586	1.6000e-004	0.0000	0.0625
Unmitigated	5.7044	2.8000e-004	0.0303	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0586	0.0586	1.6000e-004	0.0000	0.0625

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5465					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.1551					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.8500e-003	2.8000e-004	0.0303	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0586	0.0586	1.6000e-004	0.0000	0.0625
Total	**5.7044**	**2.8000e-004**	**0.0303**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**0.0586**	**0.0586**	**1.6000e-004**	**0.0000**	**0.0625**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.5465					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.1551					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.8500e-003	2.8000e-004	0.0303	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	0.0586	0.0586	1.6000e-004	0.0000	0.0625
Total	**5.7044**	**2.8000e-004**	**0.0303**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**0.0586**	**0.0586**	**1.6000e-004**	**0.0000**	**0.0625**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	384.6109	0.2779	0.1666	441.2145
Unmitigated	453.3791	0.3455	0.2079	523.9725

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	257.714 / 157.954	443.1886	0.3377	0.2032	512.1952
Regional Shopping Center	5.9258 / 3.63194	10.1906	7.7700e-003	4.6700e-003	11.7773
Total		**453.3791**	**0.3455**	**0.2079**	**523.9725**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	206.171 / 157.954	375.9660	0.2716	0.1629	431.2974
Regional Shopping Center	4.74064 / 3.63194	8.6449	6.2500e-003	3.7500e-003	9.9171
Total		**384.6109**	**0.2779**	**0.1666**	**441.2145**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	290.7846	17.1849	0.0000	720.4064
Unmitigated	290.7846	17.1849	0.0000	720.4064

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	1348.5	273.7333	16.1772	0.0000	678.1627
Regional Shopping Center	84	17.0512	1.0077	0.0000	42.2437
Total		**290.7846**	**17.1849**	**0.0000**	**720.4064**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	1348.5	273.7333	16.1772	0.0000	678.1627
Regional Shopping Center	84	17.0512	1.0077	0.0000	42.2437
Total		**290.7846**	**17.1849**	**0.0000**	**720.4064**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	2	1	50	3353	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (750 - 9999 HP)	0.2751	1.2303	0.7015	1.3200e-003		0.0405	0.0405		0.0405	0.0405	0.0000	127.6813	127.6813	0.0179	0.0000	128.1288
Total	**0.2751**	**1.2303**	**0.7015**	**1.3200e-003**		**0.0405**	**0.0405**		**0.0405**	**0.0405**	**0.0000**	**127.6813**	**127.6813**	**0.0179**	**0.0000**	**128.1288**

11.0 Vegetation

Summary of ISCST3 Model Parameters, Assumptions, and Results for DPM and $PM_{2.5}$ Emissions during Construction

ISCST3 Model Parameters and Assumptions			
Source Type	**Units**	**Value**	**Notes**
Volume Source: Off-Road Equipment Exhaust (without SCA-AIR-1)			
Hours/Work Day	hours/day	8	
DPM Emission Rate	gram/second	0.01946	Exhaust PM_{10} from off-road equipment
Number of Sources	count	66	SMAQMD, 2015
Emission Rate/Source	gram/second	0.00029	
Release Height	meters	5.0	SMAQMD, 2015
Length of Side	meters	10.0	SMAQMD, 2015
Initial Lateral Dimension	meters	2.3	ISCST3 Calculator
Initial Vertical Dimension	meters	1.0	SMAQMD, 2015
Volume Source: Off-Road Equipment Exhaust (with SCA-AIR-1)			
Hours/Work Day	hours/day	8	
DPM Emission Rate	gram/second	0.00062	Exhaust PM_{10} from off-road equipment
Number of Sources	count	66	SMAQMD, 2015
Emission Rate/Source	gram/second	0.0000094	
Release Height	meters	5.0	SMAQMD, 2015
Length of Side	meters	10.0	SMAQMD, 2015
Initial Lateral Dimension	meters	2.3	ISCST3 Calculator
Initial Vertical Dimension	meters	1.0	SMAQMD, 2015
Line-Area Source: On-Road Vehicle Exhaust			
Hours/Work Day	hours/day	8	
DPM Emission Rate	gram/second	0.00014	Exhaust PM_{10} from off-road vehicles
Number of Sources	count	4	Based on maximum 1 width:10 length ratio
Length of Side	meters	9.0	ISCST3 Calculator
Release Height	meters	3.0	BAAQMD, 2012
Initial Vertical Dimension	meters	2.8	ISCST3 Calculator

ISCST3 Model Results				
Location Type	**Emissions Source**	**Pollutant**	**Annual Average Concentration**	**Notes**
Residential (420 W Grand)	Construction (without SCA-AIR-1)	DPM (µg/m$^{3)}$	0.0560	Second story receptor
		$PM_{2.5}$ (µg/m$^{3)}$	0.0524	Second story receptor
	Construction (with SCA-AIR-1)	DPM (µg/m$^{3)}$	0.0028	Second story receptor
		$PM_{2.5}$ (µg/m$^{3)}$	0.0027	Second story receptor
Pre-school (460 W Grand)	Construction (without SCA-AIR-1)	DPM (µg/m$^{3)}$	0.0601	Ground level receptor
		$PM_{2.5}$ (µg/m$^{3)}$	0.0562	Ground level receptor
	Construction (with SCA-AIR-1)	DPM (µg/m$^{3)}$	0.0036	Ground level receptor
		$PM_{2.5}$ (µg/m$^{3)}$	0.0035	Ground level receptor

Notes:
DPM = diesel particulate matter
PM_{10} = particulate matter with aerodynamic resistance diameters equal to or less than 10 microns
$PM_{2.5}$ = particulate matter with aerodynamic resistance diameters equal to or less than 2.5 microns
µg/m^3 = micrograms per cubic meter
Sacramento Metropolitan Air Quality Management District (SMAQMD), 2015. *Guide to Air Quality Assessment in Sacramento*

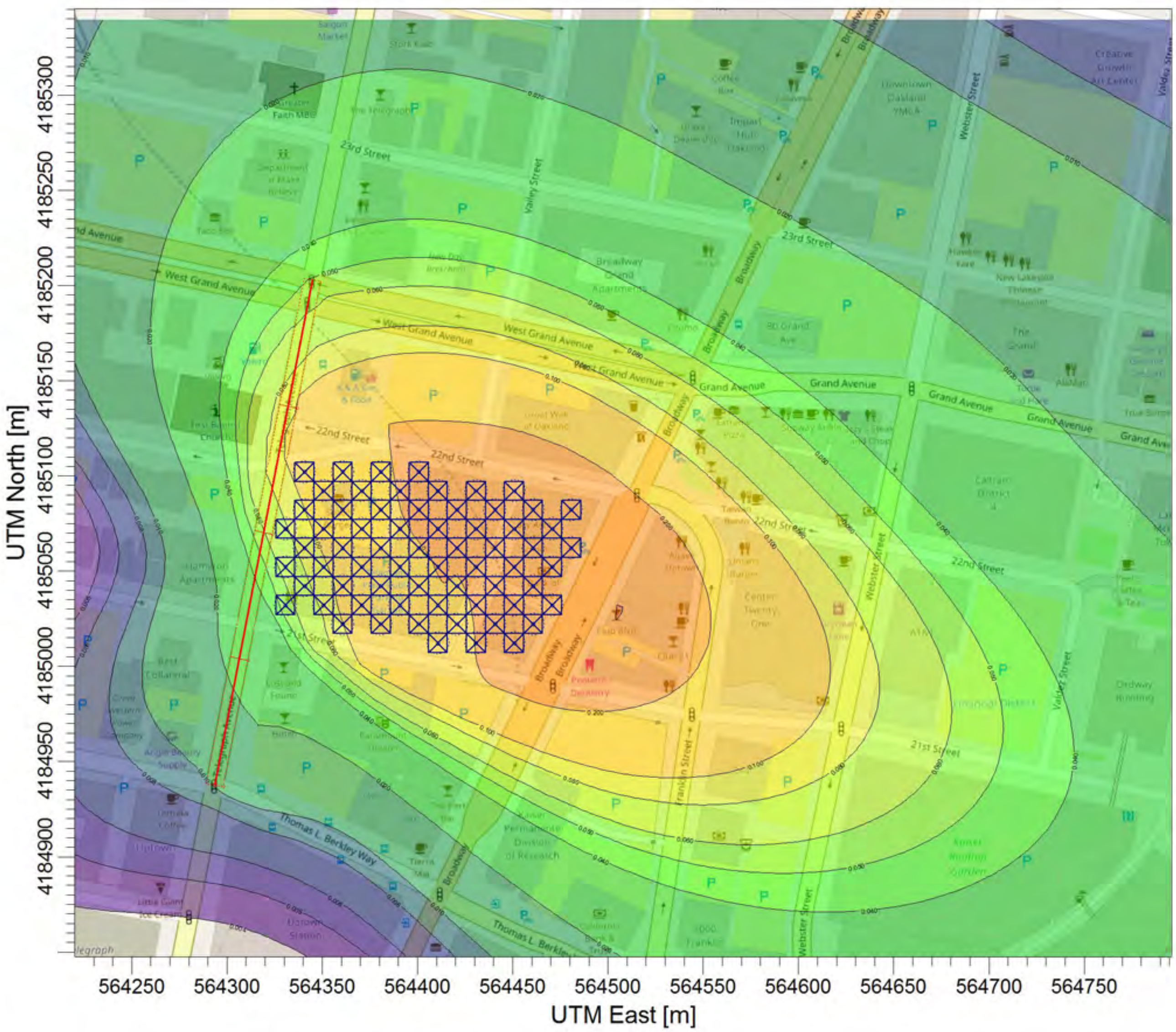
Summary DPM Emissions from On-Road Vehicles Accessing the Project Site

Phase Name	Worker Vehicles Total Trips	Worker Vehicles Emissions (grams)	Vendor Trucks Total Trips	Vendor Trucks Emissions (grams)	Haul Trucks Total Trips	Haul Trucks Emissions (grams)	Total Emissions (grams)	Emission Rate (grams/day)
Demolition	600	1.8	0	0	9,816	237.4	239.2	0.368
Site Preparation	180	0.5	0	0	0	0	0.5	0.001
Grading, Excavation, Shoring, and Trenching	1,600	4.7	0	0	8,250	199.0	203.7	0.313
Building Construction	549,000	1,621.9	34,560.0	609.5	0	0	2,231.5	3.433
Paving	800	2.4	0	0	0	0	2.4	0.004
Architectural Coatings and General Construction	36,600	108.1	0	0	0	0	108.1	0.166
						Grand Total	**2,785.4**	**4.3**

Notes:
Emission estimates include vehicles traveling, idling, and stop/starting along a 0.16-mile segment of Telegraph Avenue adjacent to the project site.
Emission rates are based on total emissions averaged over 650 work days.

PROJECT TITLE:

C:\tao_work_local\16211 UPP 2100 Telegraph\AERMOD\MaxOffice_v2\MaxOf



PLOT FILE OF ANNUAL VALUES FOR SOURCE GROUP: ALL

ug/m^3

Max: 0.405 [ug/m^3] at (564506.69, 4185029.50)

0.004 0.005 0.006 0.008 0.010 0.020 0.040 0.050 0.060 0.080 0.100 0.200 0.400 0.405

COMMENTS:	SOURCES:	COMPANY NAME:	
Maximum Residential Scenario	**67**	**BASELINE Environmental Consulting**	
	RECEPTORS: **3447**		
	OUTPUT TYPE: **Concentration**	SCALE: 1:3,621 0 — 0.1 km	
	MAX: **0.405 ug/m^3**	DATE: **5/22/2017**	PROJECT NO.:

Summary of Health Risk Assessment for DPM Emissions during Construction

Health Risk Assessment Parameters and Results					
DPM Emissions without SCA-AIR-1					
Inhalation Cancer Risk Assessment for DPM	**Units**	**Age Group**			**Notes**
		3rd Trimester	**0-2 Years**	**2-9 Years**	
DPM Concentration (C)	µg/m^3	0.056	0.056	0.056	ISCST3 Annual Average
Daily Breathing Rate (DBR)	L/kg-day	361	1090	861	95th percentile (OEHHA, 2015)
Inhalation absorption factor (A)	unitless	1.0	1.0	1.0	OEHHA, 2015
Exposure Frequency (EF)	unitless	0.96	0.96	0.96	350 days/365 days in a year (OEHHA, 2015)
Dose Conversion Factor (CF_D)	mg-m^3/µg-L	0.000001	0.000001	0.000001	Conversion of µg to mg and L to m^3
Dose	mg/kg/day	0.000019	0.000059	0.000046	C*DBR*A*EF*CF_D (OEHHA, 2015)
Cancer Potency Factor (CPF)	(mg/kg/day)$^{-1}$	1.1	1.1	1.1	OEHHA, 2015
Age Sensitivity Factor (ASF)	unitless	10	10	3	OEHHA, 2015
Annual Exposure Duration (ED)	years	0.25	2.00	0.25	Based on total construction period of 30 months
Averaging Time (AT)	years	70	70	70	70 years for residents (OEHHA, 2015)
Fraction of time at home (FAH)	unitless	0.85	0.85	0.72	OEHHA, 2015
Cancer Risk Conversion Factor (CF)	m^3/L	1000000	1000000	1000000	Chances per million (OEHHA, 2015)
Cancer Risk	per million	0.65	15.64	0.39	D*CPF*ASF*ED/AT*FAH*CF (OEHHA, 2015)
Total Cancer Risk	per million	16.7			At MEIR location
Hazard Index for DPM	**Units**	**Value**	**Notes**		
Chronic REL	µg/m^3	5.0	OEHHA, 2015		
Chronic Hazard Index for DPM	unitless	0.01	At MEIR location		
DPM Emissions with SCA-AIR-1					
Inhalation Cancer Risk Assessment for DPM	**Units**	**Age Group**			**Notes**
		3rd Trimester	**0-2 Years**		
DPM Concentration (C)	µg/m^3	0.003	0.003	0.003	ISCST3 Annual Average
Daily Breathing Rate (DBR)	L/kg-day	361	1090	861	95th percentile (OEHHA, 2015)
Inhalation absorption factor (A)	unitless	1.0	1.0	1.0	OEHHA, 2015
Exposure Frequency (EF)	unitless	0.96	0.96	0.96	350 days/365 days in a year (OEHHA, 2015)
Dose Conversion Factor (CF_D)	mg-m^3/µg-L	0.000001	0.000001	0.000001	Conversion of µg to mg and L to m^3
Dose	mg/kg/day	0.000001	0.000003	0.000002	C*DBR*A*EF*CF_D (OEHHA, 2015)
Cancer Potency Factor (CPF)	(mg/kg/day)$^{-1}$	1.1	1.1	1.1	OEHHA, 2015
Age Sensitivity Factor (ASF)	unitless	10	10	3	OEHHA, 2015
Annual Exposure Duration (ED)	years	0.25	2.00	0.25	Based on total construction period of 30 months
Averaging Time (AT)	years	70	70	70	70 years for residents (OEHHA, 2015)
Fraction of time at home (FAH)	unitless	0.85	0.85	0.72	OEHHA, 2015
Cancer Risk Conversion Factor (CF)	m^3/L	1000000	1000000	1000000	Chances per million (OEHHA, 2015)
Cancer Risk	per million	0.03	0.78	0.02	D*CPF*ASF*ED/AT*FAH*CF (OEHHA, 2015)
Total Cancer Risk	per million	0.8			At MEIR location
Hazard Index for DPM	**Units**	**Value**	**Notes**		
Chronic REL	µg/m^3	5.0	OEHHA, 2015		
Chronic Hazard Index for DPM	unitless	0.0006	At MEIR location		

Notes:

DPM = diesel particulate matter

REL = reference exposure level

µg/m^3 = micrograms per cubic meter

L/kg-day = liters per kilogram-day

m^3/L = cubic meters per liter

(mg/kg/day)$^{-1}$ = 1/milligrams per kilograms per day

MEIR = maximum exposed individual resident

Office of Environmental Health Hazard Assessment (OEHHA), 2015. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February.*

Summary of Health Risk Assessment for DPM Emissions during Construction

Health Risk Assessment Parameters and Results			
DPM Emissions without SCA-AIR-1			
Inhalation Cancer Risk Assessment for DPM	**Units**	**Age Group 2-9 Years**	**Notes**
DPM Concentration (C)	μg/m^3	0.060	ISCST3 Annual Average
Worker Adjustment Factor (WAF)	unitless	4.2	Adjustment factor for 8-hour construction day (OEHHA, 2015)
Daily Breathing Rate (DBR)	L/kg-8 Hr	640	95th percentile, moderate intensity (OEHHA, 2015)
Inhalation absorption factor (A)	unitless	1.0	OEHHA, 2015
Exposure Frequency (EF)	unitless	0.68	250 days/365 days(OEHHA, 2015)
Dose Conversion Factor (CF_D)	mg-m^3/μg-L	0.000001	Conversion of μg to mg and L to m^3
Dose	mg/kg/day	0.000110	C*WAF*DBR*A*EF*CF_D (OEHHA, 2015)
Cancer Potency Factor (CPF)	(mg/kg/day)$^{-1}$	1.1	OEHHA, 2015
Age Sensitivity Factor (ASF)	unitless	3	OEHHA, 2015
Annual Exposure Duration (ED)	years	2.50	Based on total construction period of 30 months
Averaging Time (AT)	years	70	70 years for residents (OEHHA, 2015)
Cancer Risk Conversion Factor (CF)	m^3/L	1000000	Chances per million (OEHHA, 2015)
Cancer Risk	per million	12.9	D*CPF*ASF*ED/AT*CF (OEHHA, 2015)
Hazard Index for DPM	**Units**	**Value**	**Notes**
Chronic REL	μg/m^3	5.0	OEHHA, 2015
Chronic Hazard Index for DPM	unitless	0.01	At MEIR location
DPM Emissions with SCA-AIR-1			
Inhalation Cancer Risk Assessment for DPM	**Units**	**Age Group 2-9 Years**	**Notes**
DPM Concentration (C)	μg/m^3	0.004	ISCST3 Annual Average
Adjustment factor	unitless	4.2	Adjustment factor for 8-hour construction day (OEHHA, 2015)
Daily Breathing Rate (DBR)	L/kg-day	640	95th percentile, moderate intensity (OEHHA, 2015)
Inhalation absorption factor (A)	unitless	1.0	OEHHA, 2015
Exposure Frequency (EF)	unitless	0.68	250 days/365 days(OEHHA, 2015)
Dose Conversion Factor (CF_D)	mg-m^3/μg-L	0.000001	Conversion of μg to mg and L to m^3
Dose	mg/kg/day	0.000007	C*WAF*DBR*A*EF*CF_D (OEHHA, 2015)
Cancer Potency Factor (CPF)	(mg/kg/day)$^{-1}$	1.1	OEHHA, 2015
Age Sensitivity Factor (ASF)	unitless	3	OEHHA, 2015
Annual Exposure Duration (ED)	years	2.50	Based on total construction period of 30 months
Averaging Time (AT)	years	70	70 years for residents (OEHHA, 2015)
Cancer Risk Conversion Factor (CF)	m^3/L	1000000	Chances per million (OEHHA, 2015)
Cancer Risk	per million	0.79	D*CPF*ASF*ED/AT*CF (OEHHA, 2015)
Hazard Index for DPM	**Units**	**Value**	**Notes**
Chronic REL	μg/m^3	5.0	OEHHA, 2015
Chronic Hazard Index for DPM	unitless	0.0007	At MEIR location

Notes:

DPM = diesel particulate matter

REL = reference exposure level

μg/m^3 = micrograms per cubic meter

L/kg-day = liters per kilogram-day

m^3/L = cubic meters per liter

(mg/kg/day)$^{-1}$ = 1/milligrams per kilograms per day

MEIR = maximum exposed individual resident

Office of Environmental Health Hazard Assessment (OEHHA), 2015. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments. February.*

APPENDIX E: Shade and Shadow and Wind Study

PREVISION DESIGN

Proposed Project
Existing (current) Shadows
New Shading by Proposed Project

2100 TELEGRAPH: FINAL DEVELOPMENT PLAN

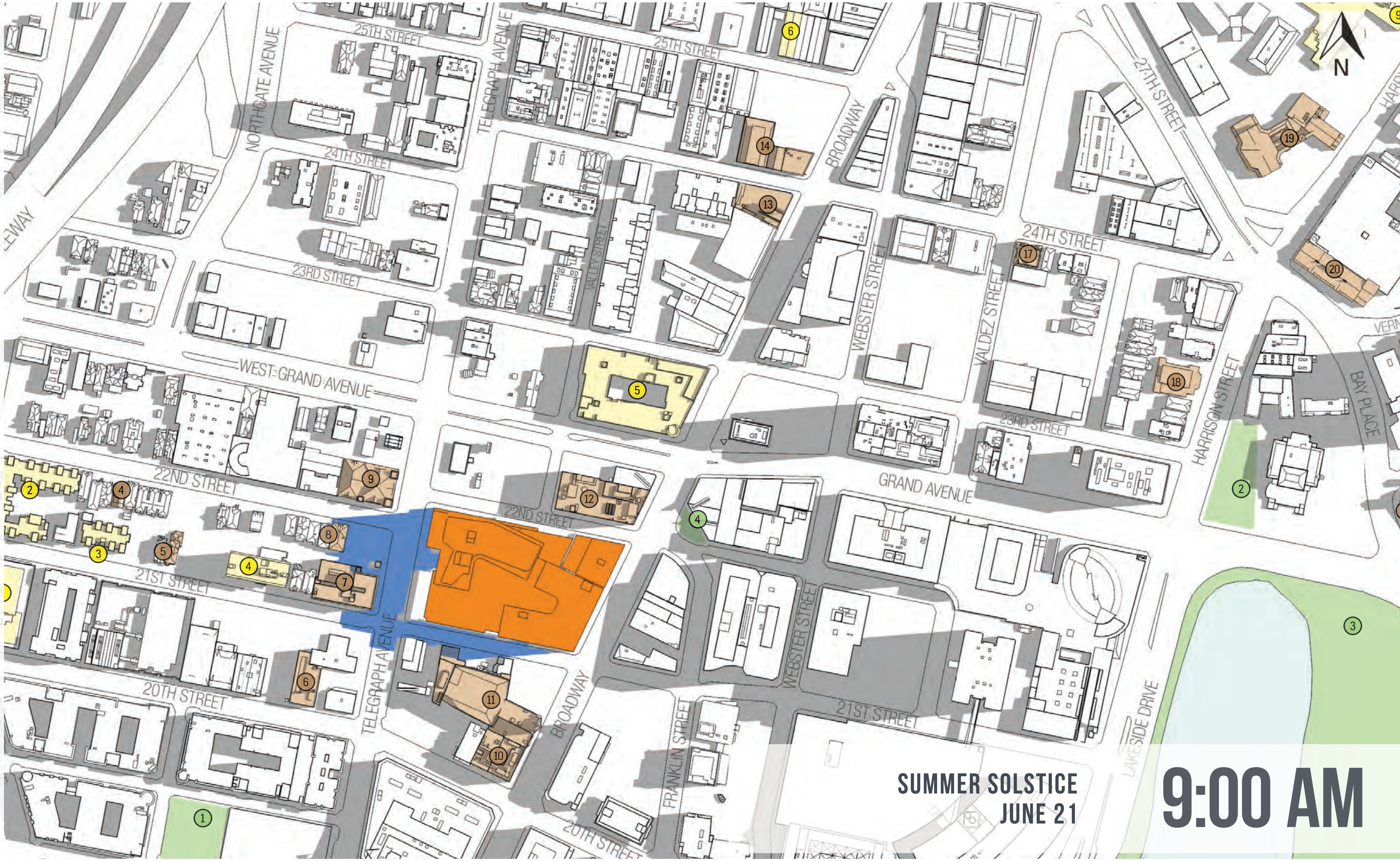
Shading diagrams on the Summer Solstice

A.1-1

Historic Resource Sites
1. 1939-1963 San Pablo Avenue
2. 1926 Martin Luther King Jr Way
3. 1901-1923 San Pablo Avenue
4. 609-611 22nd Street
5. 570 21st Street
6. 518 20th Street
7. 2101 Telegraph
8. 517-523 22nd Street
9. 2201 Telegraph
10. 2001 Broadway
11. 2525 Broadway (Paramount Theatre)
12. 2201 Broadway
13. 415 24th Street
14. 2401 Broadway
15. First Presbyterian Church
16. 2808 Summit Street
17. 2346 Valdez Street
18. 2333 Harrison Street
19. First Congregational Church
20. 230 Bay Place
21. 114 Montecito Avenue
22. Clausen House
23. 2801 Harrison
24. St. Andrew's Church

Solar Collector Sites
1. 2000 San Pablo Avenue
2. 635 22nd Street
3. 618 21st Street
4. 540 21st Street
5. 420 West Grand Ave
6. 426 25th Street
7. 390 27th Street
8. 2600 Valdez Street
9. Westlake Middle School
10. 257 Vernon Street
11. 444 28th Street

Public Parks
1. Henry J. Kaiser Memorial Park
2. Adams Park
3. Lakeside Park
4. Franklin Plaza



SUMMER SOLSTICE
JUNE 21

9:00 AM

PREVISION DESIGN

2100 TELEGRAPH: FINAL DEVELOPMENT PLAN + CUMULATIVE

A.1-1C

Cumulative shading diagrams on the Summer Solstice

- Proposed Project
- Existing (current) Shadows
- New Shading by Proposed Project
- New Shading from Cumulative Projects

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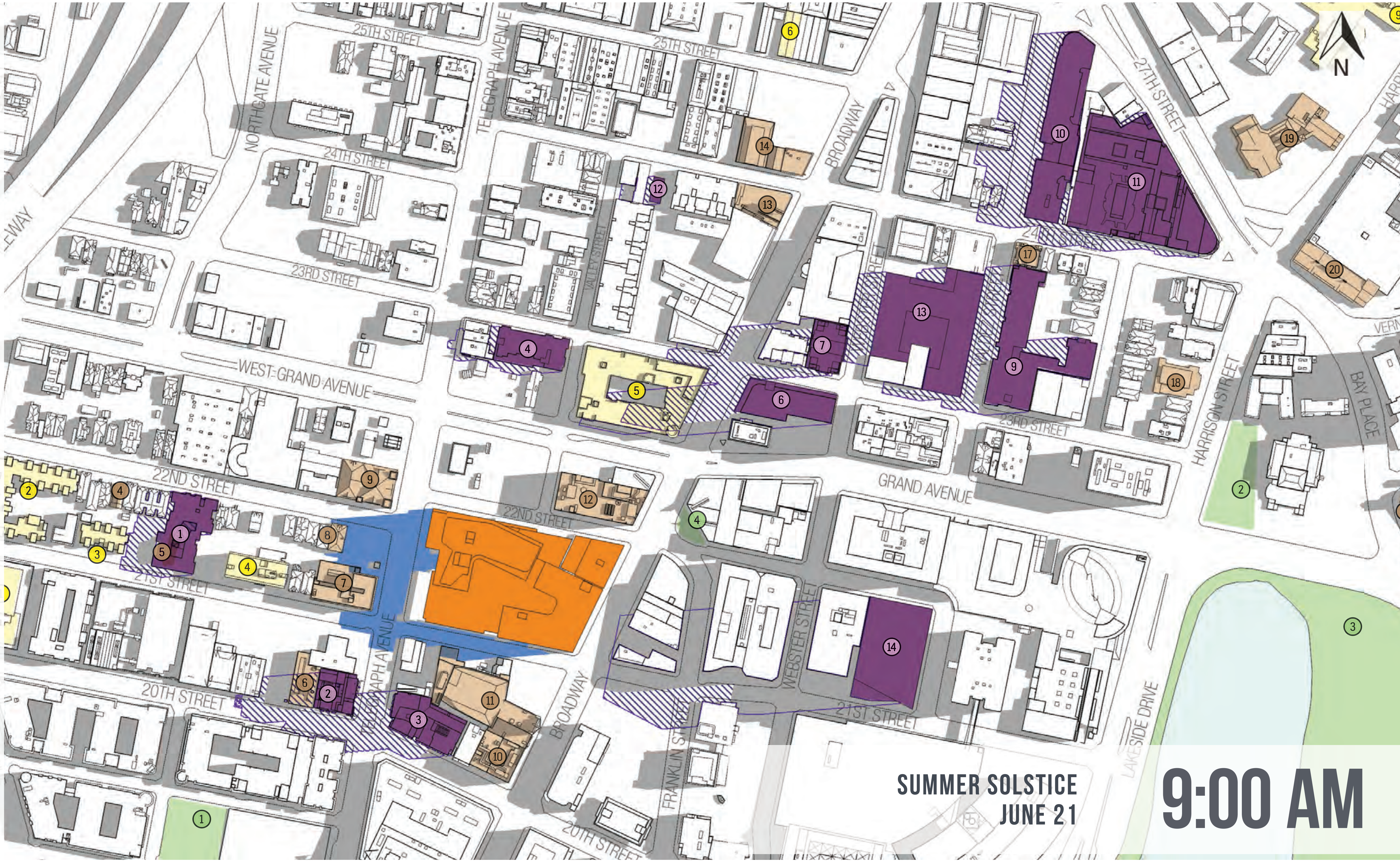
11. 24th & Harrison
12. 2345 Broadway
13. 2315 Valdez Street
14. 2 Kaiser Plaza



SUMMER SOLSTICE
JUNE 21

9:00 AM

PREVISION DESIGN

Proposed Project
Existing (current) Shadows
New Shading by Proposed Project

2100 TELEGRAPH: FINAL DEVELOPMENT PLAN

Shading diagrams on the Summer Solstice

A.1-2

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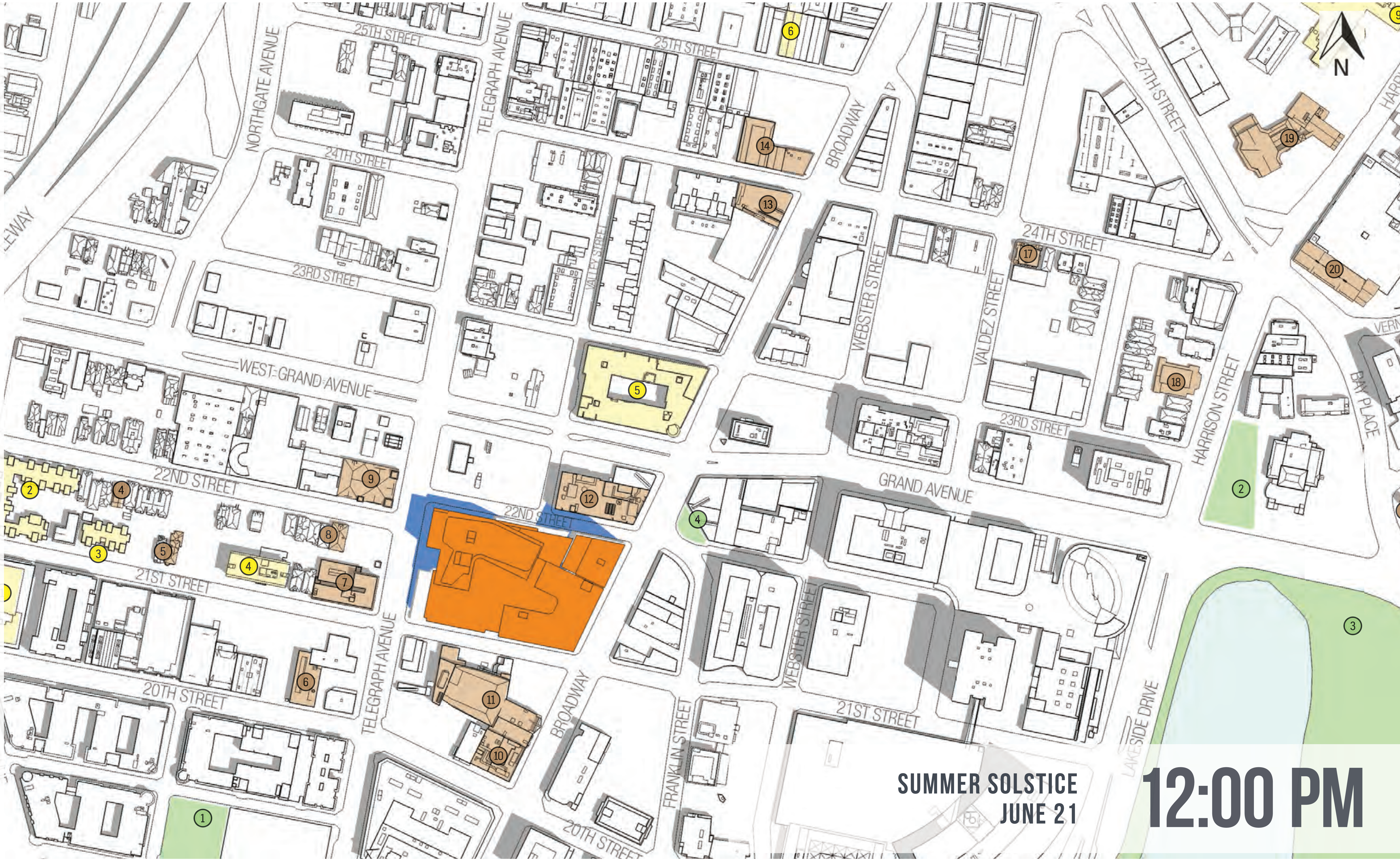

SUMMER SOLSTICE
JUNE 21

12:00 PM

PREVISION DESIGN

2100 TELEGRAPH: FINAL DEVELOPMENT PLAN + CUMULATIVE

Cumulative shading diagrams on the Summer Solstice

A.1-2C

- Proposed Project
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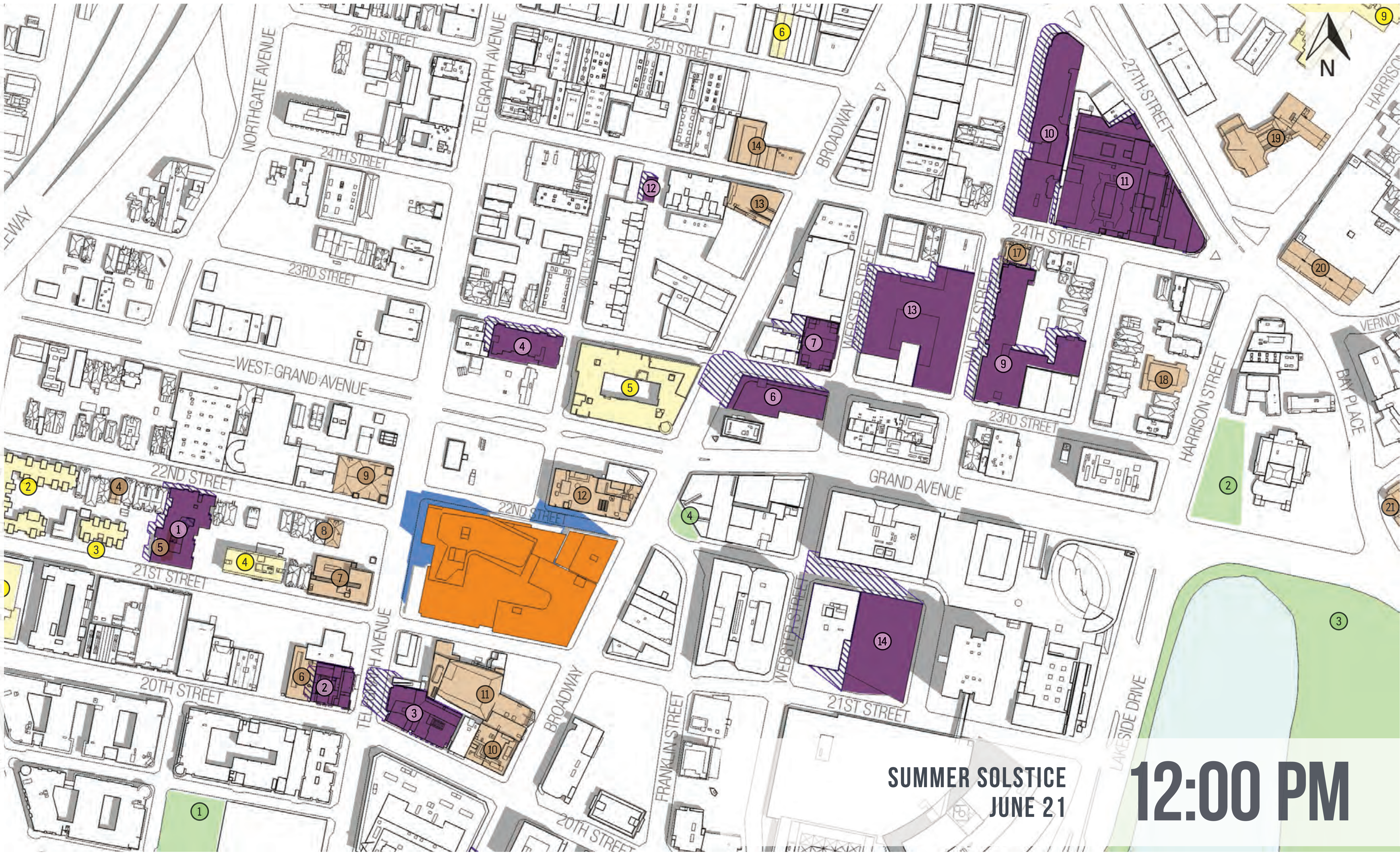

SUMMER SOLSTICE
JUNE 21

12:00 PM

PREVISION DESIGN

Proposed Project
Existing (current) Shadows
New Shading by Proposed Project

2100 TELEGRAPH: FINAL DEVELOPMENT PLAN

Shading diagrams on the Summer Solstice

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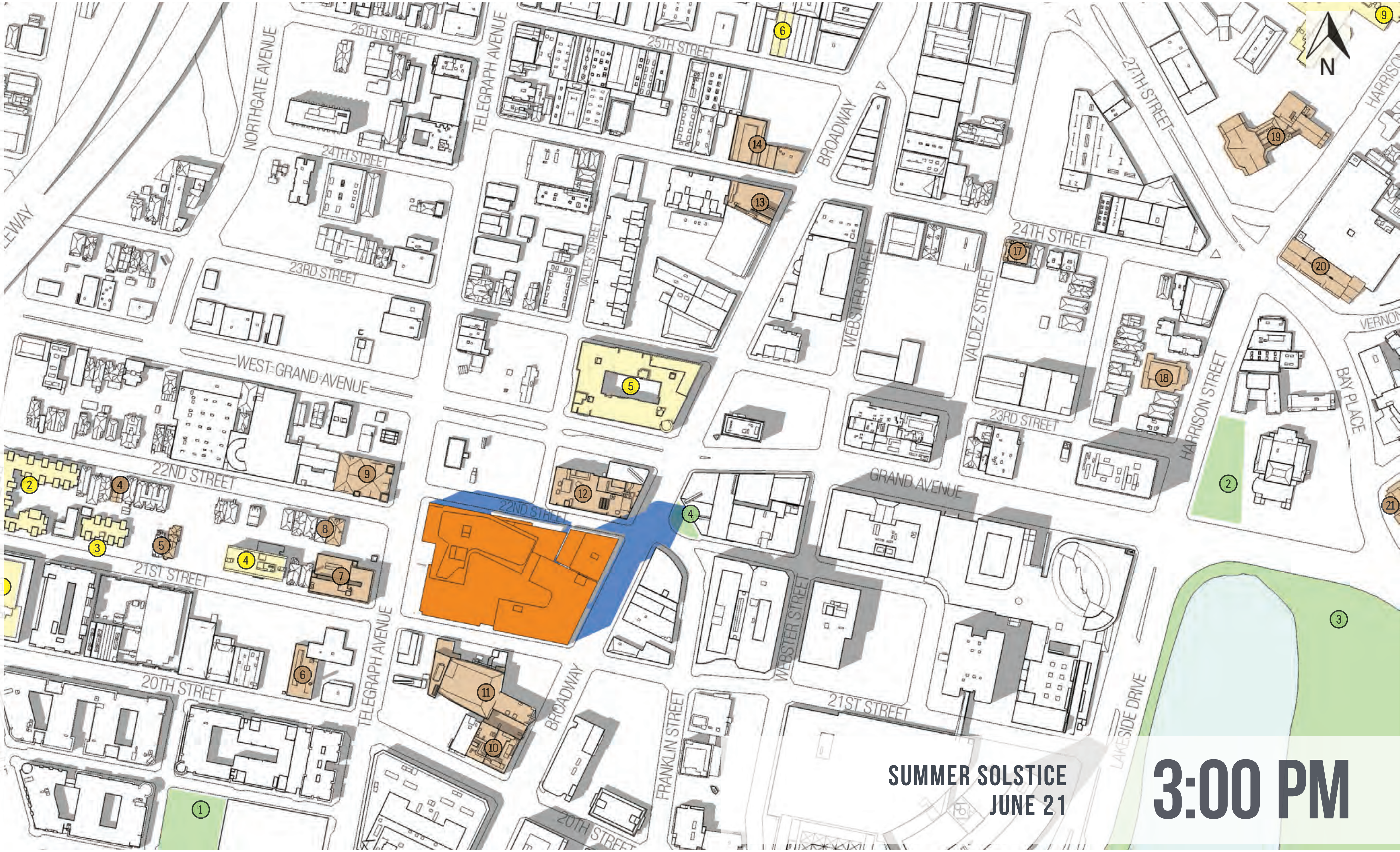

SUMMER SOLSTICE
JUNE 21

3:00 PM

PREVISION DESIGN

Proposed Project
Existing (current) Shadows
New Shading by Proposed Project
New Shading from Cumulative Projects

2100 TELEGRAPH: FINAL DEVELOPMENT PLAN + CUMULATIVE

Cumulative shading diagrams on the Summer Solstice

A.1-3C

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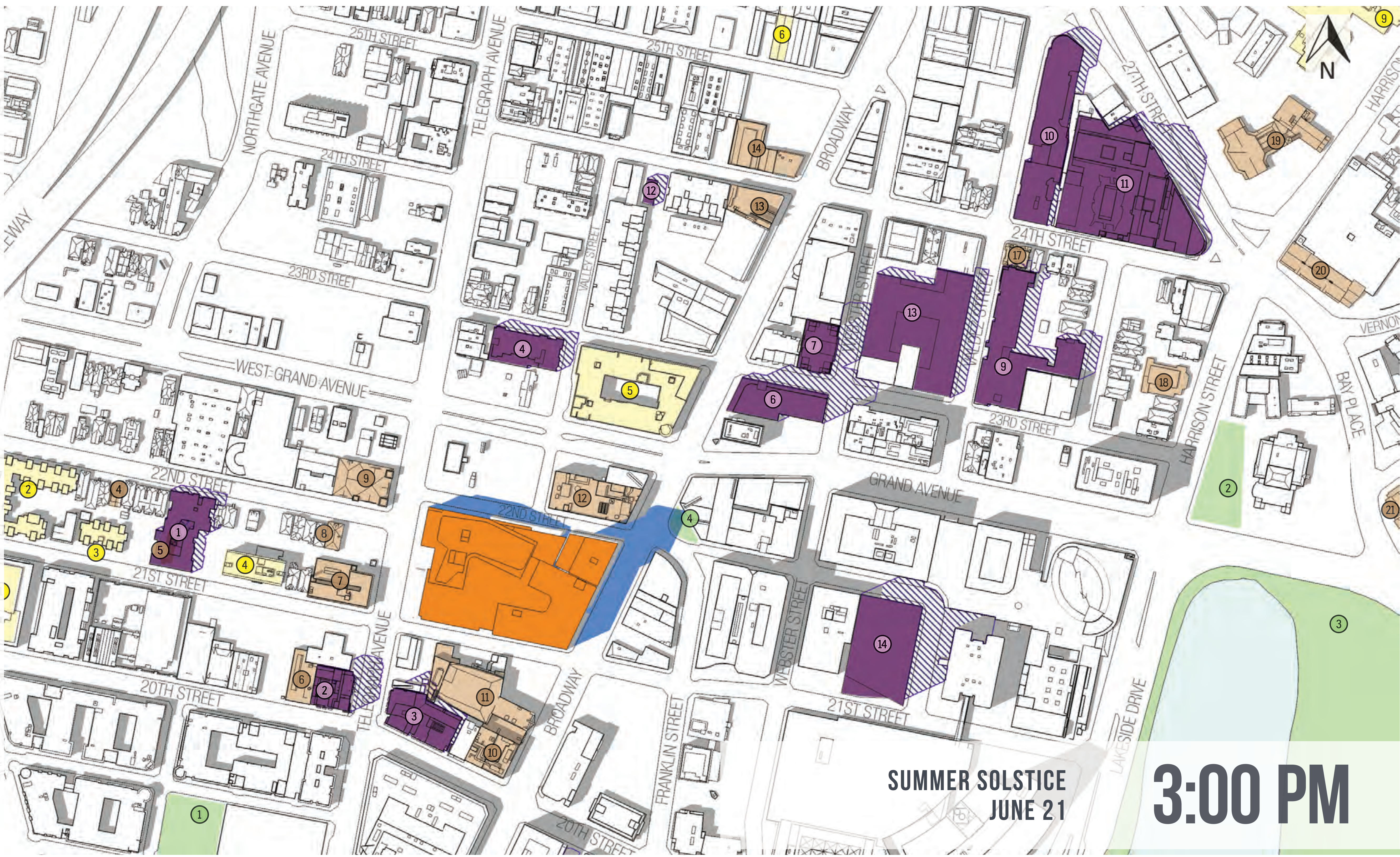

PREVISION DESIGN

Proposed Project
Existing (current) Shadows
New Shading by Proposed Project

2100 TELEGRAPH: FINAL DEVELOPMENT PLAN

Shading diagrams on the Vernal/Autumnal Equinoxes

A.2-1

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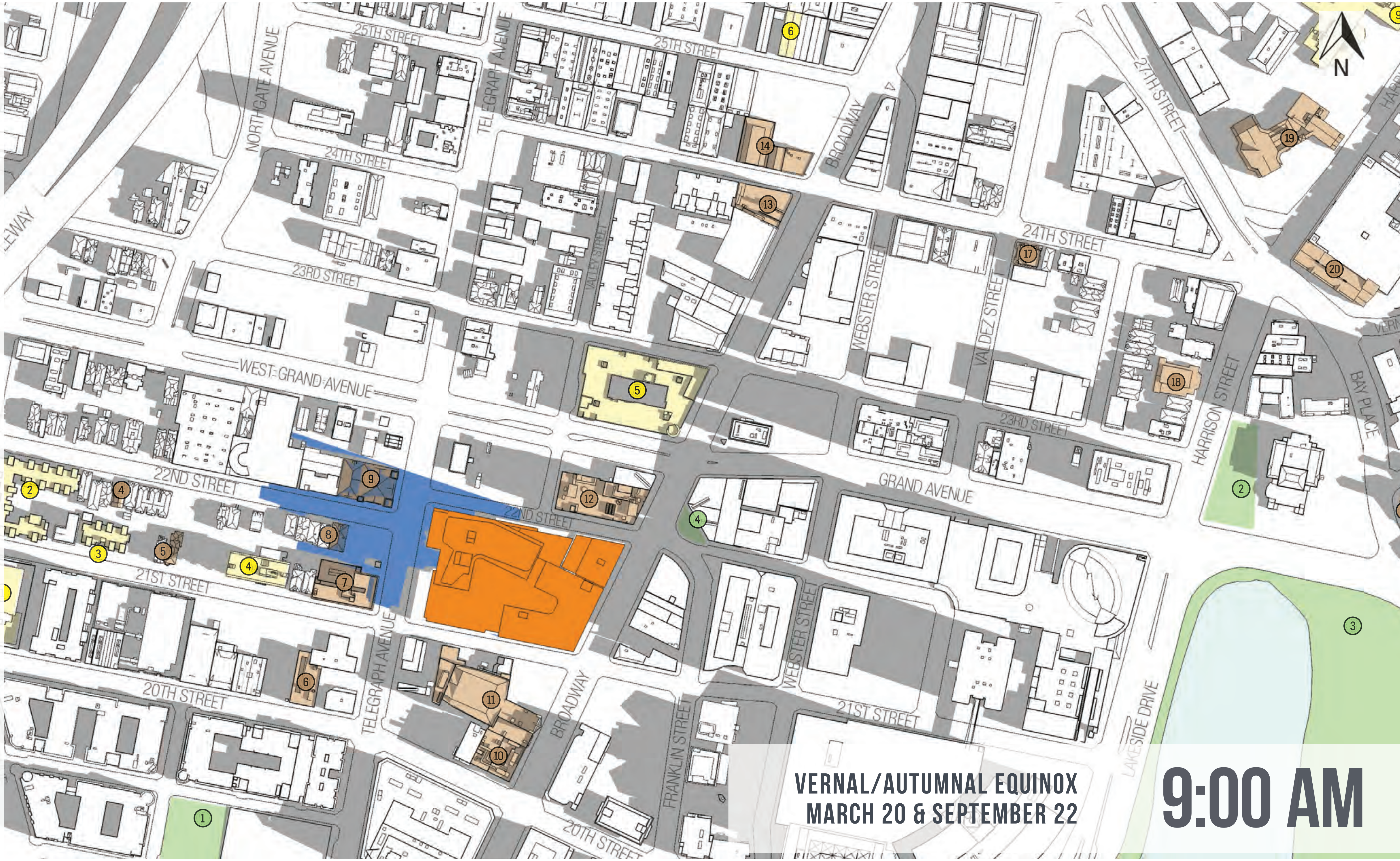

VERNAL/AUTUMNAL EQUINOX
MARCH 20 & SEPTEMBER 22

9:00 AM

PREVISION DESIGN

2100 TELEGRAPH: FINAL DEVELOPMENT PLAN + CUMULATIVE

Cumulative shading diagrams on the Vernal/Autumnal Equinoxes

A.2-1C

- Proposed Project
- Existing (current) Shadows
- New Shading by Proposed Project
- New Shading from Cumulative Projects

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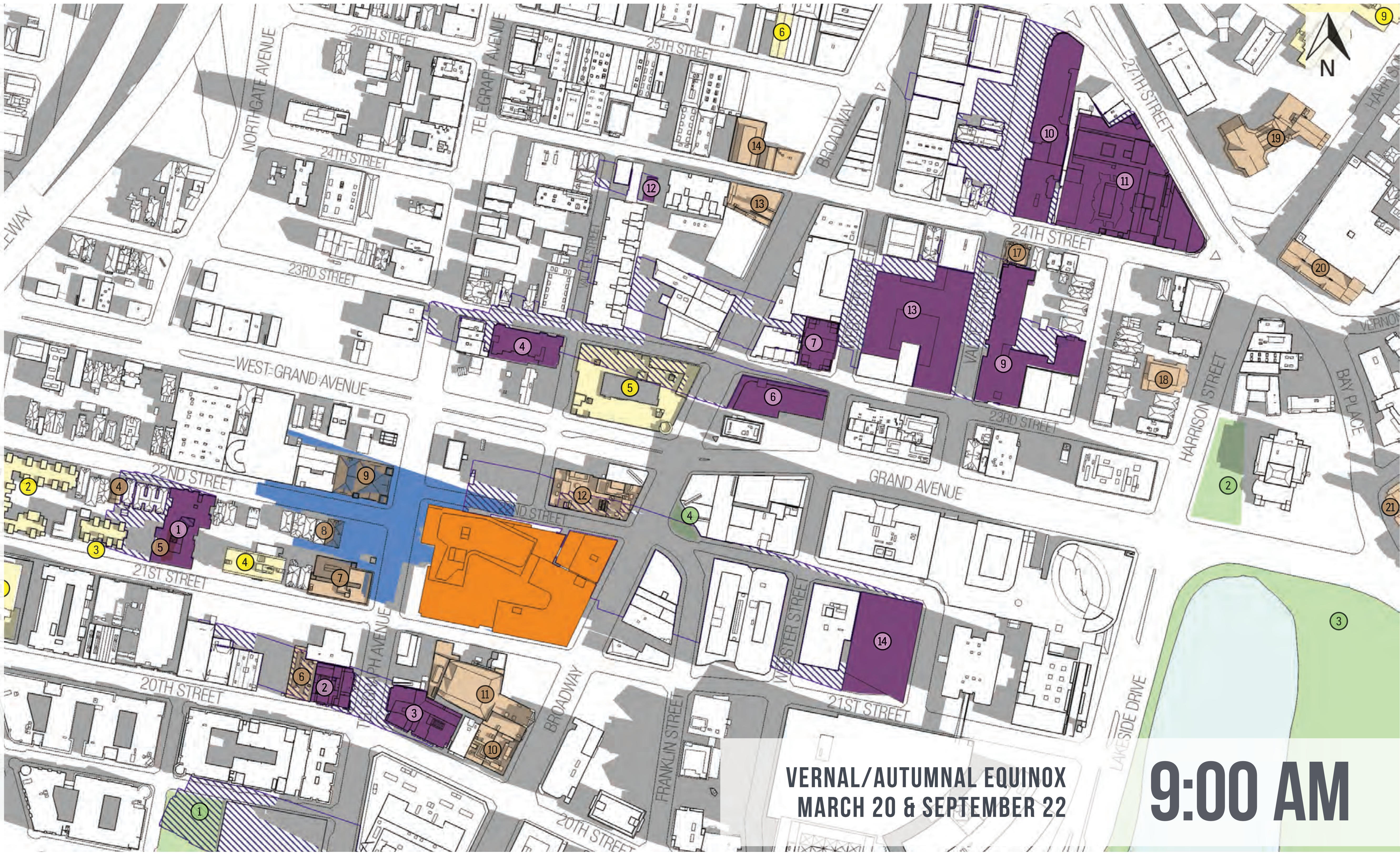
12. 2345 Broadway
13. 2315 Valdez Street
14. 2 Kaiser Plaza



VERNAL/AUTUMNAL EQUINOX
MARCH 20 & SEPTEMBER 22

9:00 AM

PREVISION DESIGN

- Proposed Project
- Existing (current) Shadows
- New Shading by Proposed Project

2100 TELEGRAPH: FINAL DEVELOPMENT PLAN

Shading diagrams on the Vernal/Autumnal Equinoxes

A.2-2

Historic Resource Sites
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24. St. Andrew's Church

Solar Collector Sites
1. 2000 San Pablo Avenue
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10. 257 Vernon Street
11. 444 28th Street

Public Parks
1. Henry J. Kaiser Memorial Park
2. Adams Park
3. Lakeside Park
4. Franklin Plaza

PREVISION DESIGN

- Proposed Project
- Existing (current) Shadows
- New Shading by Proposed Project
- New Shading from Cumulative Projects

2100 TELEGRAPH: FINAL DEVELOPMENT PLAN + CUMULATIVE

Cumulative shading diagrams on the Vernal/Autumnal Equinoxes

A.2-2C

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PREVISION DESIGN

Proposed Project
Existing (current) Shadows
New Shading by Proposed Project

2100 TELEGRAPH: FINAL DEVELOPMENT PLAN

Shading diagrams on the Vernal/Autumnal Equinoxes

A.2-3

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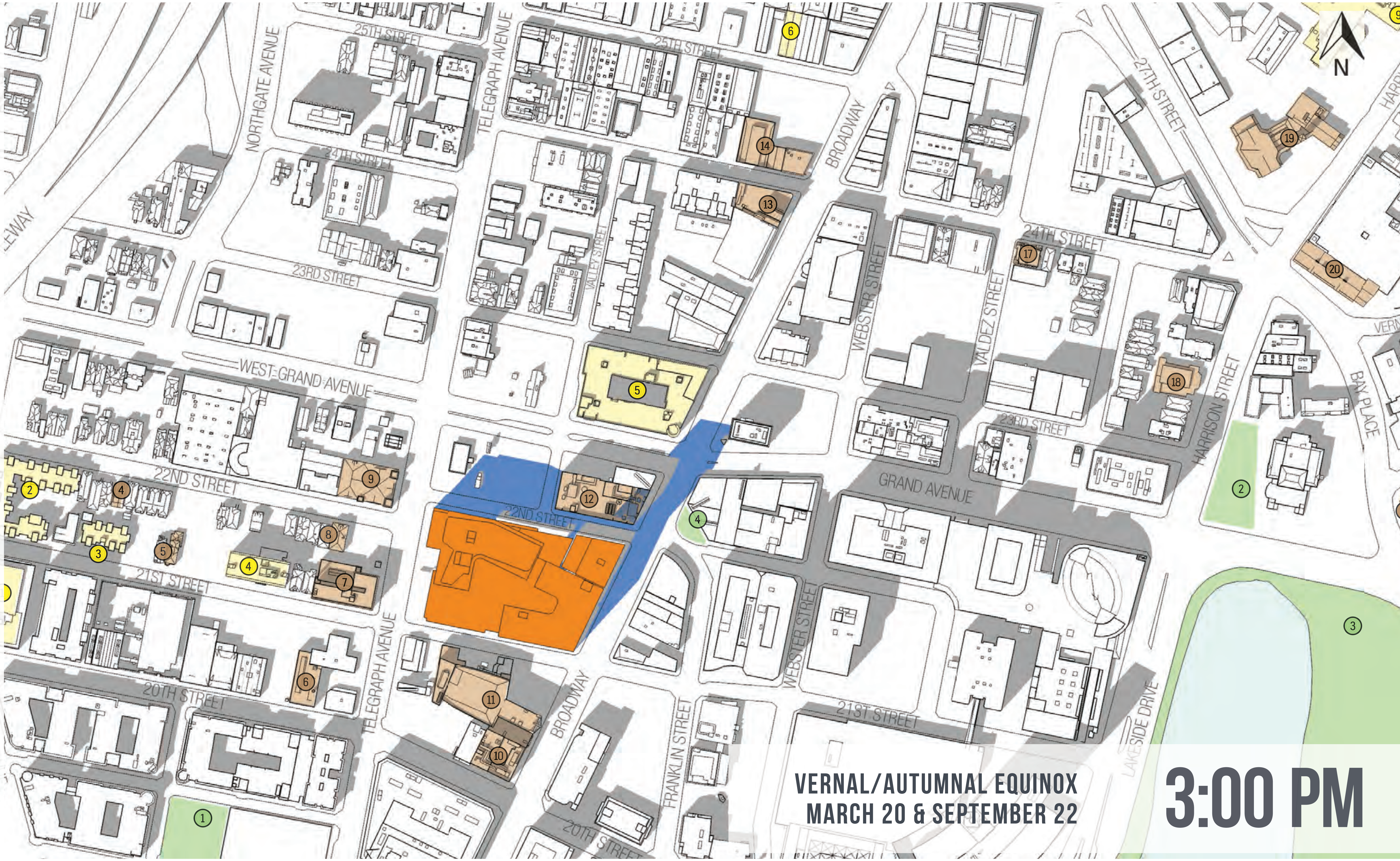

PREVISION DESIGN

2100 TELEGRAPH: FINAL DEVELOPMENT PLAN + CUMULATIVE

Cumulative shading diagrams on the Vernal/Autumnal Equinoxes

A.2-3C

- Proposed Project
- Existing (current) Shadows
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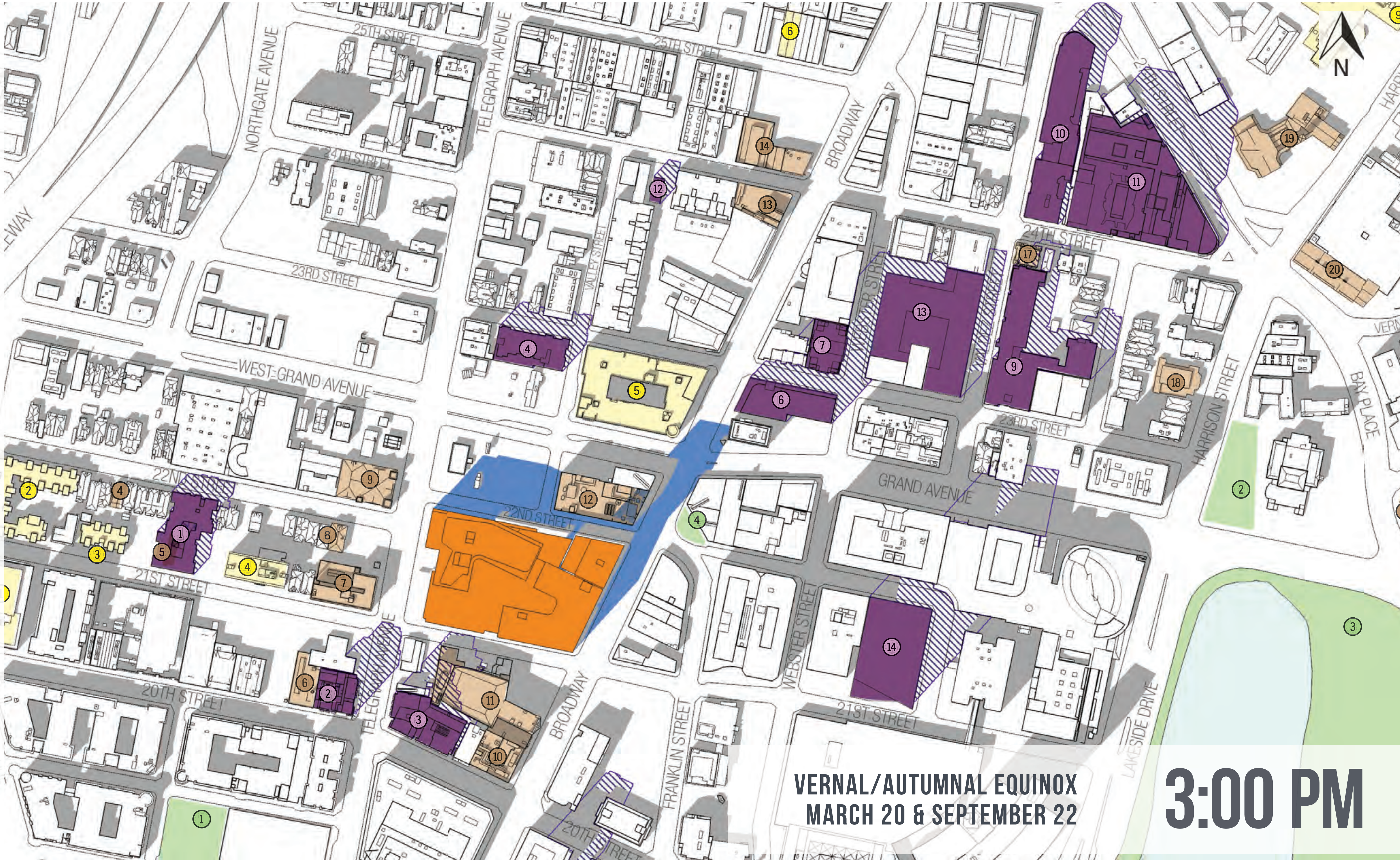

PREVISION DESIGN

- Proposed Project
- Existing (current) Shadows
- New Shading by Proposed Project

2100 TELEGRAPH: FINAL DEVELOPMENT PLAN

Shading diagrams on the Winter Solstice

A.3-1

WINTER SOLSTICE
DECEMBER 21

9:00 AM

PREVISION DESIGN

- Proposed Project
- Existing (current) Shadows
- New Shading by Proposed Project
- New Shading from Cumulative Projects

2100 TELEGRAPH: FINAL DEVELOPMENT PLAN + CUMULATIVE

Cumulative shading diagrams on the Winter Solstice

A.3-1C

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WINTER SOLSTICE
DECEMBER 21

9:00 AM

PREVISION DESIGN

2100 TELEGRAPH: FINAL DEVELOPMENT PLAN

Shading diagrams on the Winter Solstice

A.3-2

PREVISION DESIGN

- Proposed Project
- Existing (current) Shadows
- New Shading by Proposed Project
- New Shading from Cumulative Projects

2100 TELEGRAPH: FINAL DEVELOPMENT PLAN + CUMULATIVE

Cumulative shading diagrams on the Winter Solstice

A.3-2C

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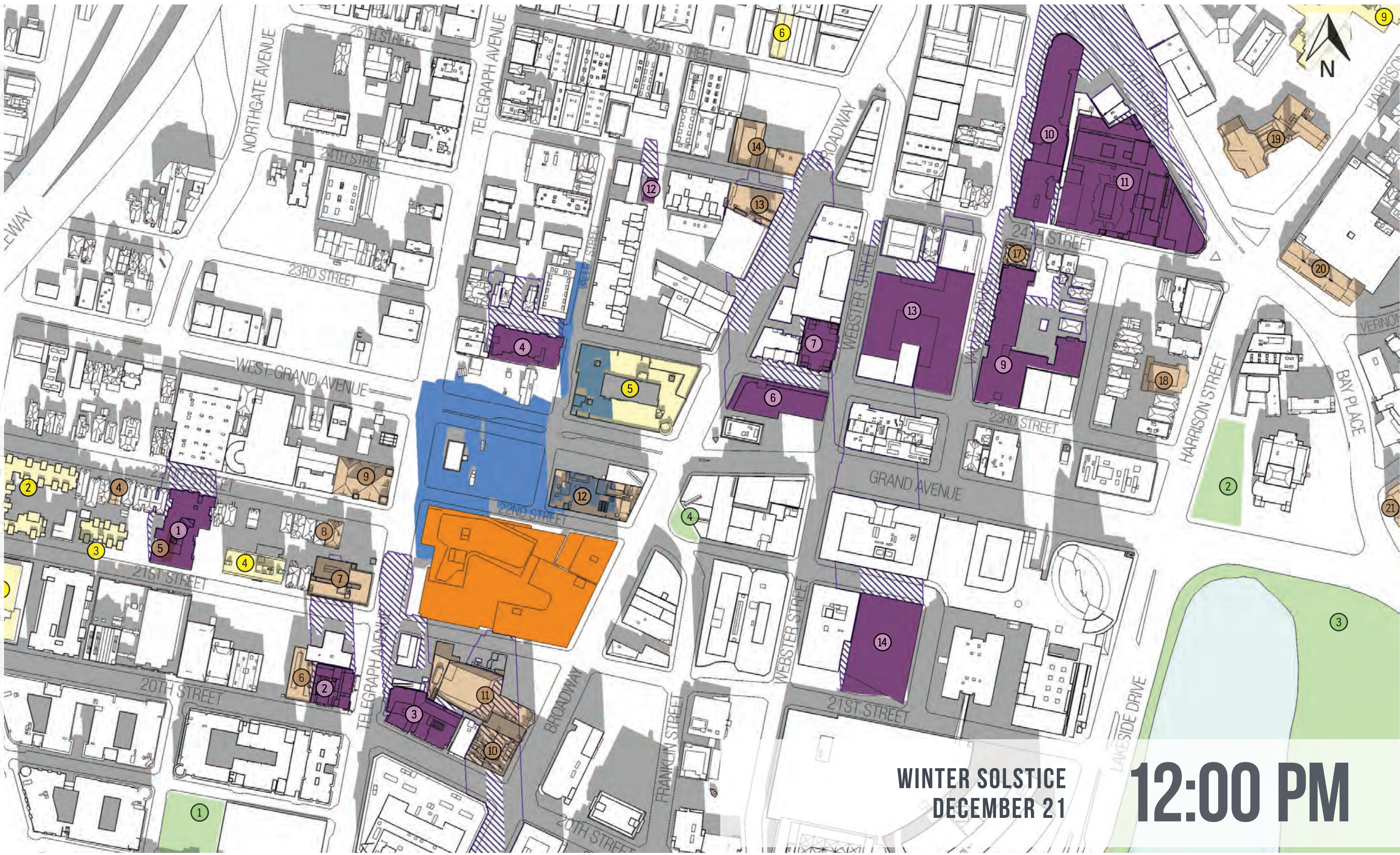

PREVISION DESIGN

Proposed Project
Existing (current) Shadows
New Shading by Proposed Project

2100 TELEGRAPH: FINAL DEVELOPMENT PLAN

Shading diagrams on the Winter Solstice

A.3-3

PREVISION DESIGN

- Proposed Project
- Existing (current) Shadows
- New Shading by Proposed Project
- New Shading from Cumulative Projects

2100 TELEGRAPH: FINAL DEVELOPMENT PLAN + CUMULATIVE

Cumulative shading diagrams on the Winter Solstice

A.3-3C

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WINTER SOLSTICE
DECEMBER 21

3:00 PM

PREVISION DESIGN

- Proposed Project
- Existing (current) Shadows
- New Shading by Proposed Project

2100 TELEGRAPH: MAXIMUM RESIDENTIAL SCENARIO

Shading diagrams on the Summer Solstice

B.1-1

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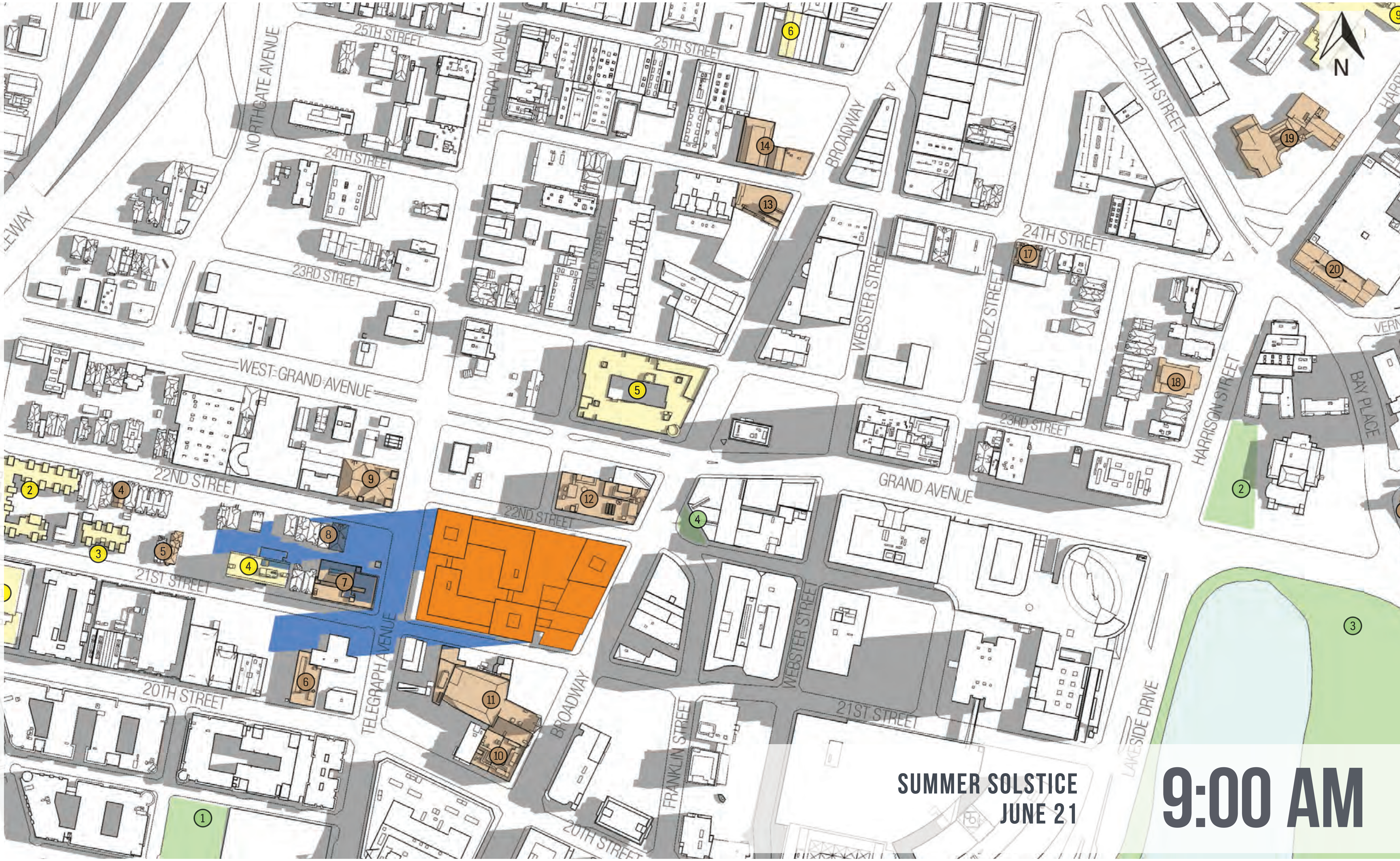

SUMMER SOLSTICE
JUNE 21

9:00 AM

PREVISION DESIGN

- Proposed Project
- Existing (current) Shadows
- New Shading by Proposed Project
- New Shading from Cumulative Projects

2100 TELEGRAPH: MAXIMUM RESIDENTIAL SCENARIO + CUMULATIVE

B.1-1C

Cumulative shading diagrams on the Summer Solstice

Historic Resource Sites

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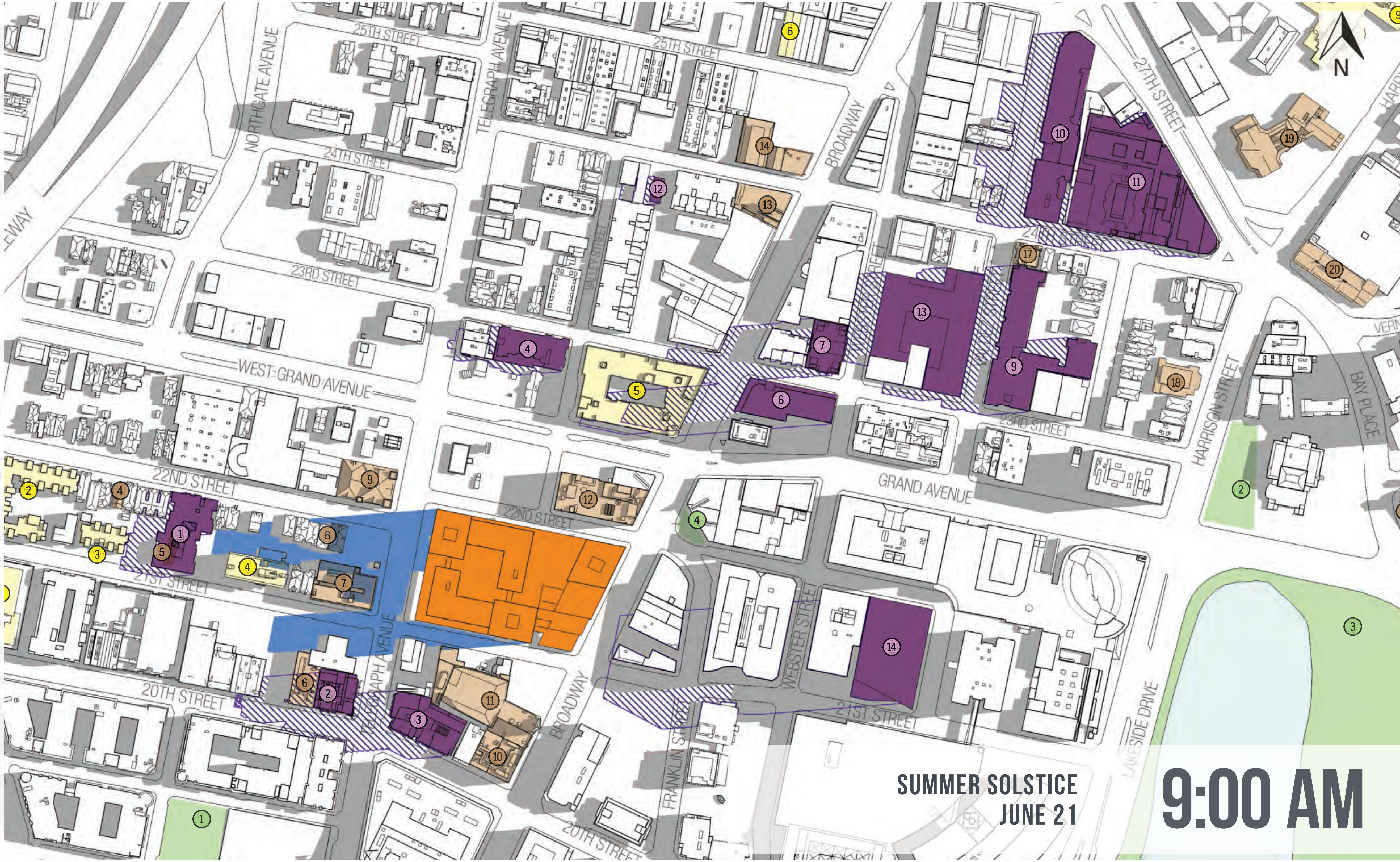


SUMMER SOLSTICE
JUNE 21

9:00 AM

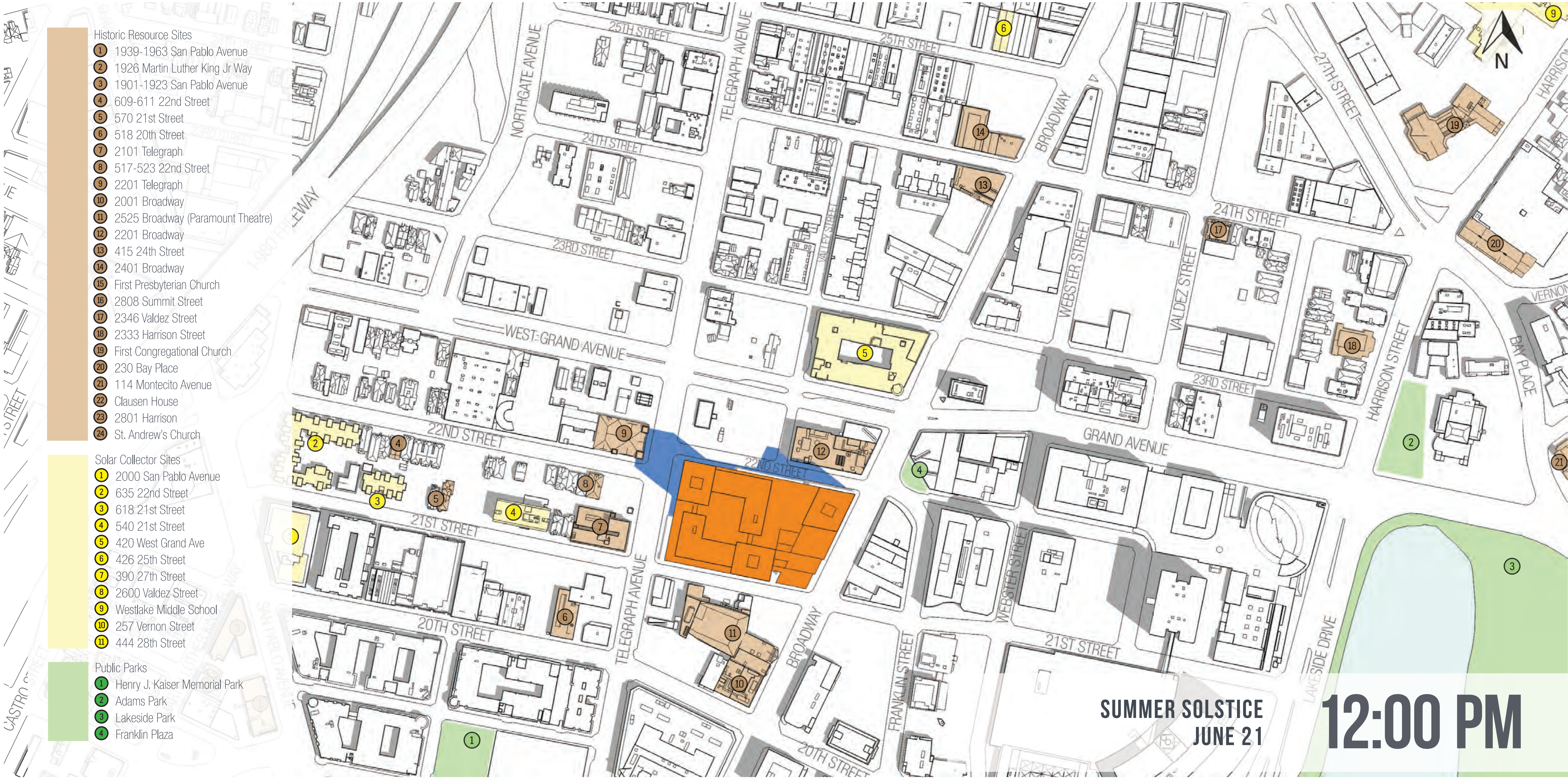
PREVISION DESIGN

Proposed Project
Existing (current) Shadows
New Shading by Proposed Project

2100 TELEGRAPH: MAXIMUM RESIDENTIAL SCENARIO

Shading diagrams on the Summer Solstice

B.1-2



SUMMER SOLSTICE
JUNE 21

12:00 PM

PREVISION DESIGN

(orange)	Proposed Project
(grey)	Existing (current) Shadows
(blue)	New Shading by Proposed Project
(hatched)	New Shading from Cumulative Projects

2100 TELEGRAPH: MAXIMUM RESIDENTIAL SCENARIO + CUMULATIVE

Cumulative shading diagrams on the Summer Solstice

B.1-2C

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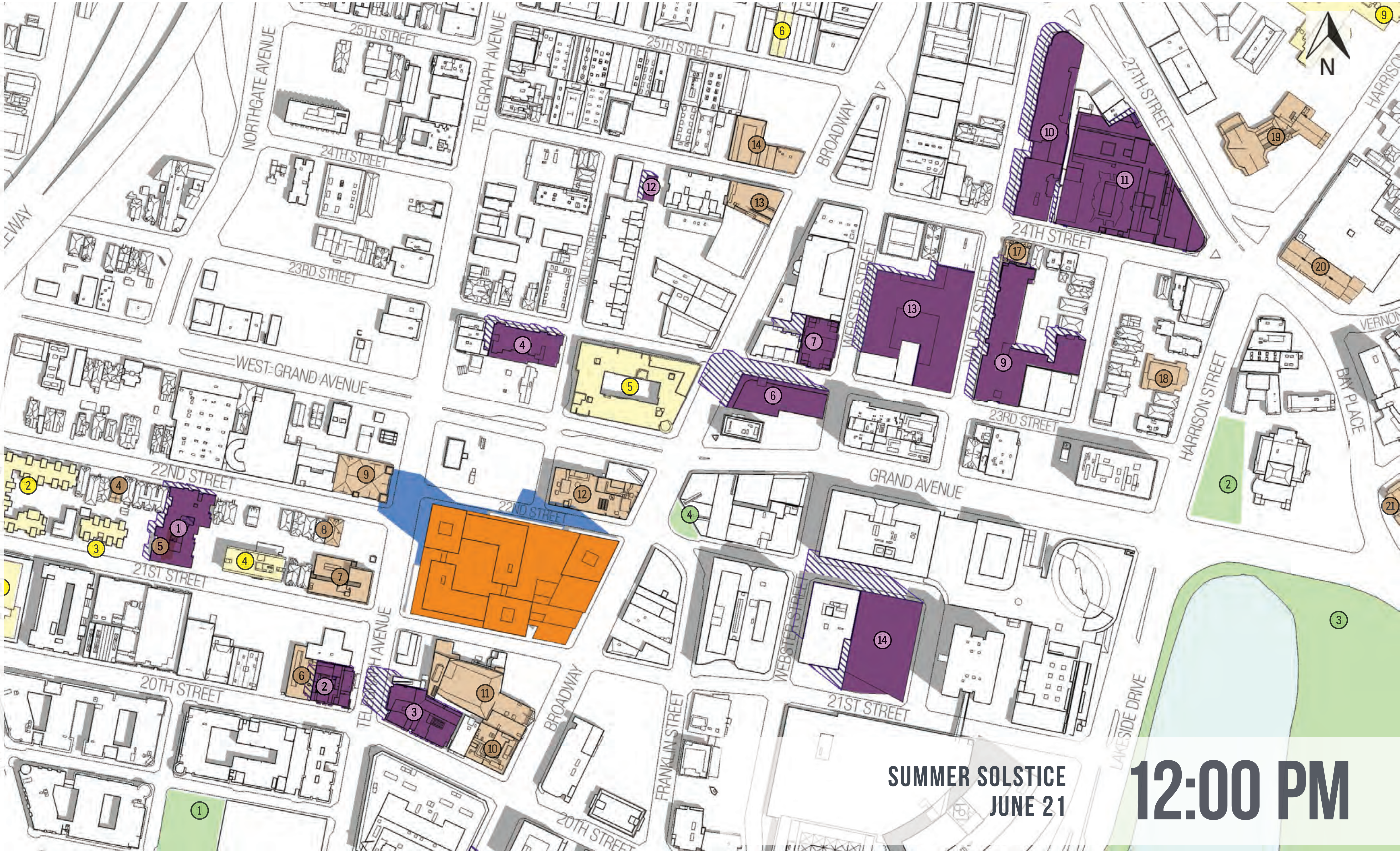

PREVISION DESIGN

Proposed Project
Existing (current) Shadows
New Shading by Proposed Project

2100 TELEGRAPH: MAXIMUM RESIDENTIAL SCENARIO

Shading diagrams on the Summer Solstice

B.1-3

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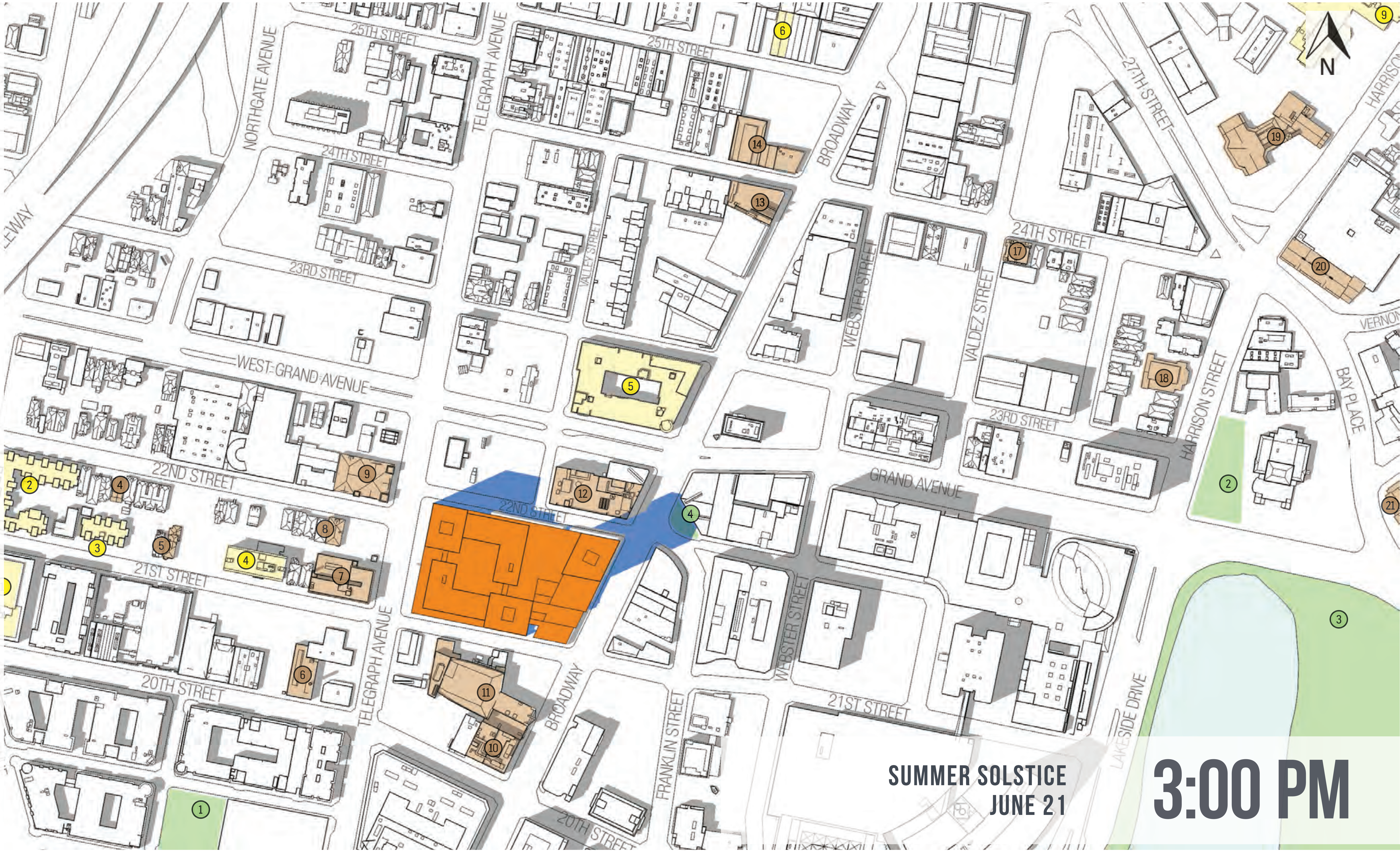

SUMMER SOLSTICE
JUNE 21

3:00 PM

PREVISION DESIGN

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2100 TELEGRAPH: MAXIMUM RESIDENTIAL SCENARIO + CUMULATIVE

Cumulative shading diagrams on the Summer Solstice

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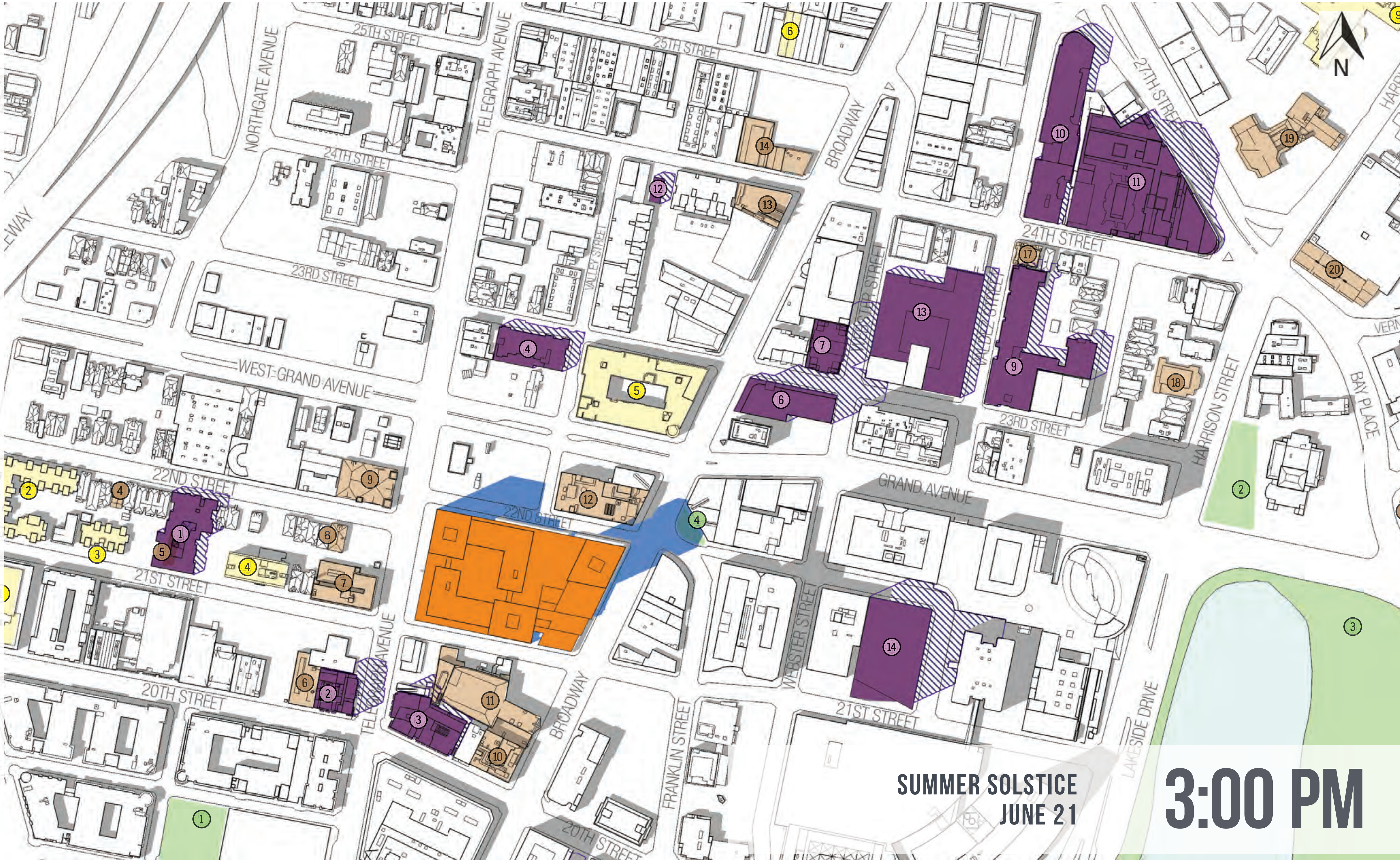

SUMMER SOLSTICE
JUNE 21

3:00 PM

2100 TELEGRAPH: MAXIMUM RESIDENTIAL SCENARIO

Shading diagrams on the Vernal/Autumnal Equinoxes

B.2-1

PREVISION DESIGN

Proposed Project
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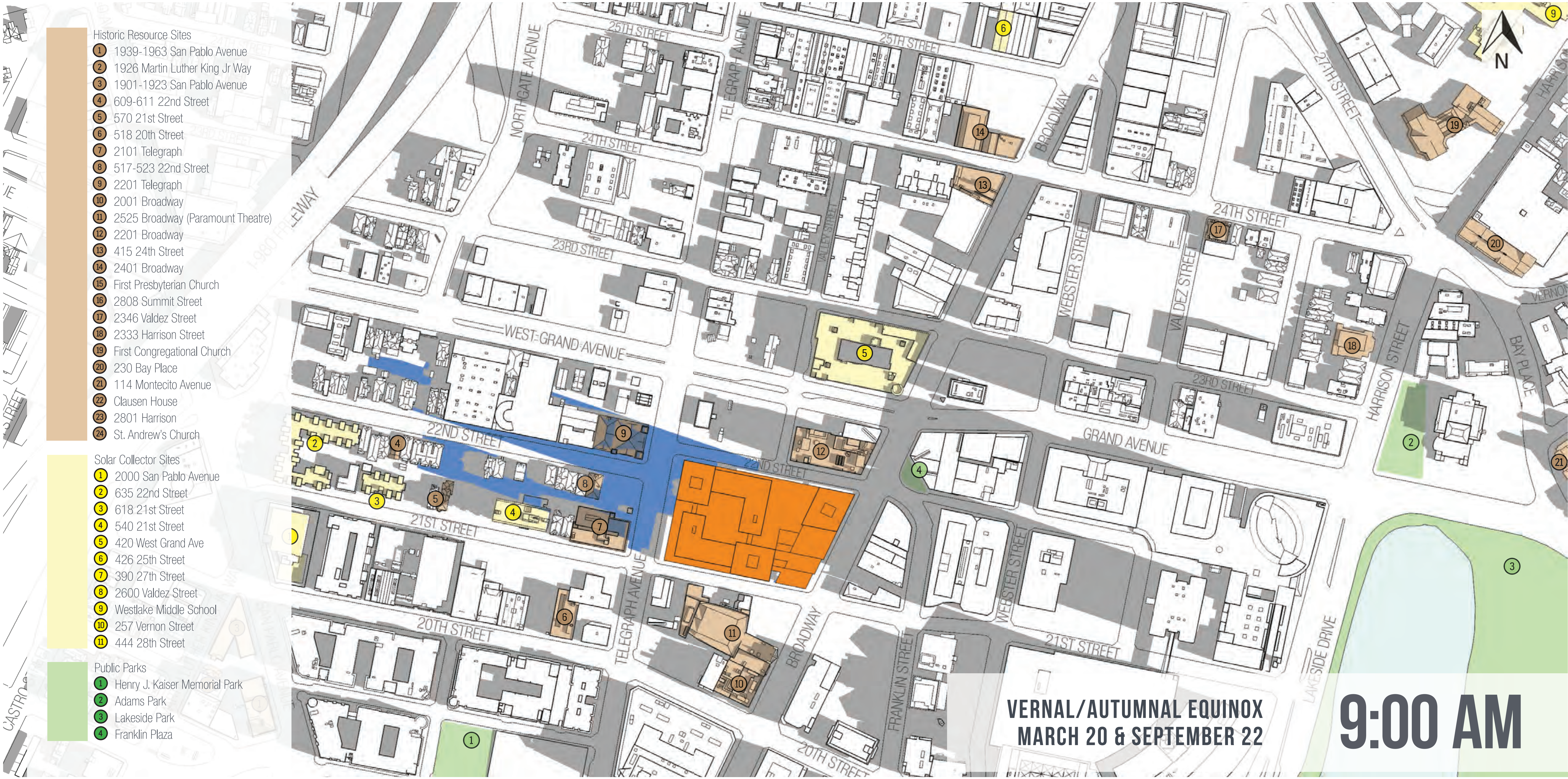

VERNAL/AUTUMNAL EQUINOX
MARCH 20 & SEPTEMBER 22

9:00 AM

PREVISION DESIGN

2100 TELEGRAPH: MAXIMUM RESIDENTIAL SCENARIO + CUMULATIVE

Cumulative shading diagrams on the Vernal/Autumnal Equinoxes

B.2-1C

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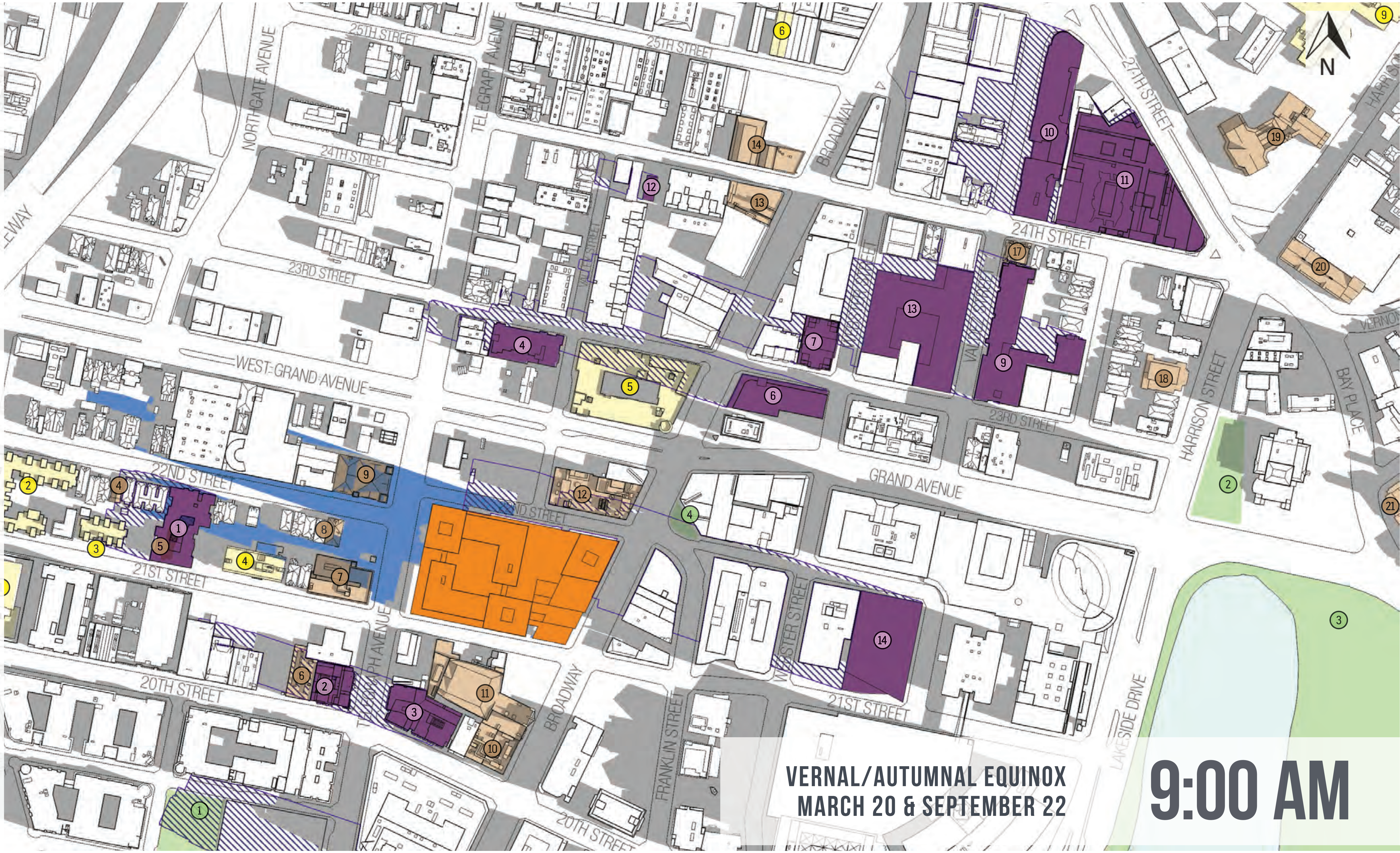

VERNAL/AUTUMNAL EQUINOX
MARCH 20 & SEPTEMBER 22

9:00 AM

PREVISION DESIGN

Proposed Project
Existing (current) Shadows
New Shading by Proposed Project

2100 TELEGRAPH: MAXIMUM RESIDENTIAL SCENARIO

Shading diagrams on the Vernal/Autumnal Equinoxes

B.2-2

Historic Resource Sites
1. 1939-1963 San Pablo Avenue
2. 1926 Martin Luther King Jr Way
3. 1901-1923 San Pablo Avenue
4. 609-611 22nd Street
5. 570 21st Street
6. 518 20th Street
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13. 415 24th Street
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15. First Presbyterian Church
16. 2808 Summit Street
17. 2346 Valdez Street
18. 2333 Harrison Street
19. First Congregational Church
20. 230 Bay Place
21. 114 Montecito Avenue
22. Clausen House
23. 2801 Harrison
24. St. Andrew's Church

Solar Collector Sites
1. 2000 San Pablo Avenue
2. 635 22nd Street
3. 618 21st Street
4. 540 21st Street
5. 420 West Grand Ave
6. 426 25th Street
7. 390 27th Street
8. 2600 Valdez Street
9. Westlake Middle School
10. 257 Vernon Street
11. 444 28th Street

Public Parks
1. Henry J. Kaiser Memorial Park
2. Adams Park
3. Lakeside Park
4. Franklin Plaza

PREVISION DESIGN

- Proposed Project
- Existing (current) Shadows
- New Shading by Proposed Project
- New Shading from Cumulative Projects

2100 TELEGRAPH: MAXIMUM RESIDENTIAL SCENARIO + CUMULATIVE

Cumulative shading diagrams on the Vernal/Autumnal Equinoxes

B.2-2C

Historic Resource Sites

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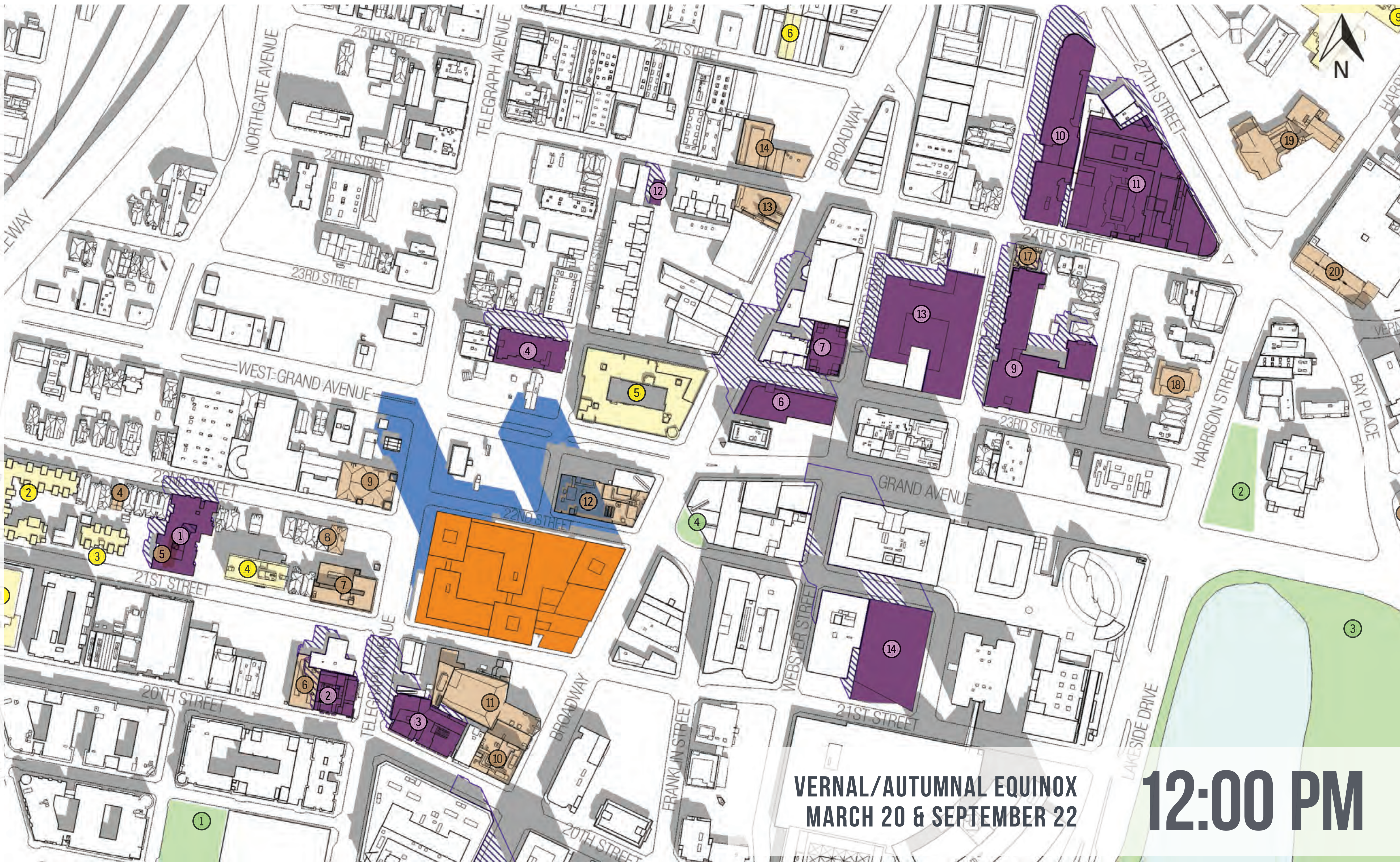

2100 TELEGRAPH: MAXIMUM RESIDENTIAL SCENARIO

Shading diagrams on the Vernal/Autumnal Equinoxes

B.2-3

PREVISION DESIGN

Proposed Project
Existing (current) Shadows
New Shading by Proposed Project

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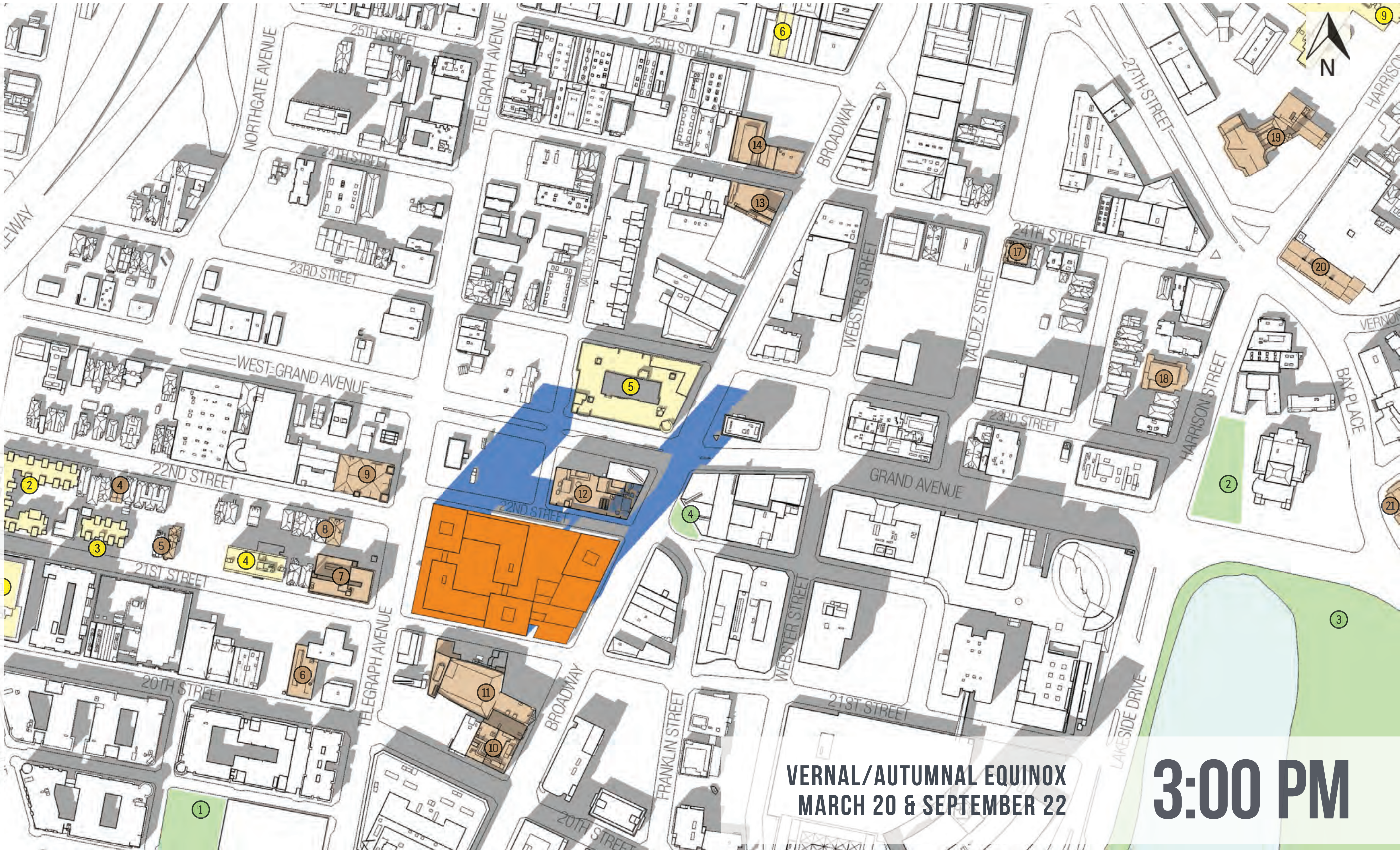

VERNAL/AUTUMNAL EQUINOX
MARCH 20 & SEPTEMBER 22

3:00 PM

PREVISION DESIGN

- Proposed Project
- Existing (current) Shadows
- New Shading by Proposed Project
- New Shading from Cumulative Projects

2100 TELEGRAPH: MAXIMUM RESIDENTIAL SCENARIO + CUMULATIVE

Cumulative shading diagrams on the Vernal/Autumnal Equinoxes

B.2-3C

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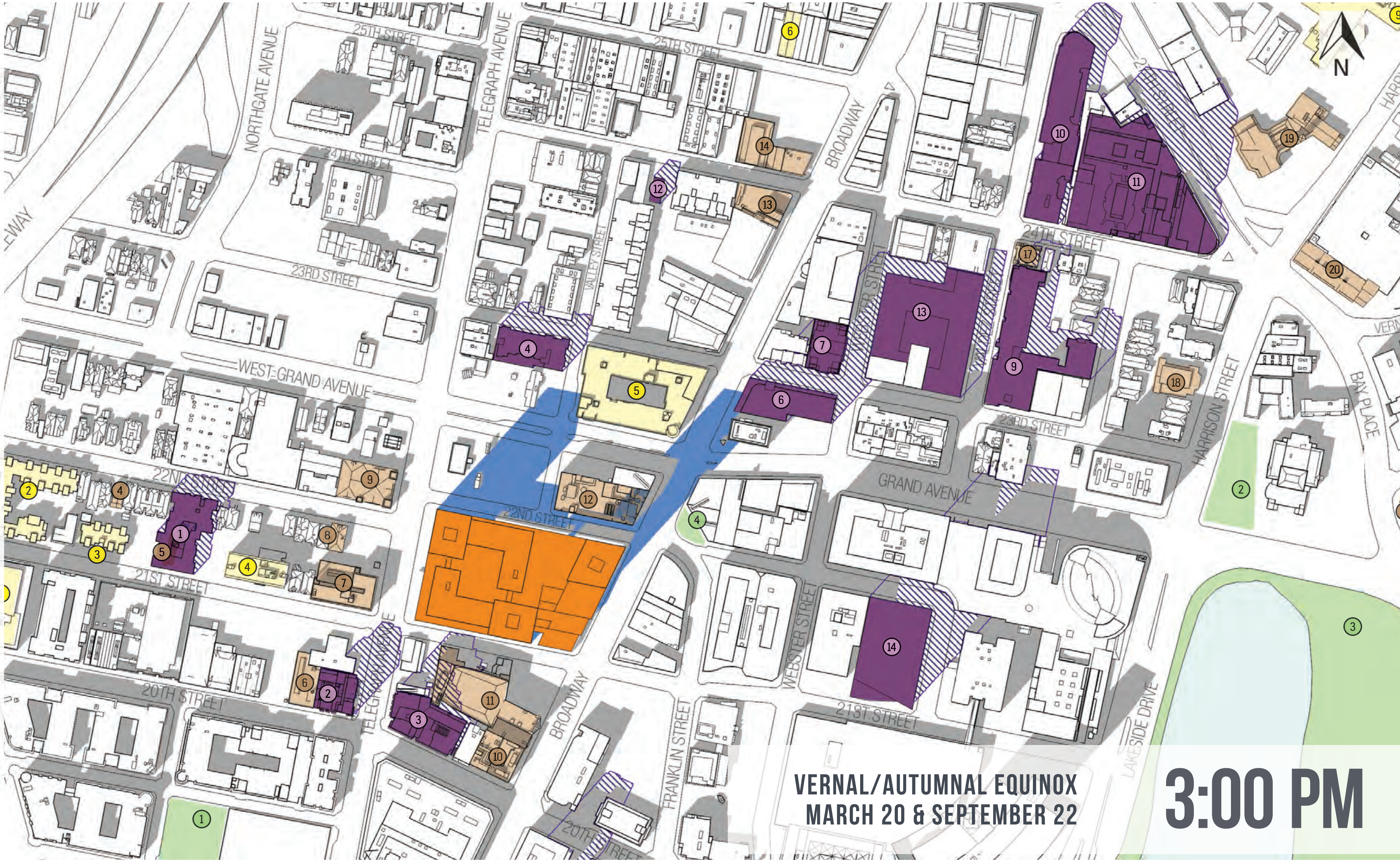

VERNAL/AUTUMNAL EQUINOX
MARCH 20 & SEPTEMBER 22

3:00 PM

PREVISION DESIGN

Proposed Project
Existing (current) Shadows
New Shading by Proposed Project

2100 TELEGRAPH: MAXIMUM RESIDENTIAL SCENARIO

Shading diagrams on the Winter Solstice

B.3-1

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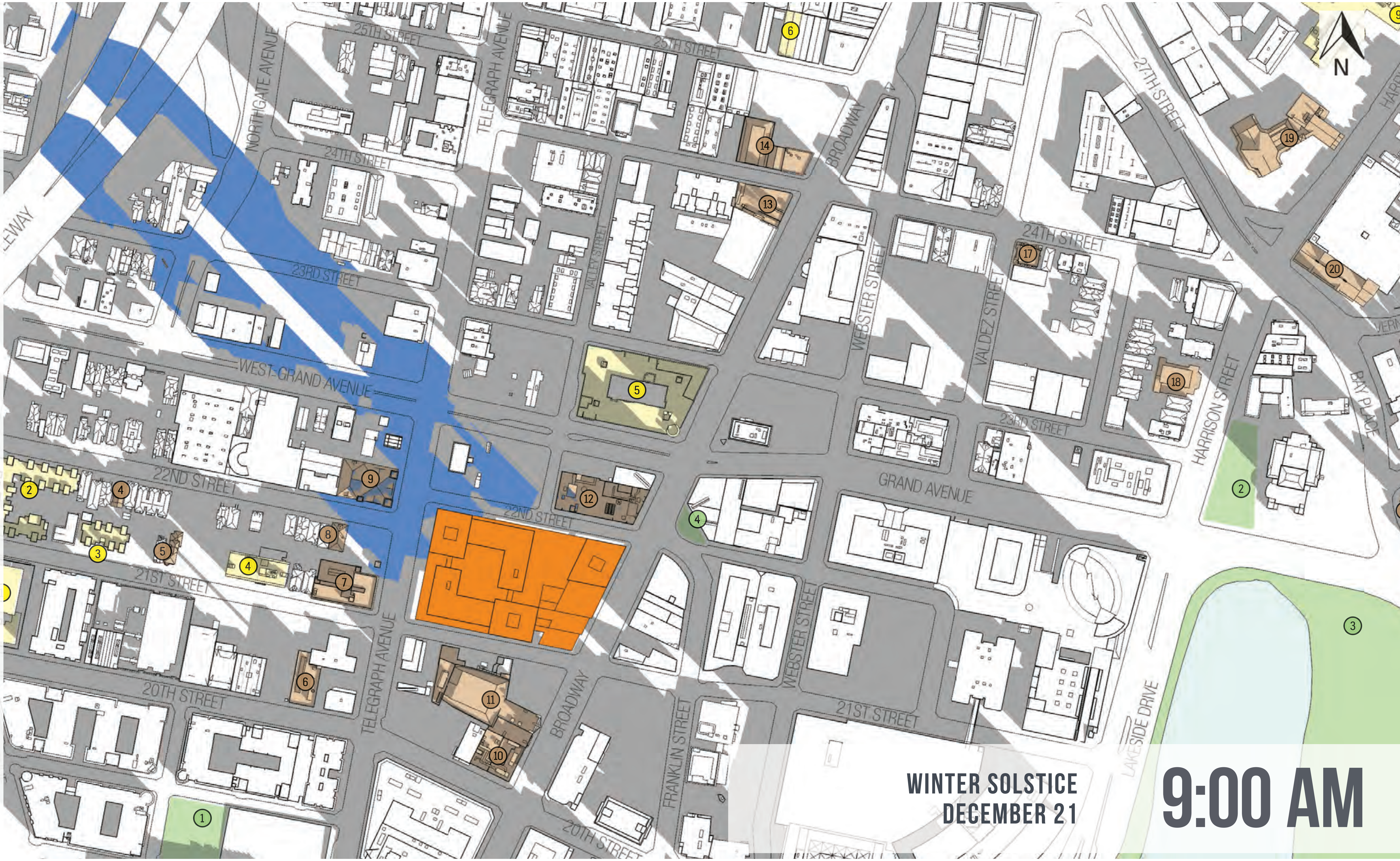

WINTER SOLSTICE
DECEMBER 21

9:00 AM

PREVISION DESIGN

2100 TELEGRAPH: MAXIMUM RESIDENTIAL SCENARIO + CUMULATIVE

Cumulative shading diagrams on the Winter Solstice

B.3-1C

- Proposed Project
- Existing (current) Shadows
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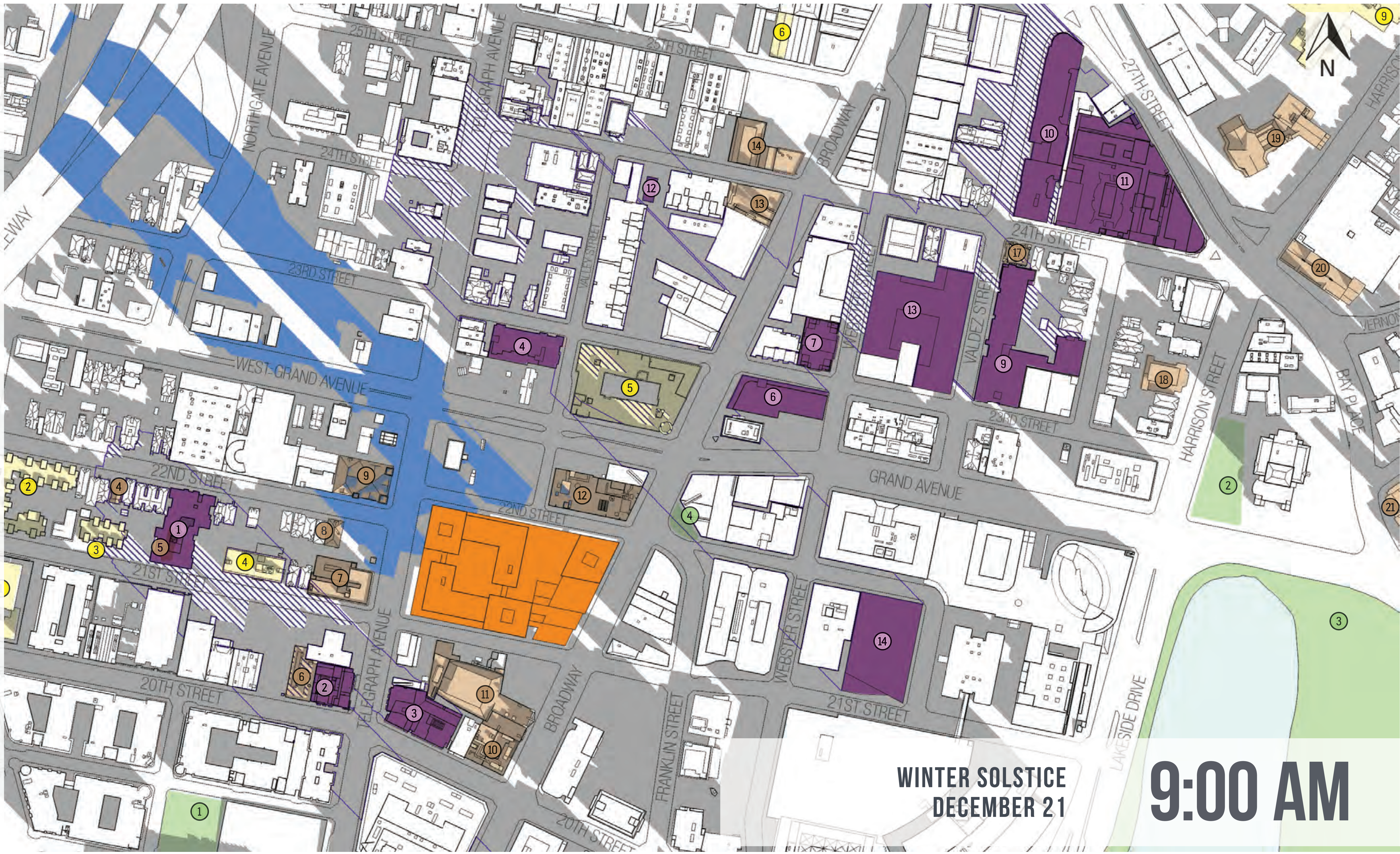


WINTER SOLSTICE
DECEMBER 21

9:00 AM

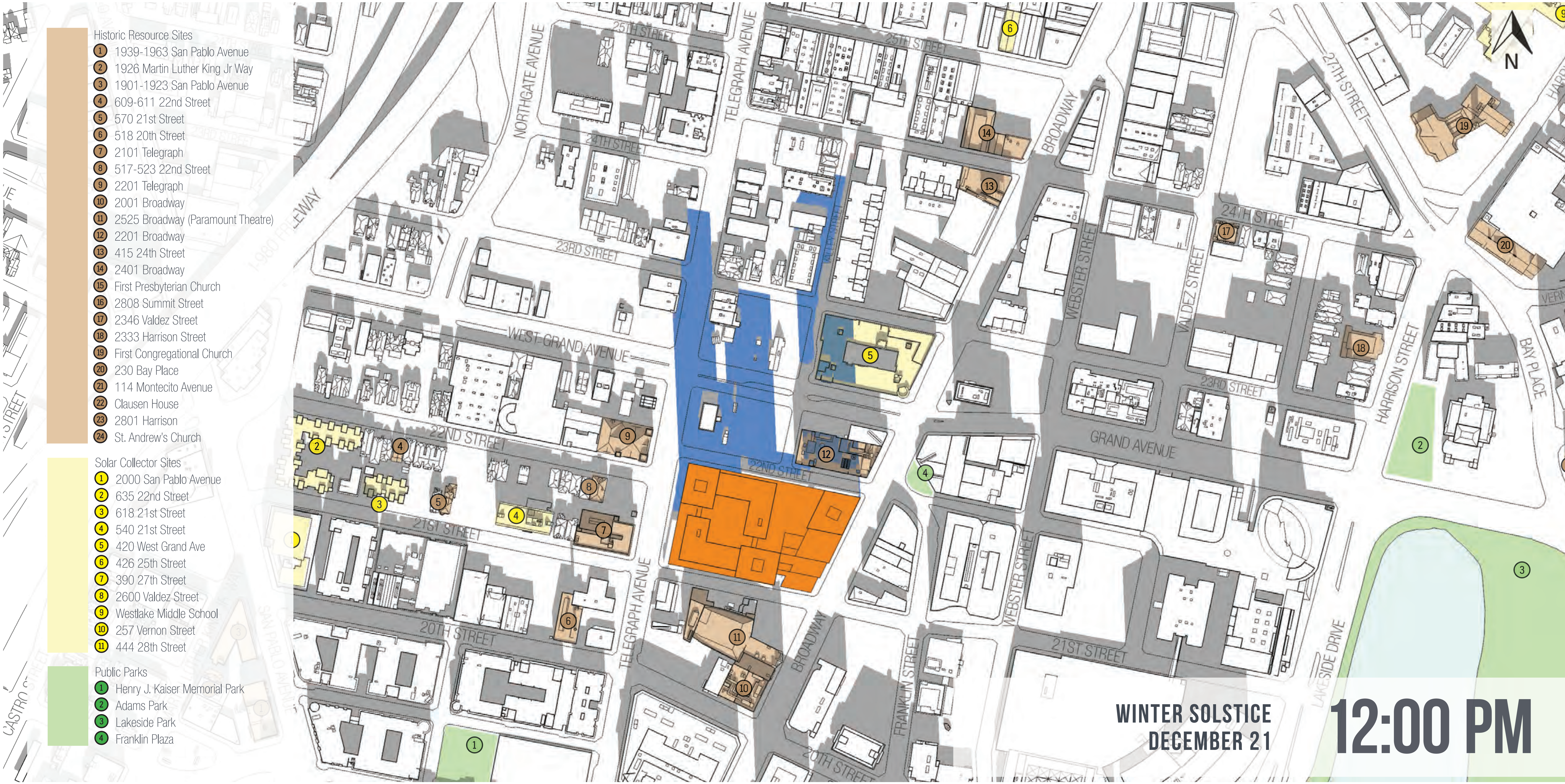
PREVISION DESIGN

Proposed Project
Existing (current) Shadows
New Shading by Proposed Project

2100 TELEGRAPH: MAXIMUM RESIDENTIAL SCENARIO

Shading diagrams on the Winter Solstice

B.3-2



PREVISION DESIGN

2100 TELEGRAPH: MAXIMUM RESIDENTIAL SCENARIO + CUMULATIVE

Cumulative shading diagrams on the Winter Solstice

B.3-2C

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WINTER SOLSTICE
DECEMBER 21

12:00 PM

PREVISION DESIGN

- Proposed Project
- Existing (current) Shadows
- New Shading by Proposed Project

2100 TELEGRAPH: MAXIMUM RESIDENTIAL SCENARIO

Shading diagrams on the Winter Solstice

B.3-3

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Public Parks

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3. Lakeside Park
4. Franklin Plaza

WINTER SOLSTICE
DECEMBER 21

3:00 PM

PREVISION DESIGN

- Proposed Project
- Existing (current) Shadows
- New Shading by Proposed Project
- New Shading from Cumulative Projects

2100 TELEGRAPH: MAXIMUM RESIDENTIAL SCENARIO + CUMULATIVE

Cumulative shading diagrams on the Winter Solstice

B.3-3C

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13. 2315 Valdez Street
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WINTER SOLSTICE
DECEMBER 21

3:00 PM

2100 TELEGRAPH: MAXIMUM OFFICE SCENARIO

Shading diagrams on the Summer Solstice

C.1-1

PREVISION DESIGN

- Proposed Project
- Existing (current) Shadows
- New Shading by Proposed Project

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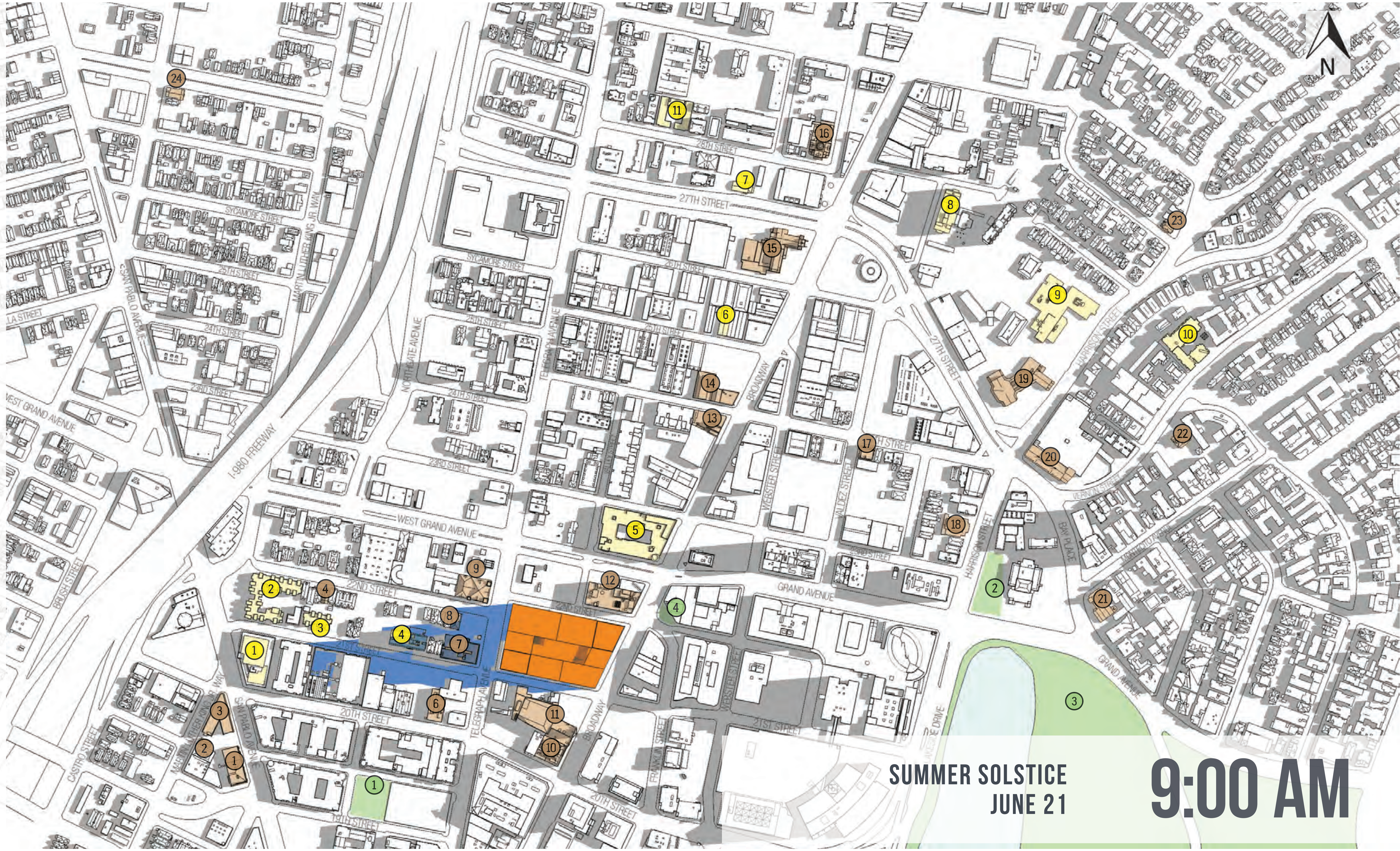

SUMMER SOLSTICE
JUNE 21

9:00 AM

PREVISION DESIGN

2100 TELEGRAPH: MAXIMUM OFFICE SCENARIO + CUMULATIVE

Cumulative shading diagrams on the Summer Solstice

C.1-1C

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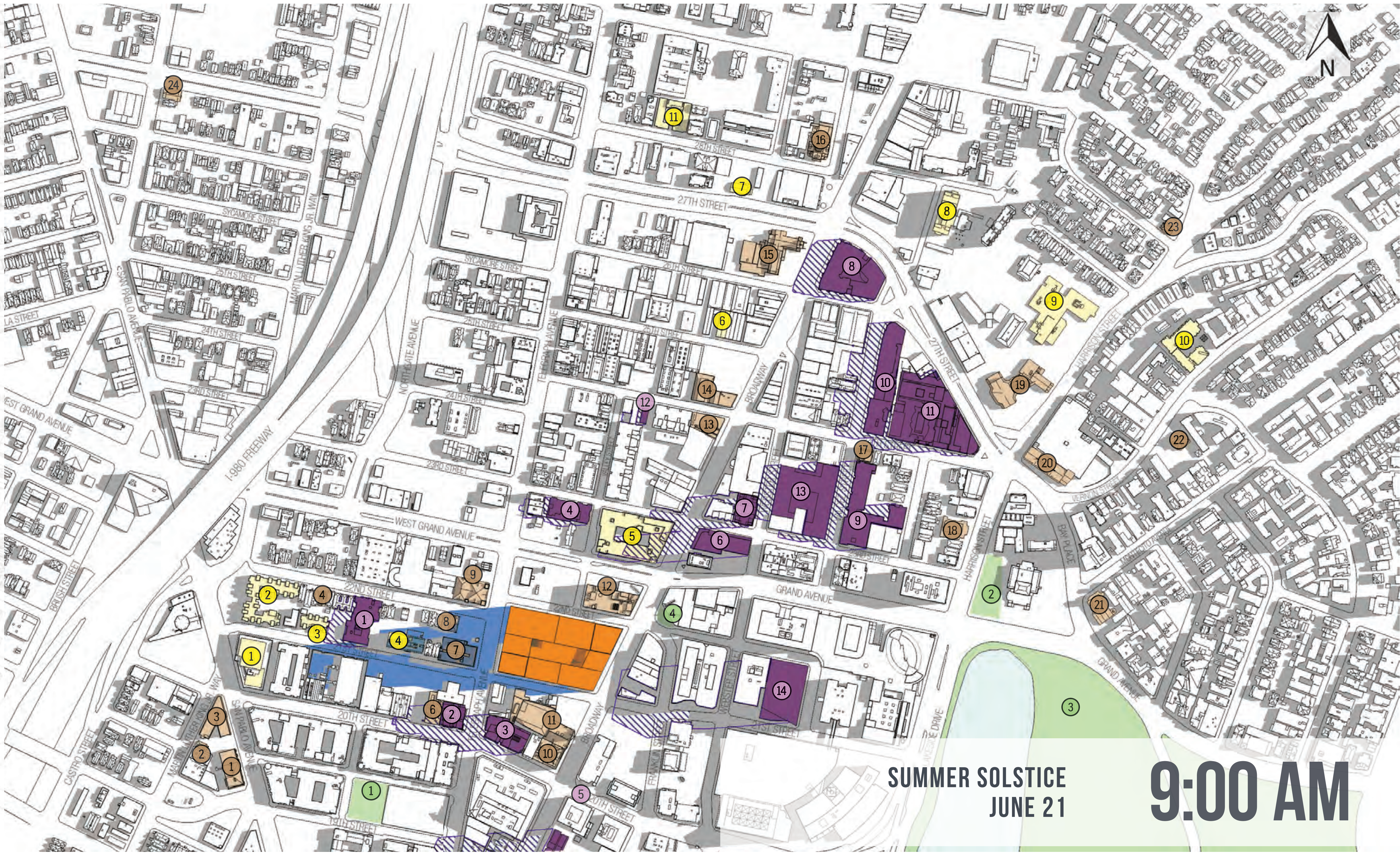

PREVISION DESIGN

Proposed Project
Existing (current) Shadows
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2100 TELEGRAPH: MAXIMUM OFFICE SCENARIO

Shading diagrams on the Summer Solstice

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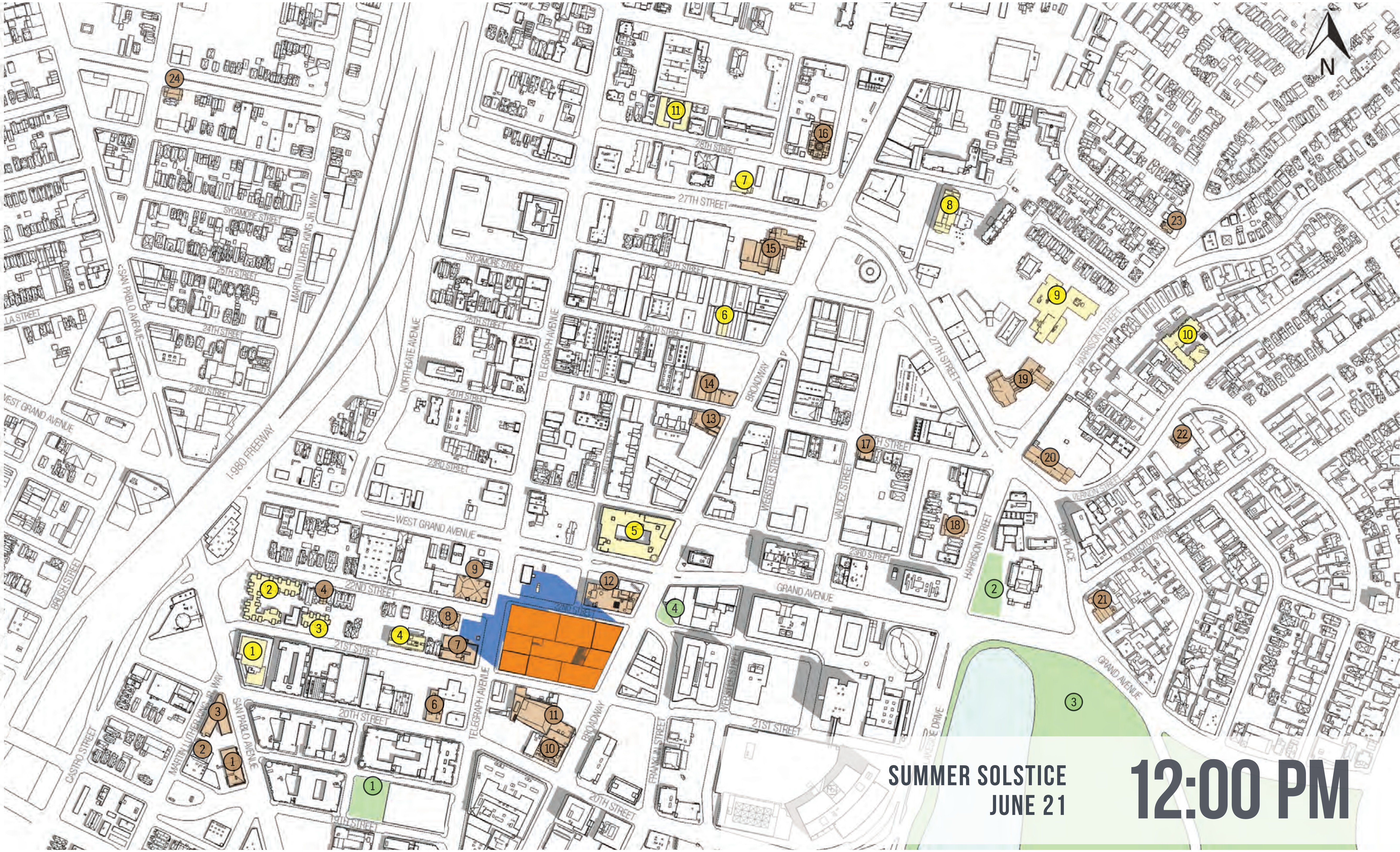

SUMMER SOLSTICE
JUNE 21

12:00 PM

PREVISION DESIGN

- Proposed Project
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2100 TELEGRAPH: MAXIMUM OFFICE SCENARIO + CUMULATIVE

Cumulative shading diagrams on the Summer Solstice

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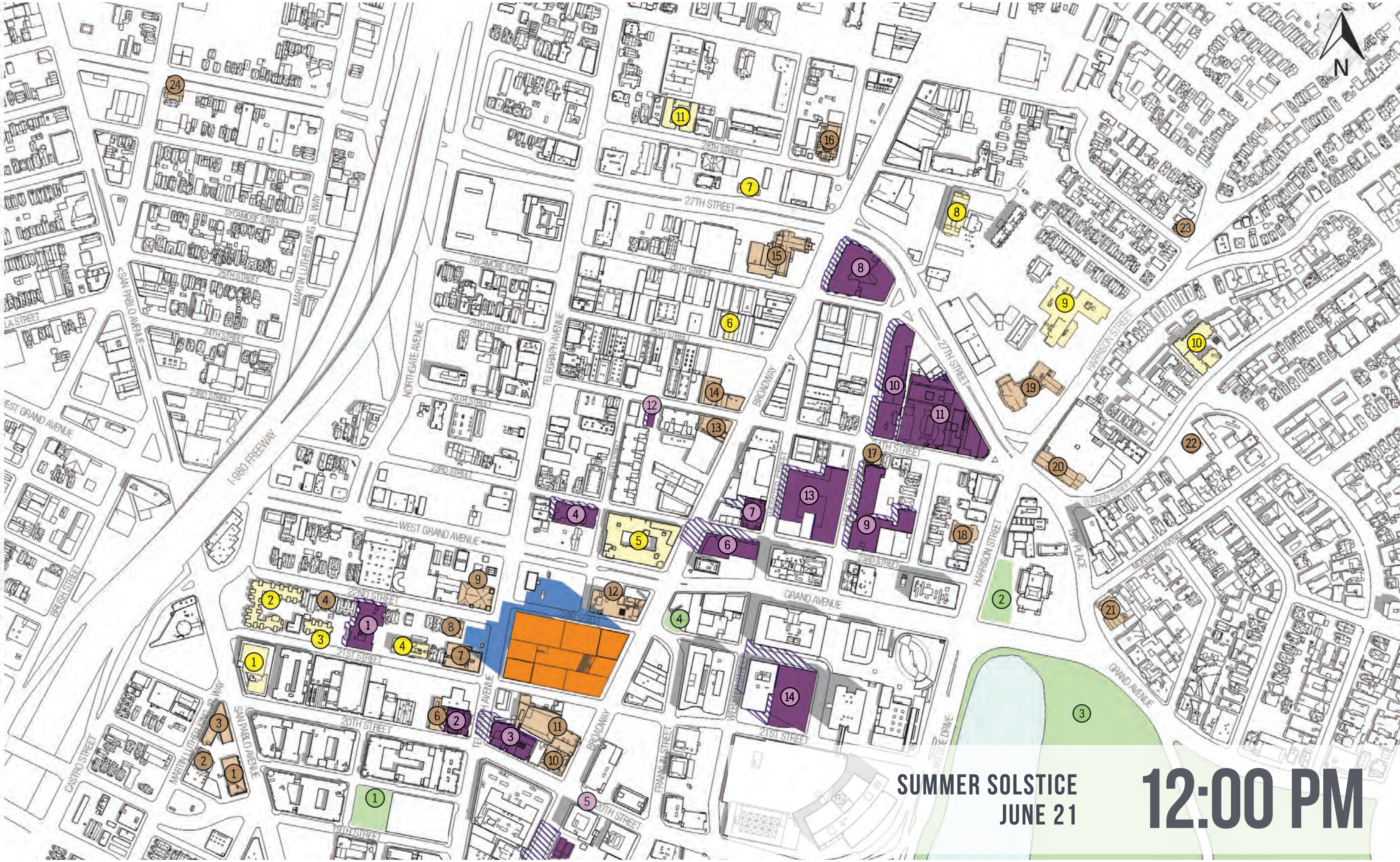

SUMMER SOLSTICE
JUNE 21

12:00 PM

PREVISION DESIGN

Proposed Project
Existing (current) Shadows
New Shading by Proposed Project

2100 TELEGRAPH: MAXIMUM OFFICE SCENARIO

Shading diagrams on the Summer Solstice

C.1-3

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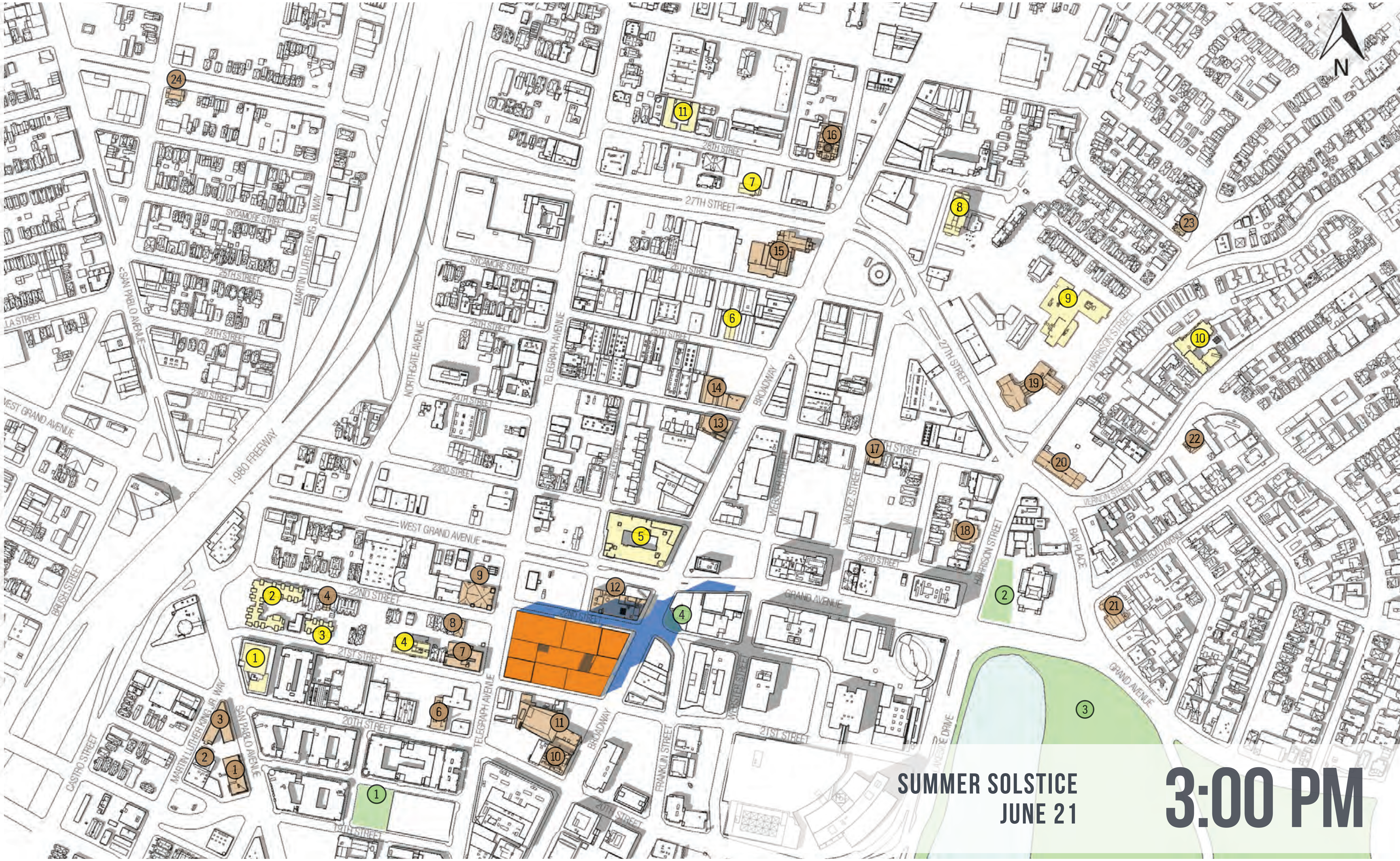

2100 TELEGRAPH: MAXIMUM OFFICE SCENARIO + CUMULATIVE

Cumulative shading diagrams on the Summer Solstice

C.1-3C

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Solar Collector Sites
1. 2000 San Pablo Avenue
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2. Adams Park
3. Lakeside Park
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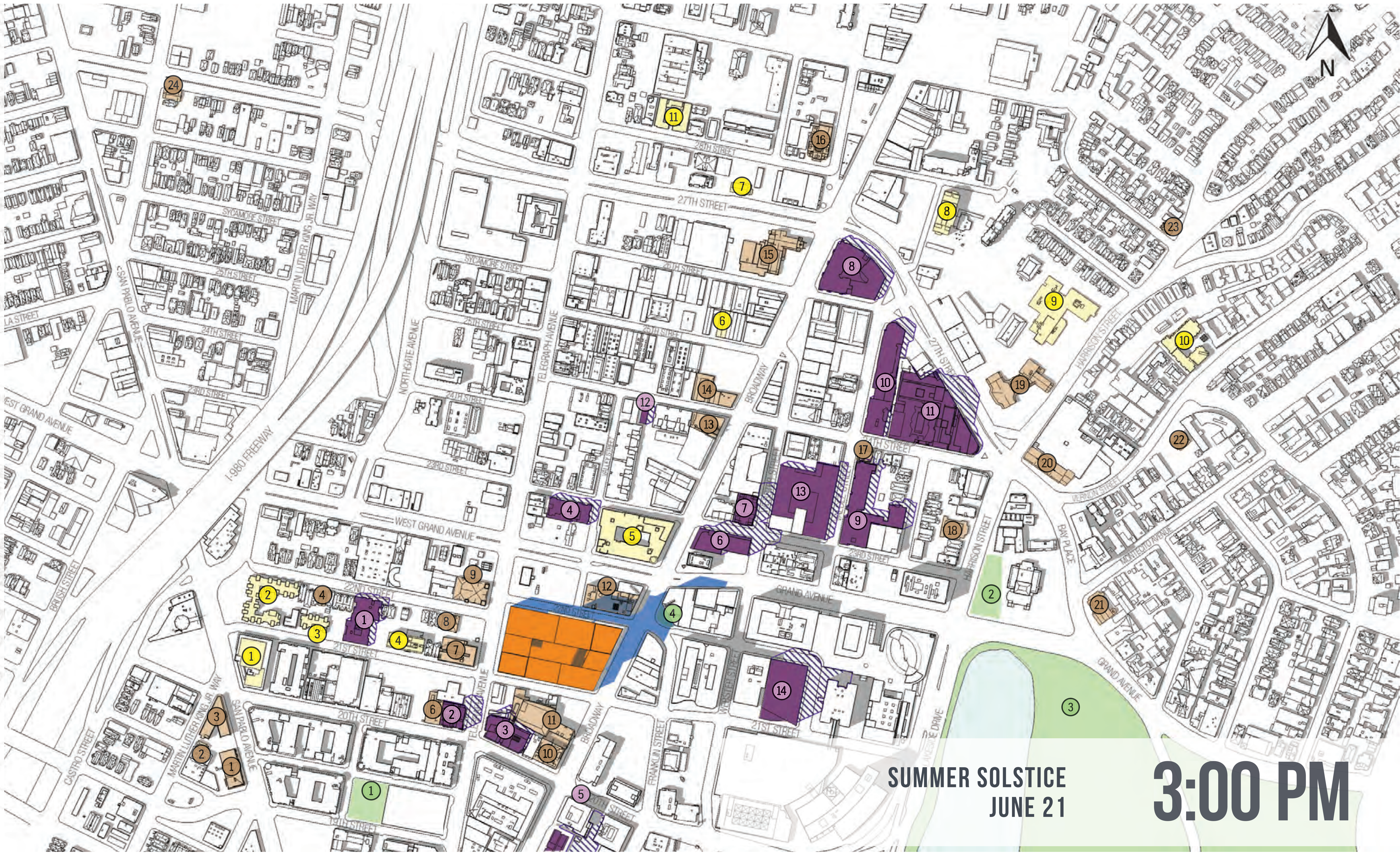

SUMMER SOLSTICE
JUNE 21

3:00 PM

PREVISION DESIGN

Proposed Project
Existing (current) Shadows
New Shading by Proposed Project

2100 TELEGRAPH: MAXIMUM OFFICE SCENARIO

Shading diagrams on the Vernal/Autumnal Equinoxes

C.2-1

Historic Resource Sites
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2. 1926 Martin Luther King Jr Way
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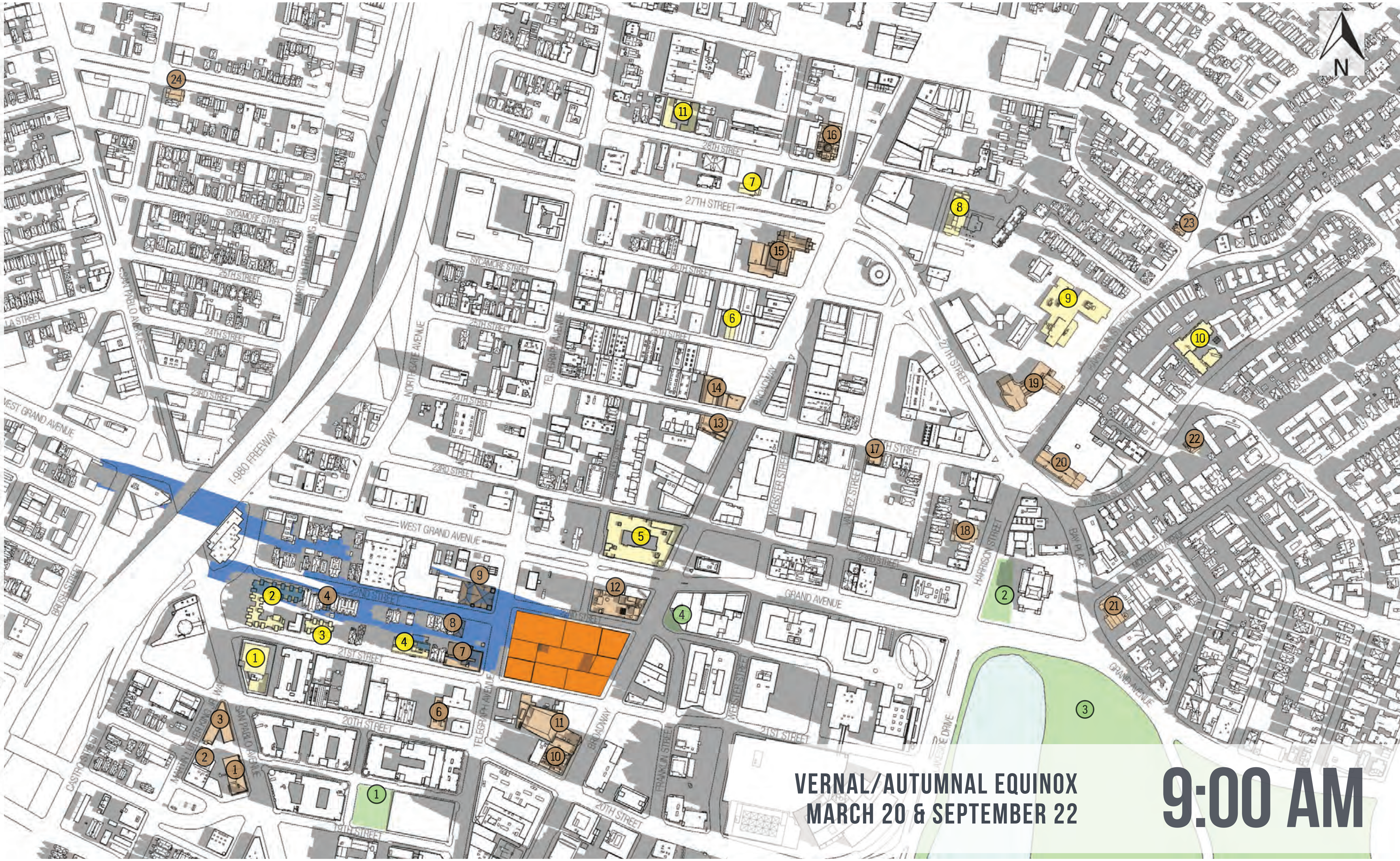

VERNAL/AUTUMNAL EQUINOX
MARCH 20 & SEPTEMBER 22

9:00 AM

PREVISION DESIGN

Proposed Project
Existing (current) Shadows
New Shading by Proposed Project
New Shading from Cumulative Projects

2100 TELEGRAPH: MAXIMUM OFFICE SCENARIO + CUMULATIVE

Cumulative shading diagrams on the Vernal/Autumnal Equinoxes

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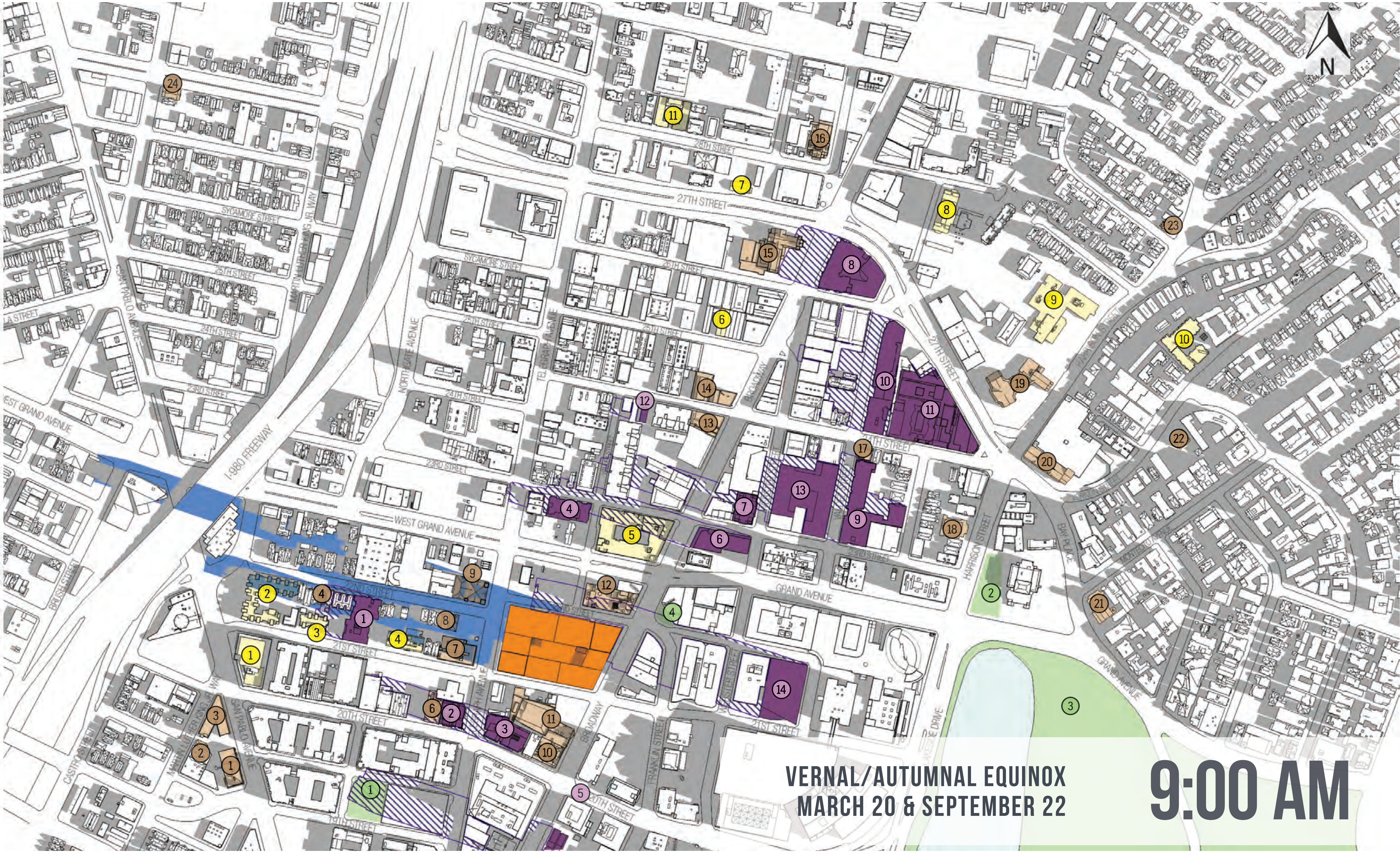

VERNAL/AUTUMNAL EQUINOX
MARCH 20 & SEPTEMBER 22

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2100 TELEGRAPH: MAXIMUM OFFICE SCENARIO

Shading diagrams on the Vernal/Autumnal Equinoxes

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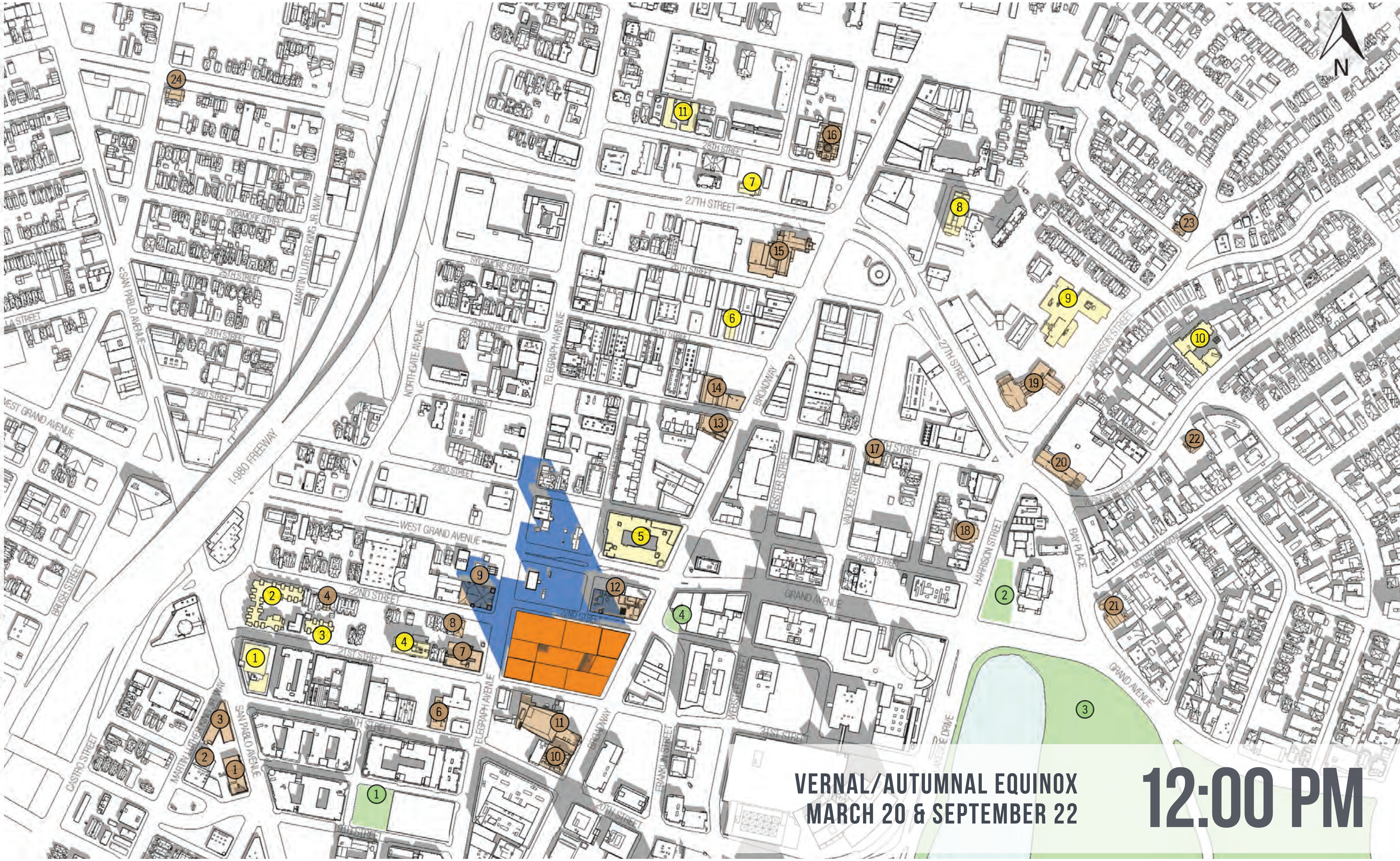

VERNAL/AUTUMNAL EQUINOX
MARCH 20 & SEPTEMBER 22

12:00 PM

PREVISION DESIGN

Proposed Project
Existing (current) Shadows
New Shading by Proposed Project
New Shading from Cumulative Projects

2100 TELEGRAPH: MAXIMUM OFFICE SCENARIO + CUMULATIVE

Cumulative shading diagrams on the Vernal/Autumnal Equinoxes

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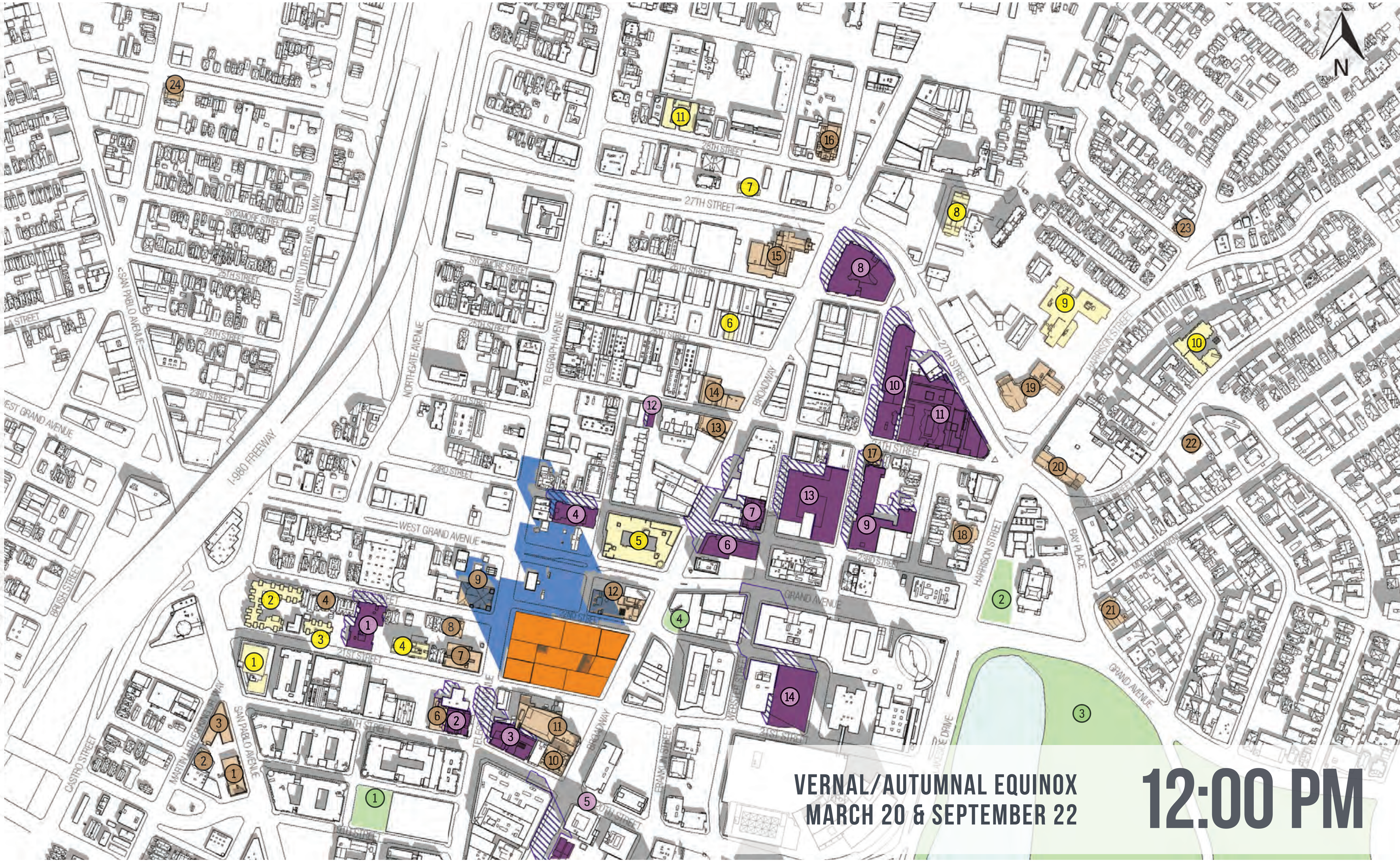

VERNAL/AUTUMNAL EQUINOX
MARCH 20 & SEPTEMBER 22

12:00 PM

PREVISION DESIGN

- Proposed Project
- Existing (current) Shadows
- New Shading by Proposed Project

2100 TELEGRAPH: MAXIMUM OFFICE SCENARIO

Shading diagrams on the Vernal/Autumnal Equinoxes

C.2-3

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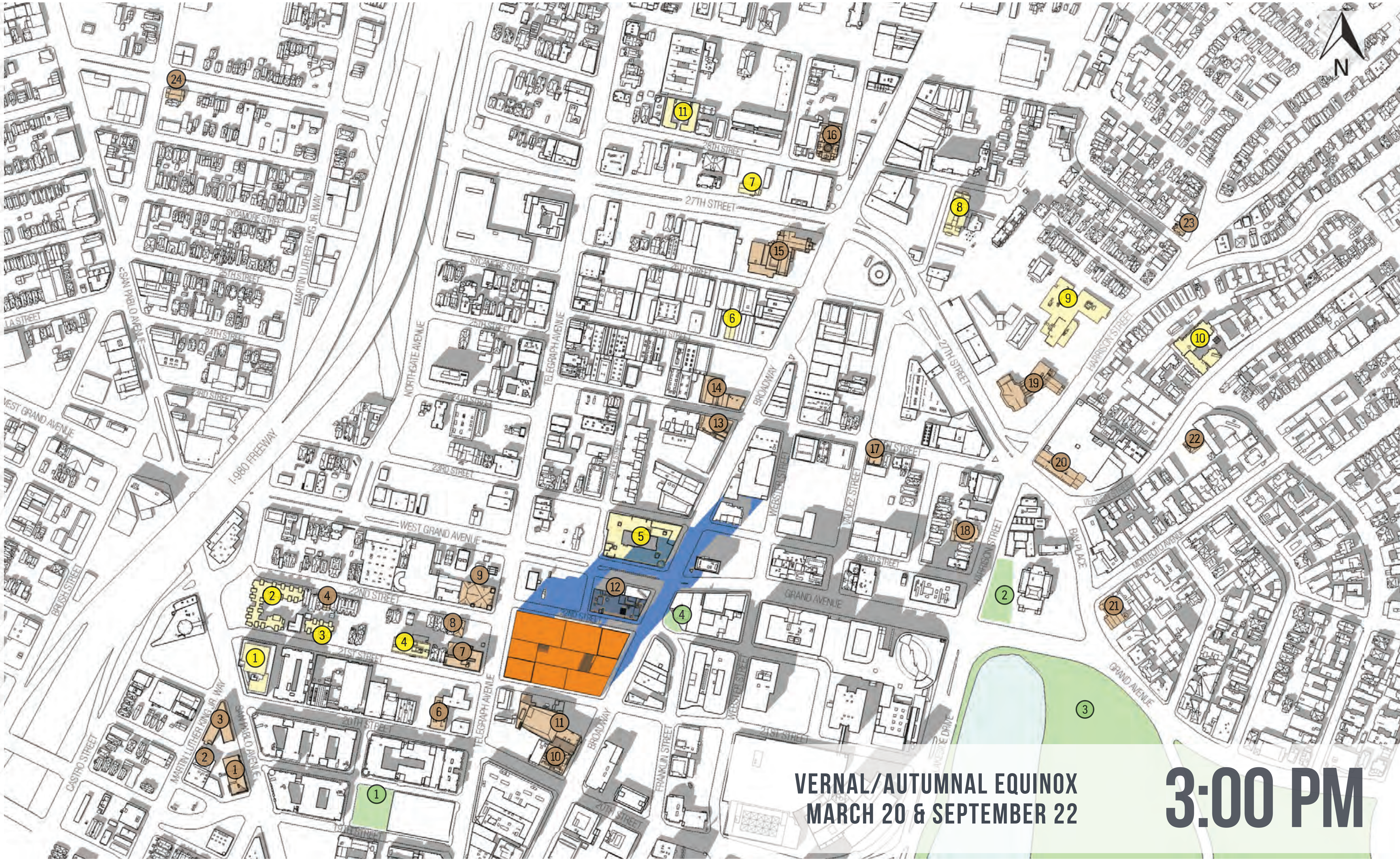

VERNAL/AUTUMNAL EQUINOX
MARCH 20 & SEPTEMBER 22

3:00 PM

PREVISION DESIGN

2100 TELEGRAPH: MAXIMUM OFFICE SCENARIO + CUMULATIVE

Cumulative shading diagrams on the Vernal/Autumnal Equinoxes

C.2-3C

- Proposed Project
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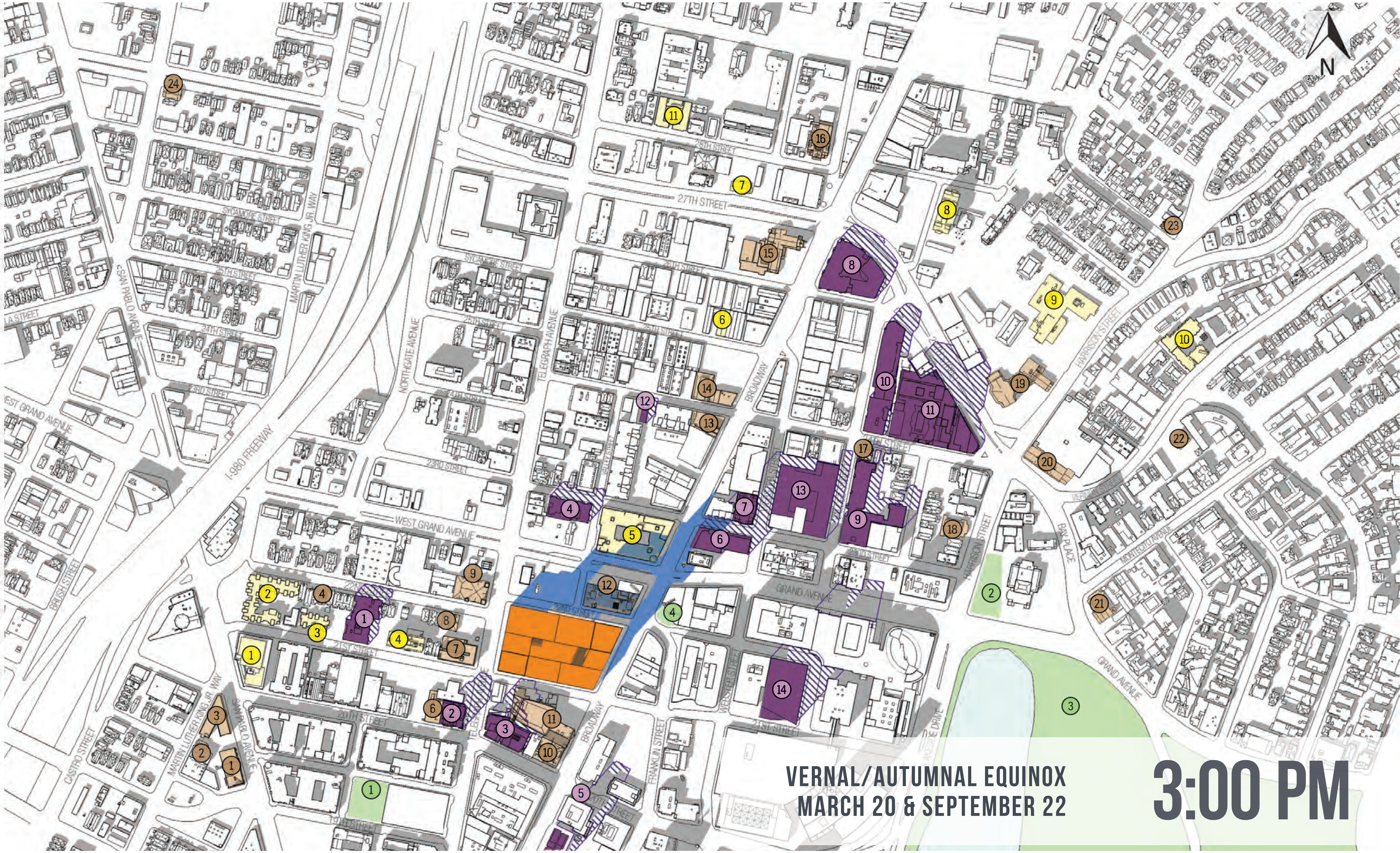

VERNAL/AUTUMNAL EQUINOX
MARCH 20 & SEPTEMBER 22

3:00 PM

PREVISION DESIGN

Proposed Project
Existing (current) Shadows
New Shading by Proposed Project

2100 TELEGRAPH: MAXIMUM OFFICE SCENARIO

Shading diagrams on the Winter Solstice

C.3-1

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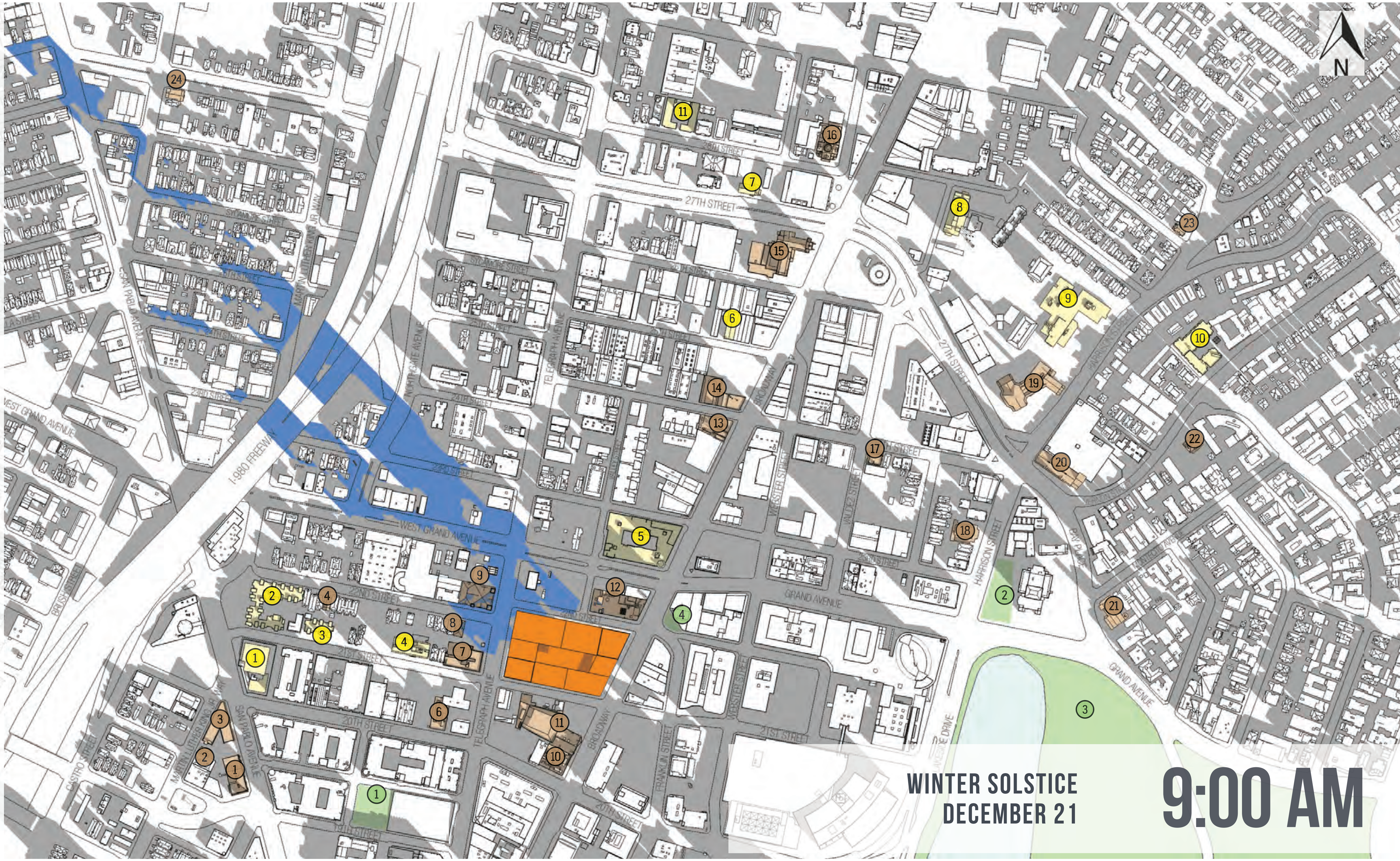

PREVISION DESIGN

- Proposed Project
- Existing (current) Shadows
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2100 TELEGRAPH: MAXIMUM OFFICE SCENARIO + CUMULATIVE

Cumulative shading diagrams on the Winter Solstice

C.3-1C

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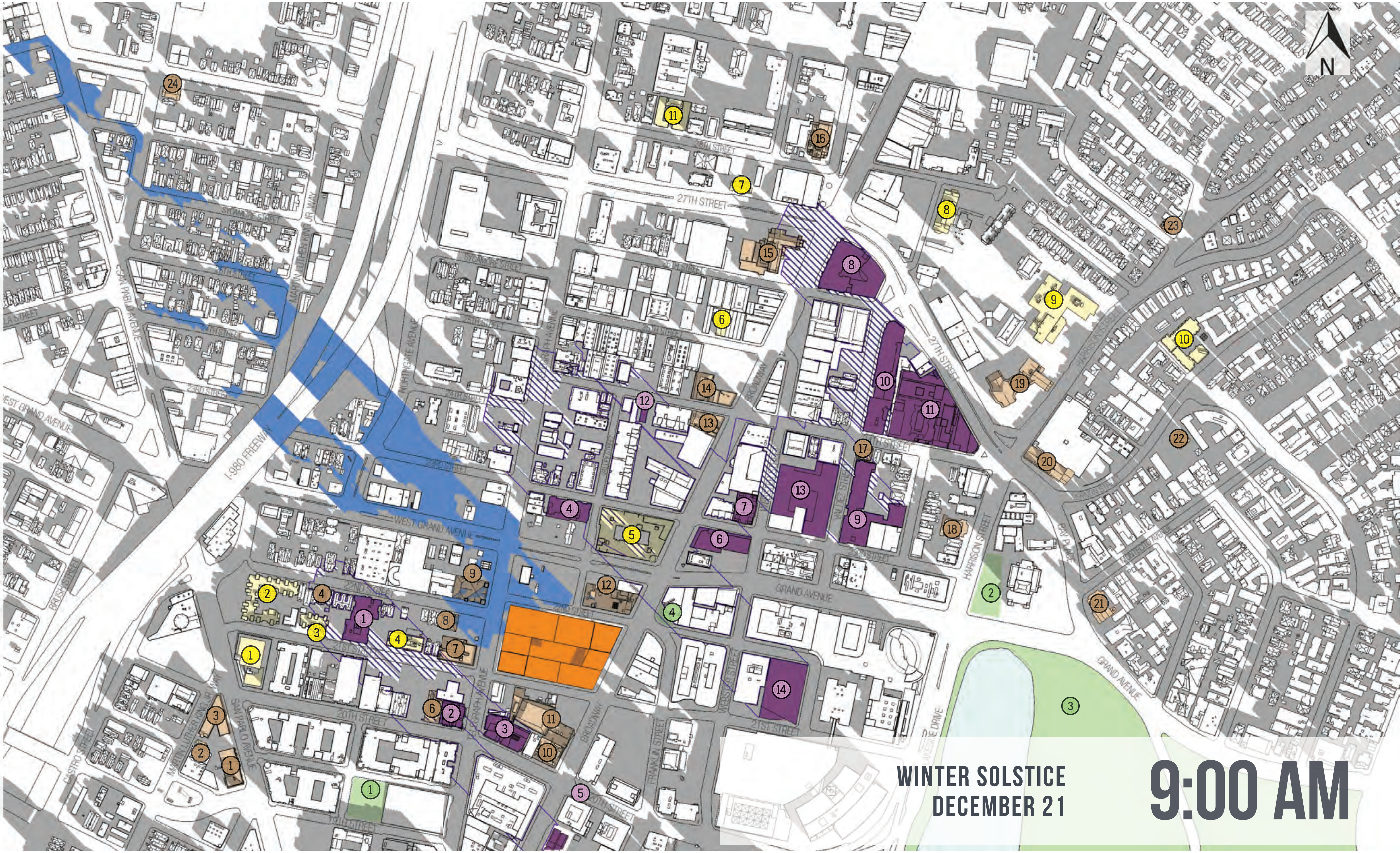

PREVISION DESIGN

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2100 TELEGRAPH: MAXIMUM OFFICE SCENARIO

Shading diagrams on the Winter Solstice

C.3-2

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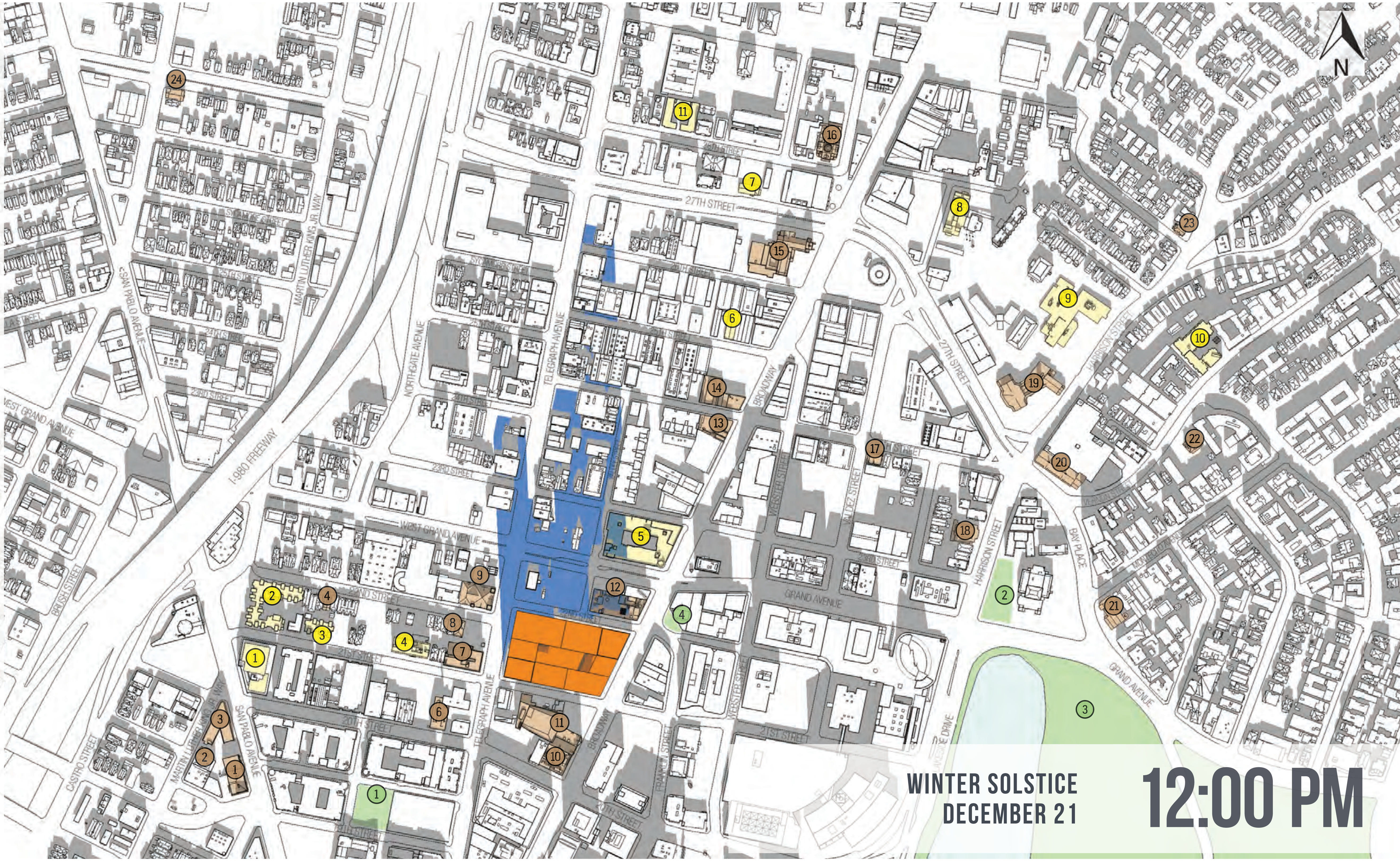

WINTER SOLSTICE
DECEMBER 21

12:00 PM

PREVISION DESIGN

2100 TELEGRAPH: MAXIMUM OFFICE SCENARIO + CUMULATIVE

Cumulative shading diagrams on the Winter Solstice

C.3-2C

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WINTER SOLSTICE
DECEMBER 21

12:00 PM

PREVISION DESIGN

Proposed Project
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2100 TELEGRAPH: MAXIMUM OFFICE SCENARIO

Shading diagrams on the Winter Solstice

C.3-3

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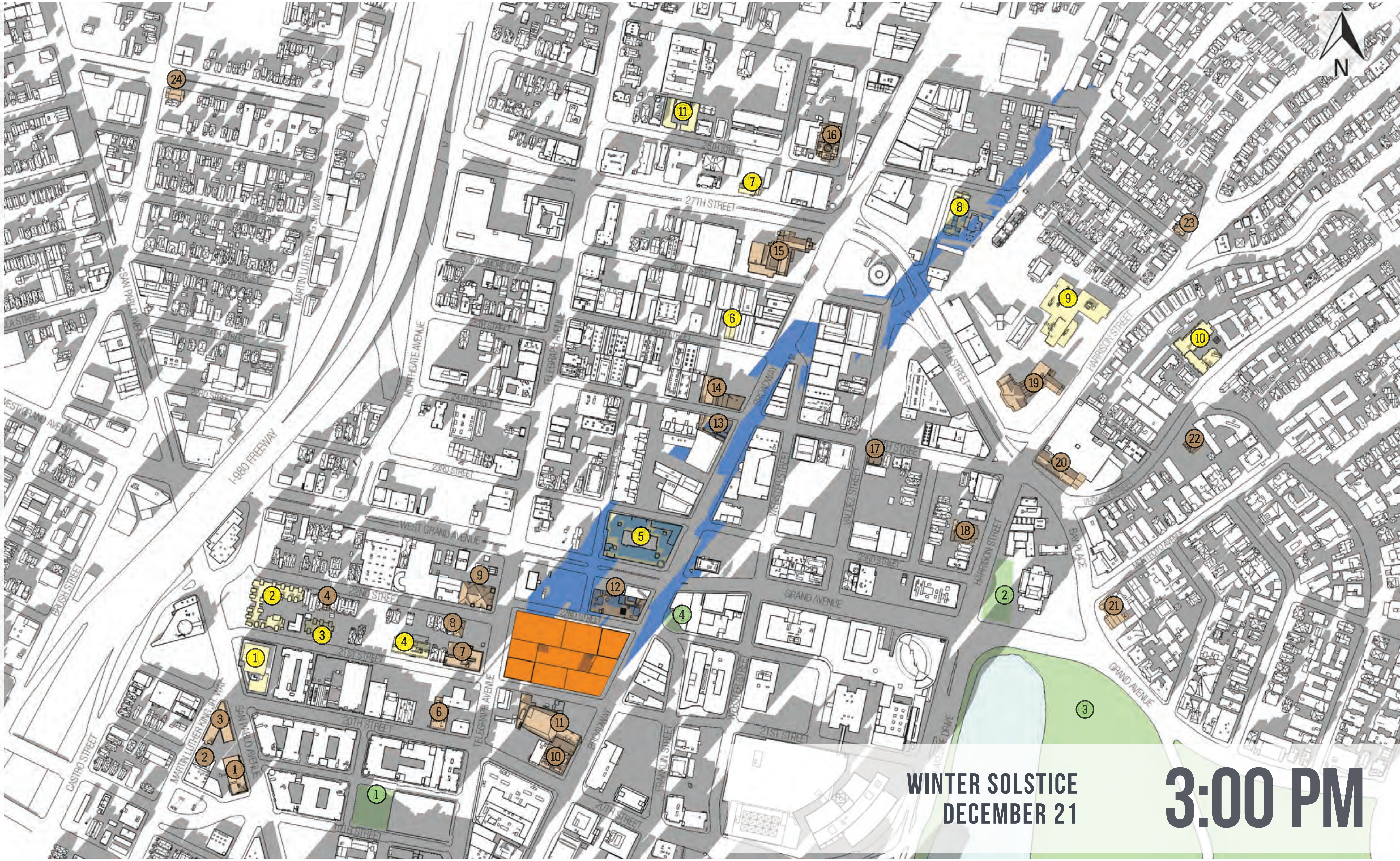

WINTER SOLSTICE
DECEMBER 21

3:00 PM

PREVISION DESIGN

2100 TELEGRAPH: MAXIMUM OFFICE SCENARIO + CUMULATIVE

Cumulative shading diagrams on the Winter Solstice

C.3-3C

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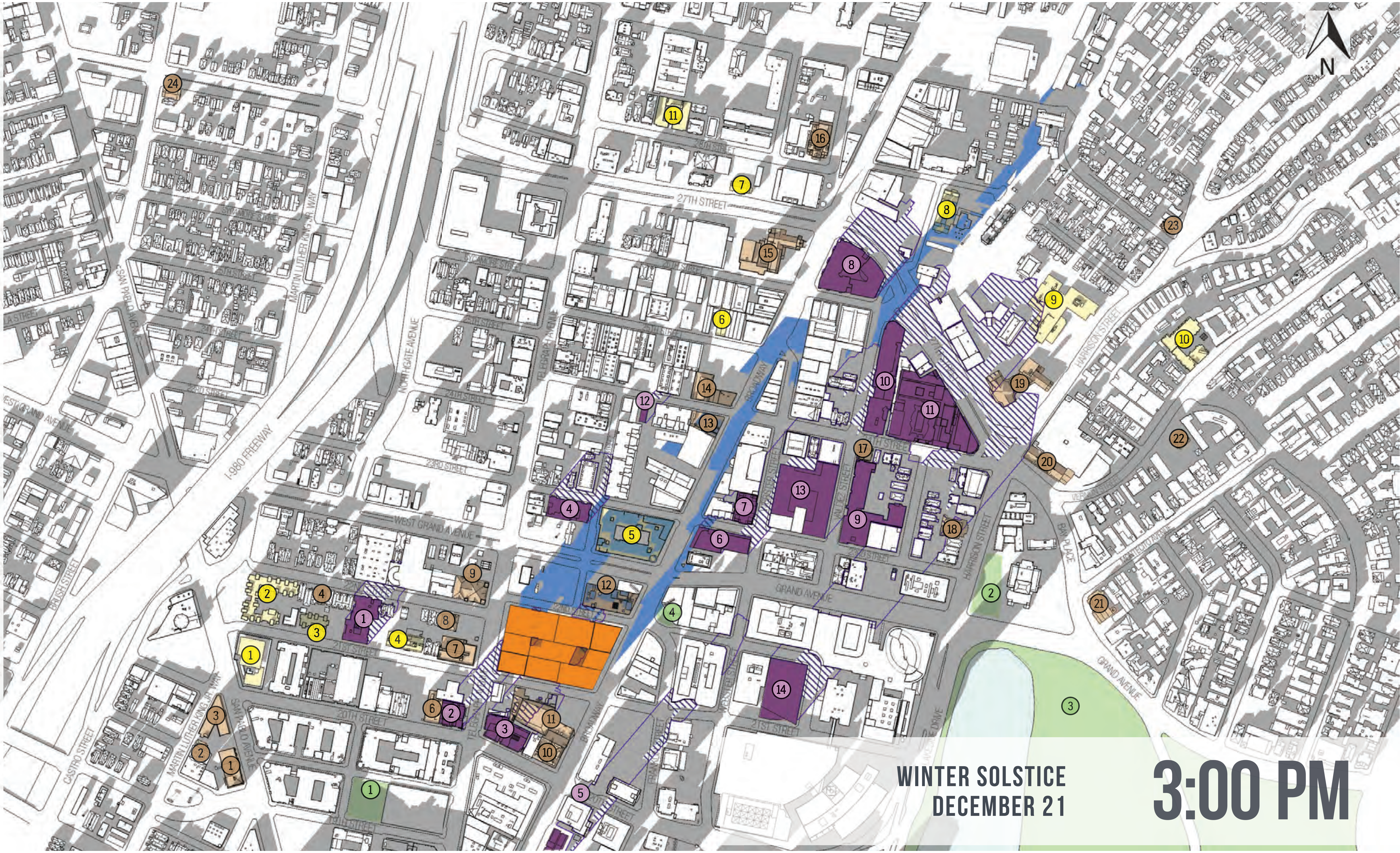

WINTER SOLSTICE
DECEMBER 21

3:00 PM

PREVISION DESIGN

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2100 TELEGRAPH: ALL OFFICE SCENARIO

Shading diagrams on the Summer Solstice

D.1-1

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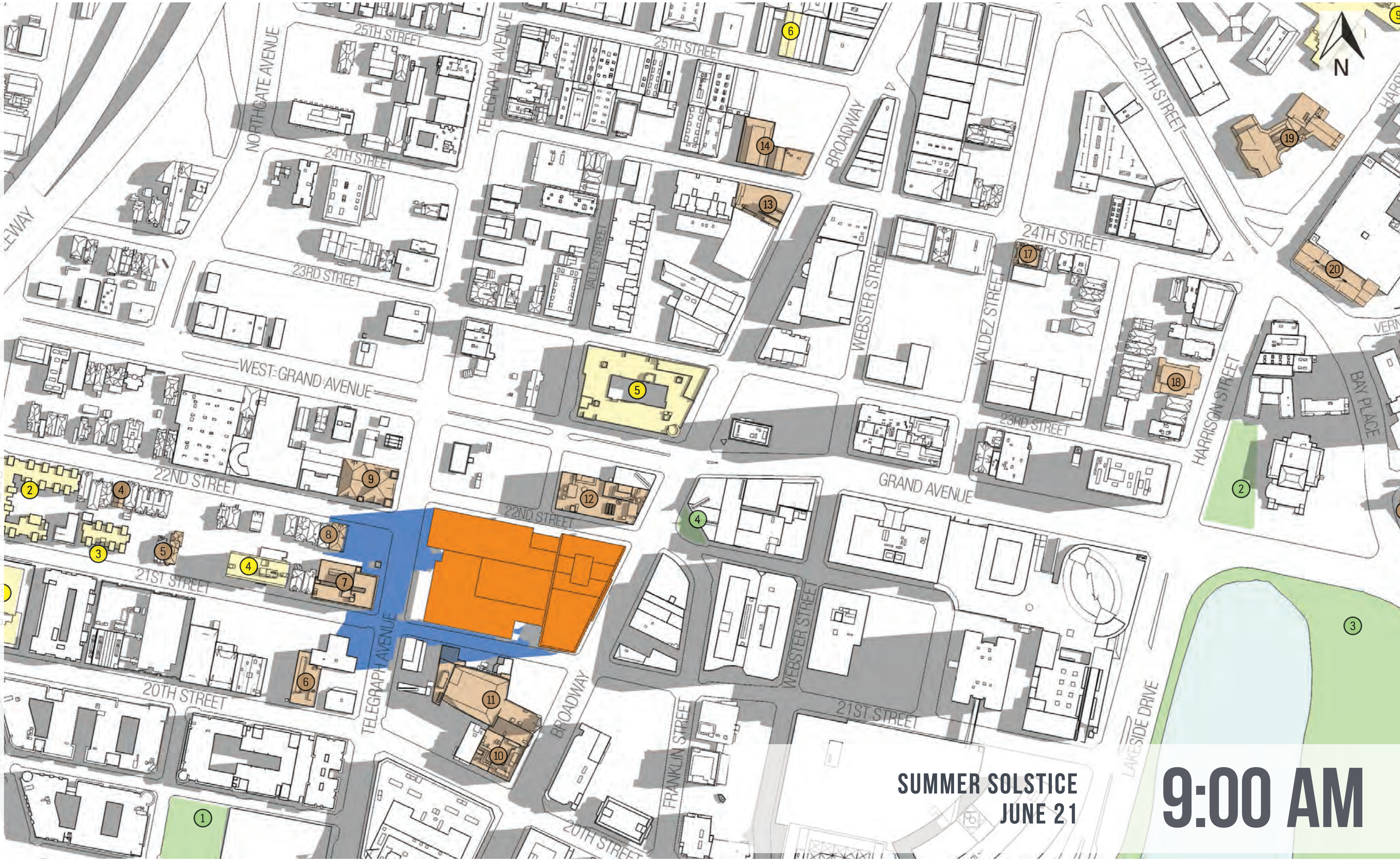

PREVISION DESIGN

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2100 TELEGRAPH: ALL OFFICE SCENARIO + CUMULATIVE

Cumulative shading diagrams on the Summer Solstice

D.1-1C

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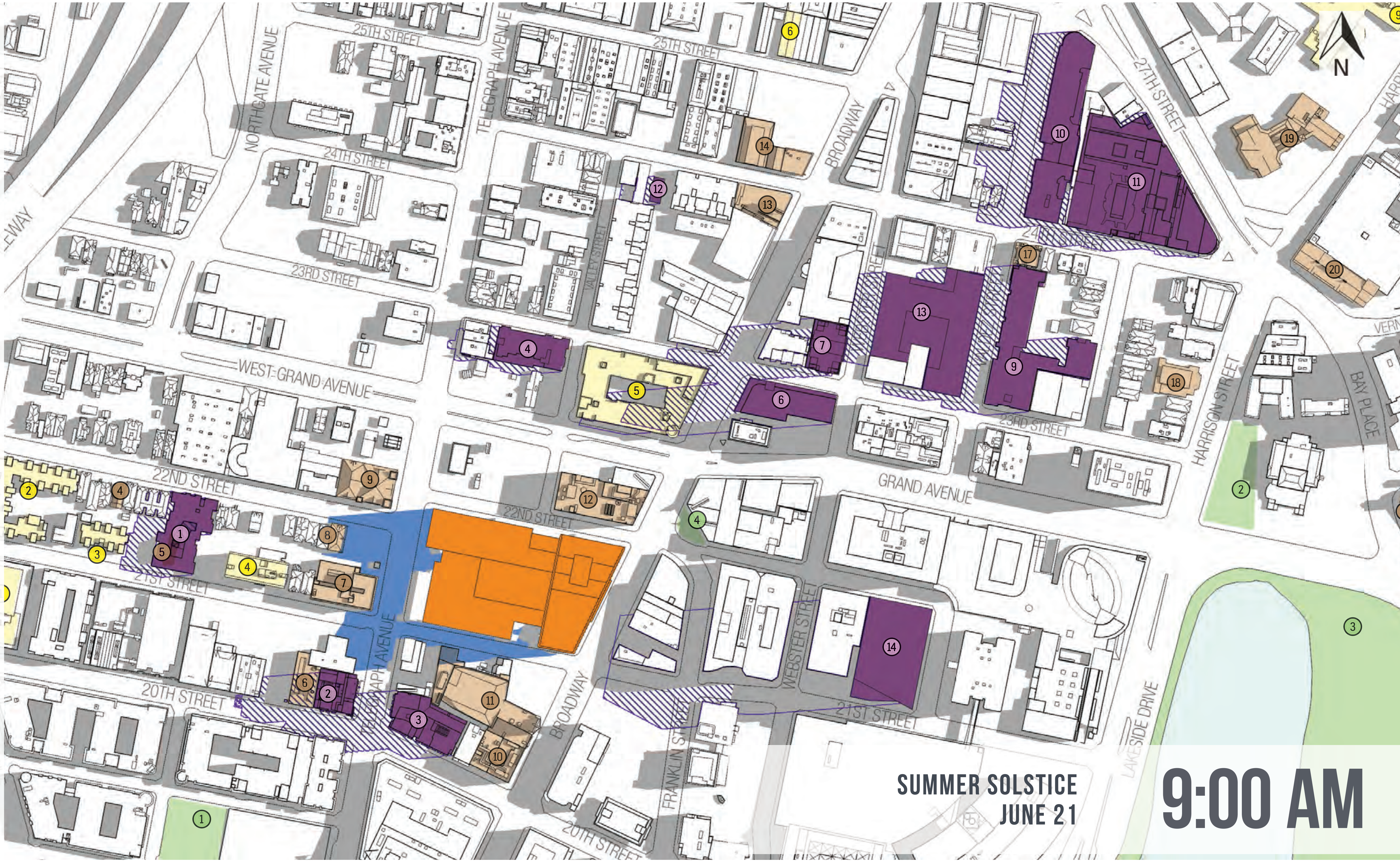

SUMMER SOLSTICE
JUNE 21

9:00 AM

PREVISION DESIGN

2100 TELEGRAPH: ALL OFFICE SCENARIO

Shading diagrams on the Summer Solstice

D.1-2

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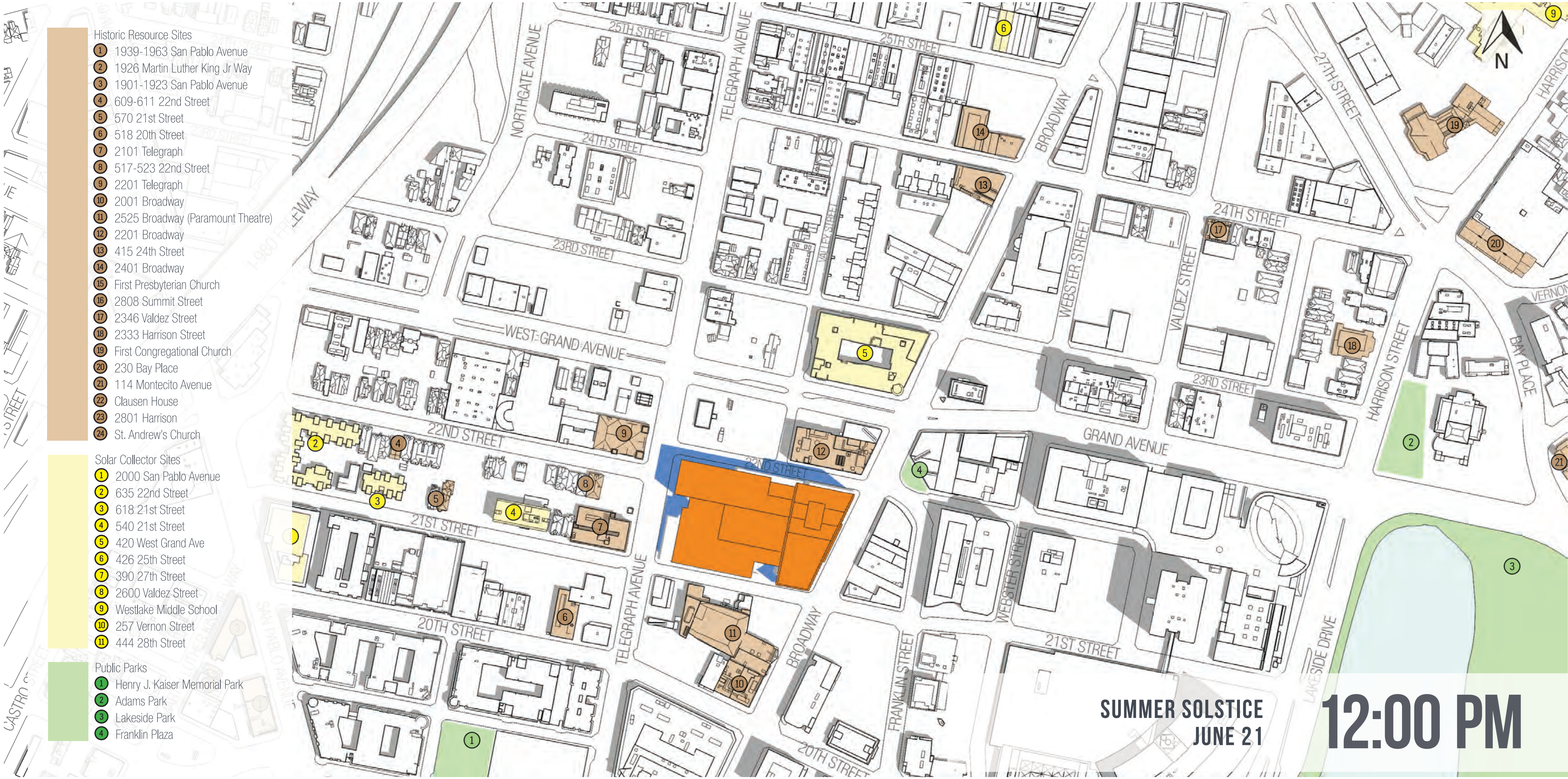

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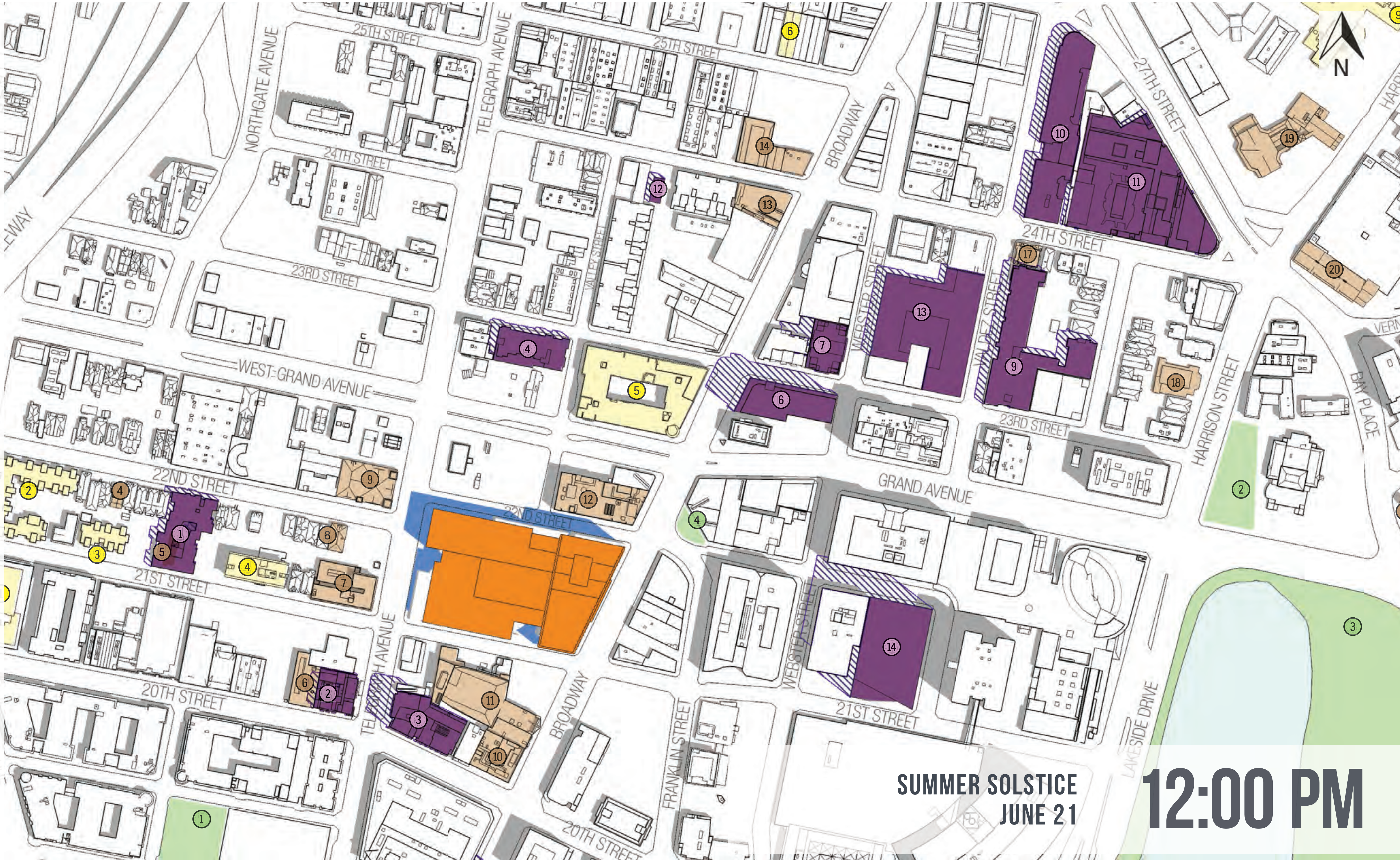

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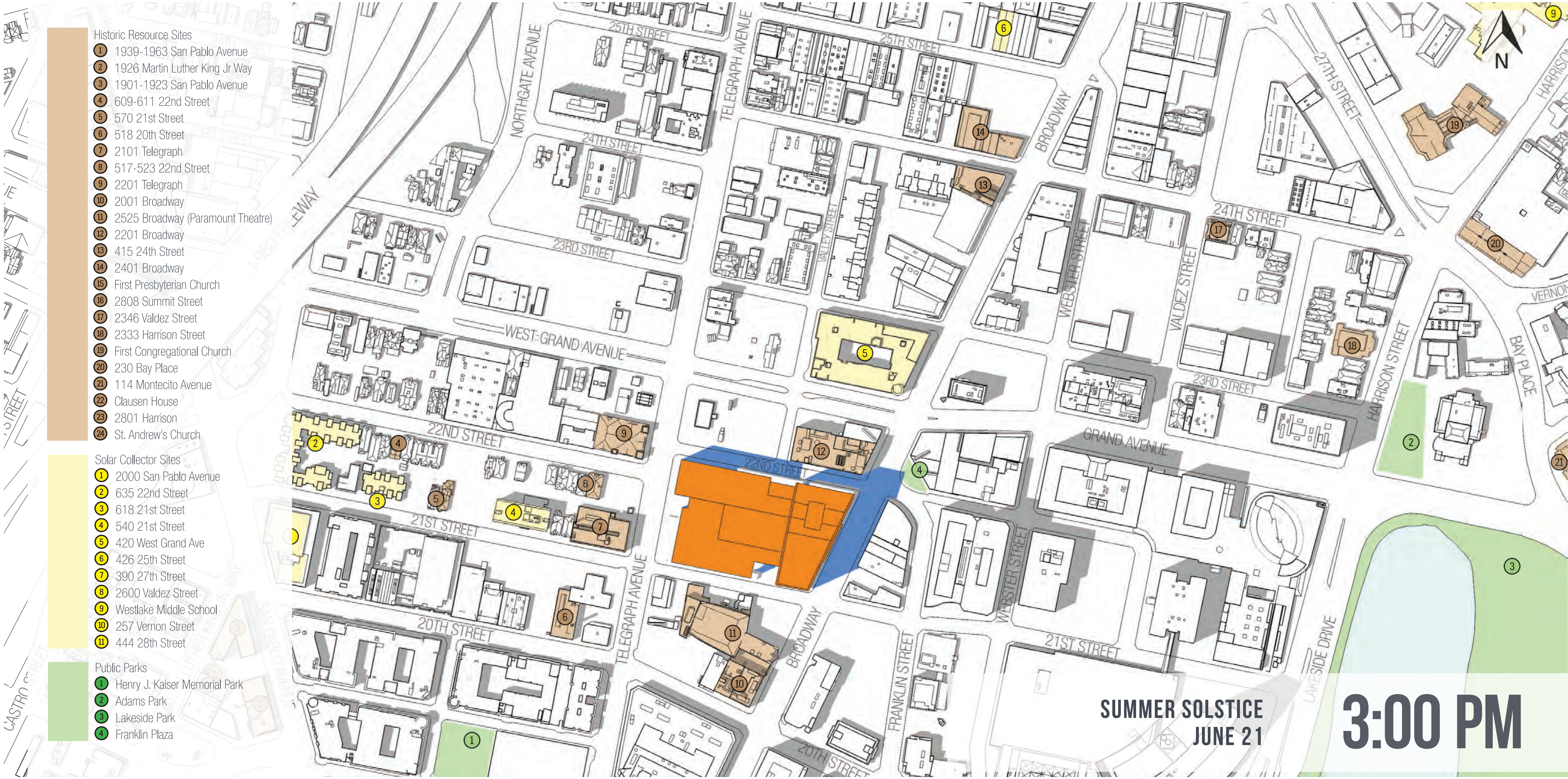

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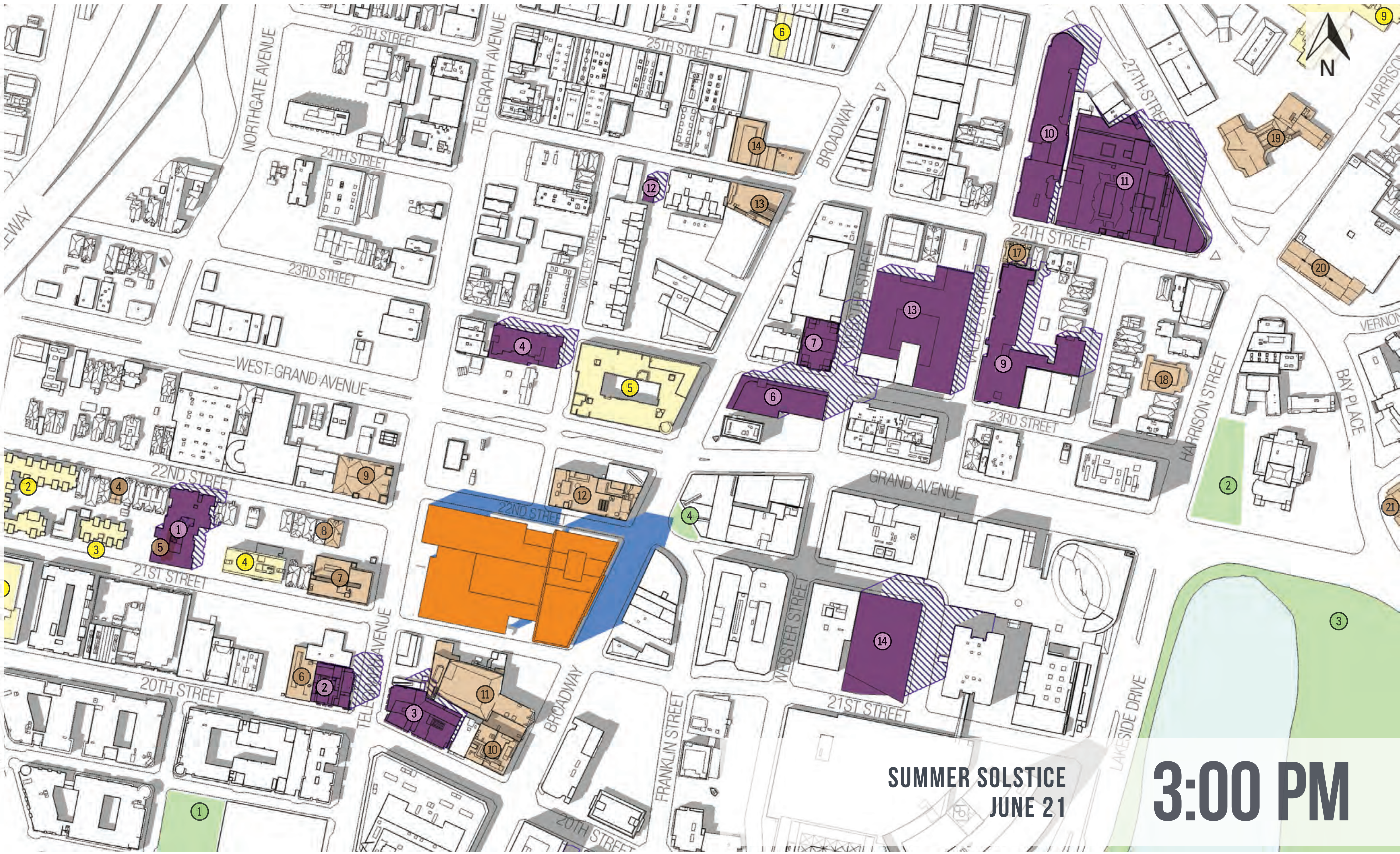

SUMMER SOLSTICE
JUNE 21

3:00 PM

PREVISION DESIGN

Proposed Project
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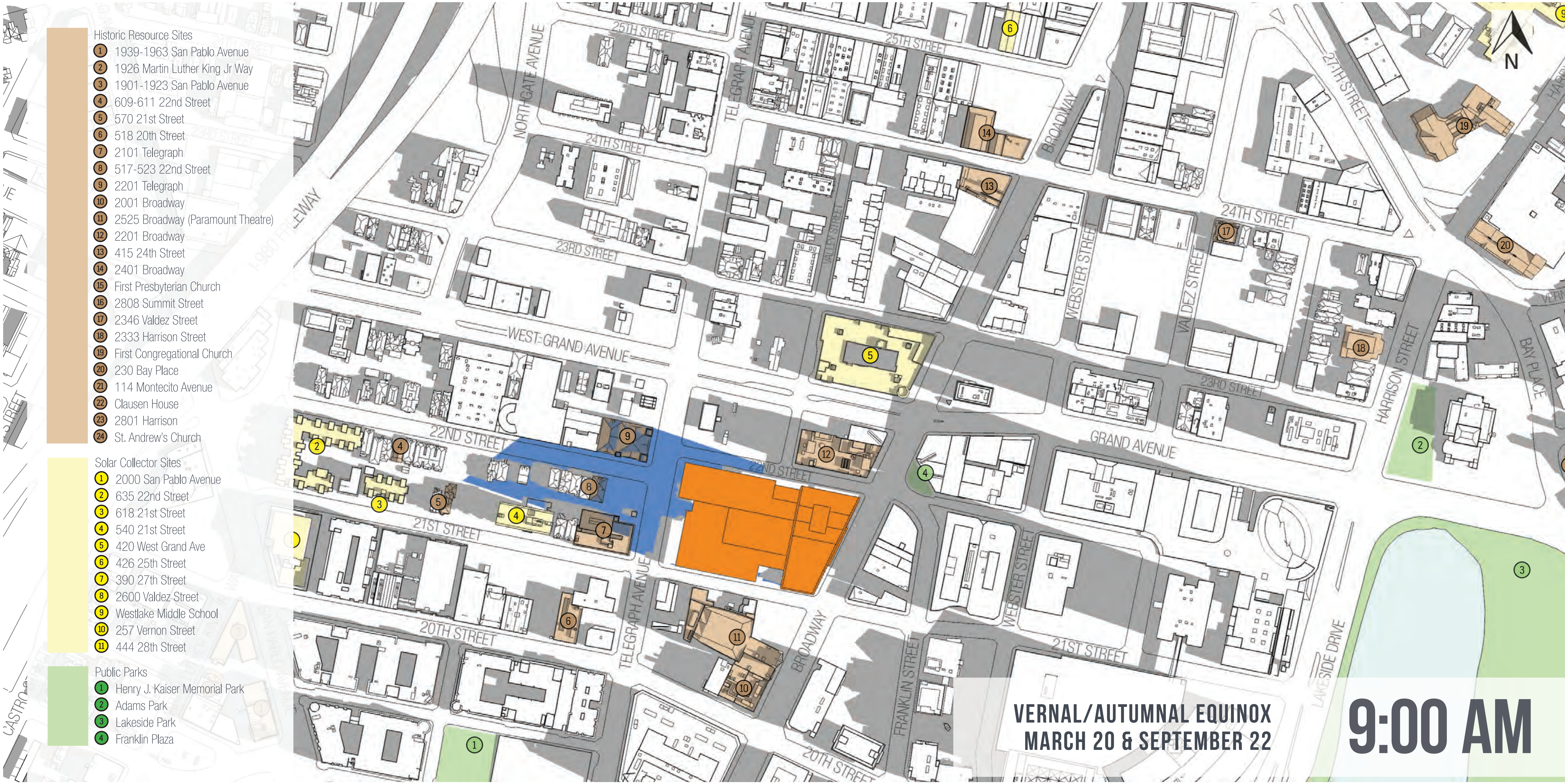
New Shading by Proposed Project

2100 TELEGRAPH: ALL OFFICE SCENARIO

Shading diagrams on the Vernal/Autumnal Equinoxes

D.2-1



VERNAL/AUTUMNAL EQUINOX
MARCH 20 & SEPTEMBER 22

9:00 AM

PREVISION DESIGN

2100 TELEGRAPH: ALL OFFICE SCENARIO + CUMULATIVE

Cumulative shading diagrams on the Vernal/Autumnal Equinoxes

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PREVISION DESIGN

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New Shading by Proposed Project

2100 TELEGRAPH: ALL OFFICE SCENARIO

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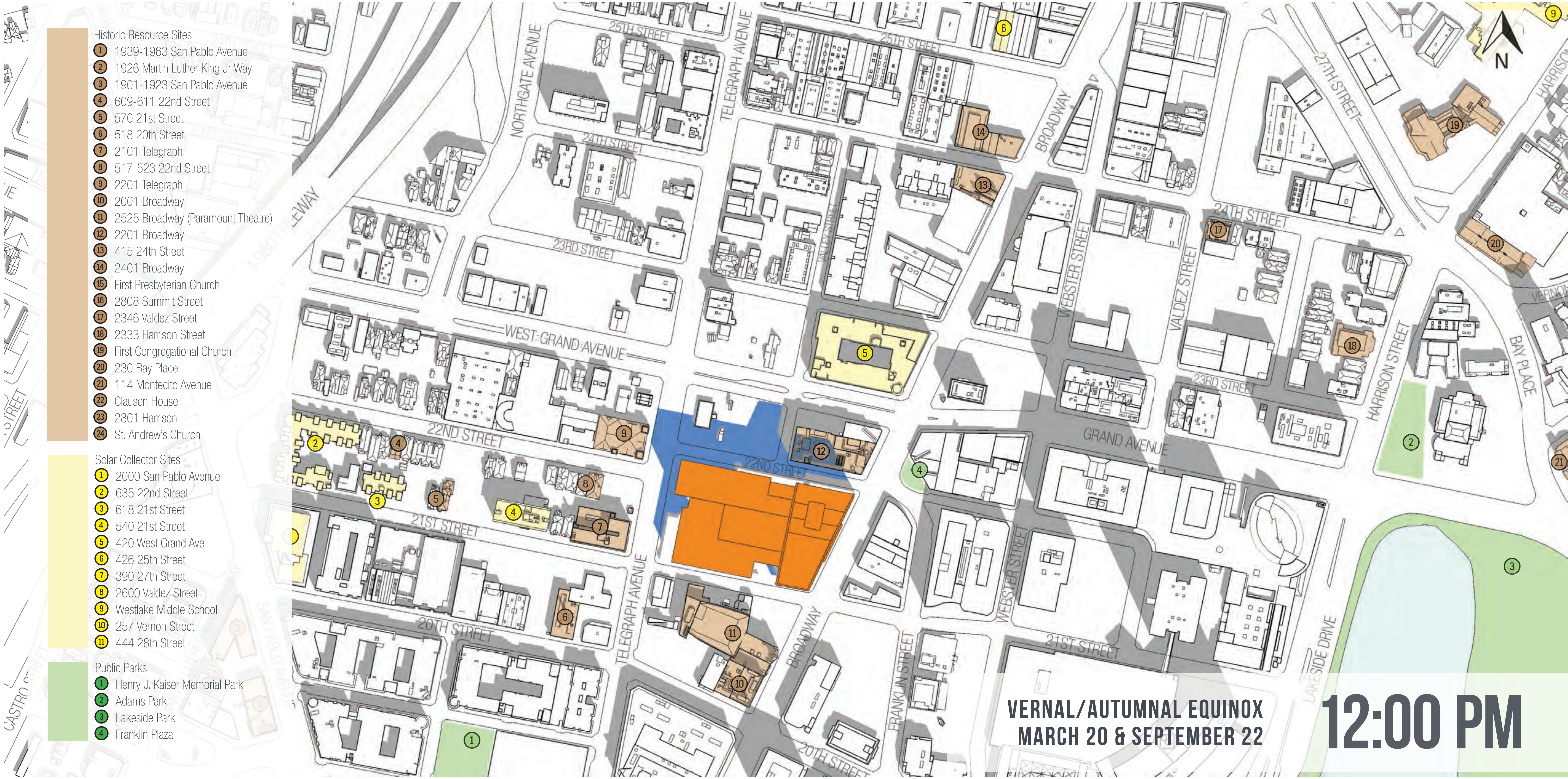
D.2-2



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2100 TELEGRAPH: ALL OFFICE SCENARIO + CUMULATIVE

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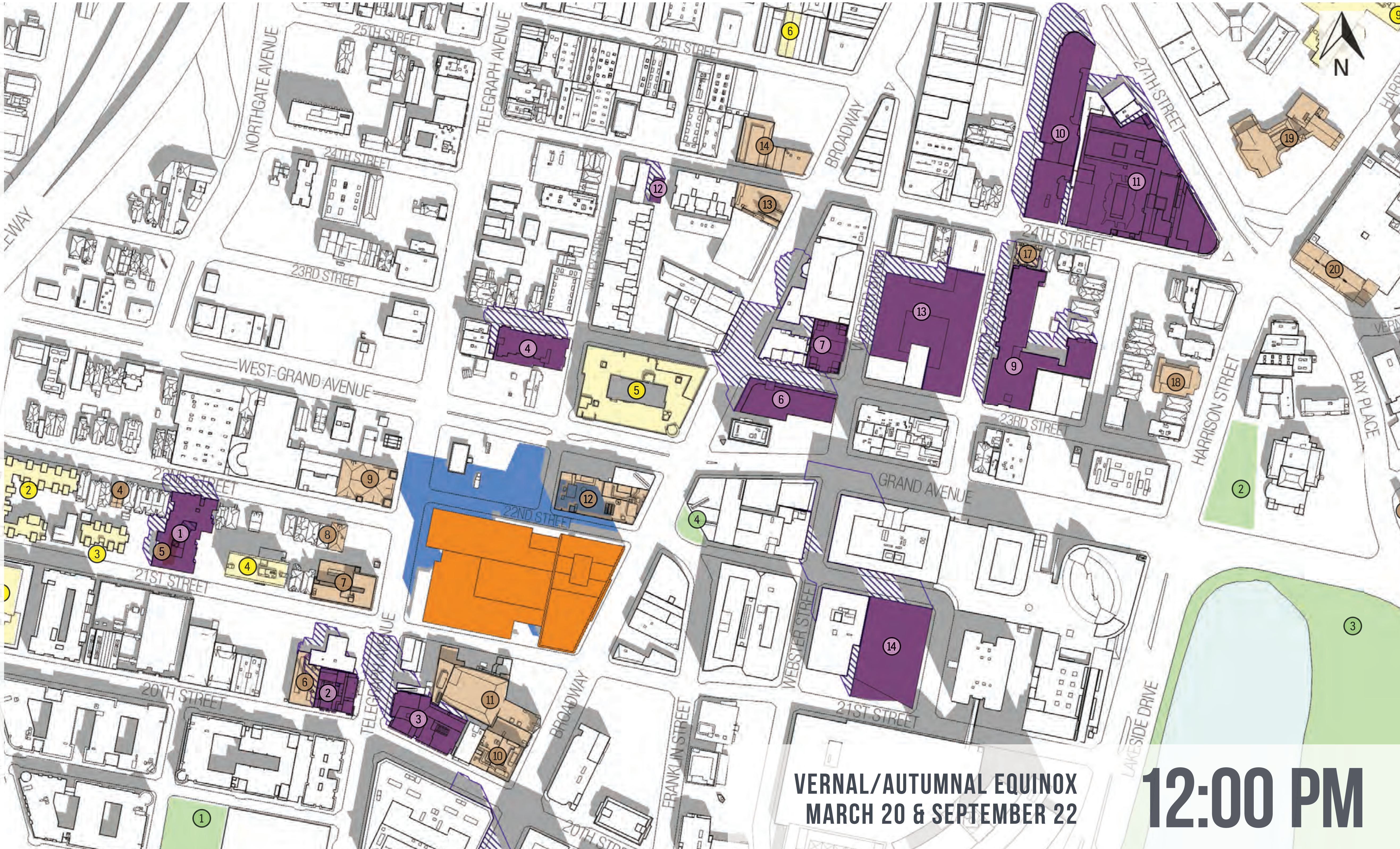

VERNAL/AUTUMNAL EQUINOX
MARCH 20 & SEPTEMBER 22

12:00 PM

PREVISION DESIGN

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2100 TELEGRAPH: ALL OFFICE SCENARIO

Shading diagrams on the Vernal/Autumnal Equinoxes

D.2-3

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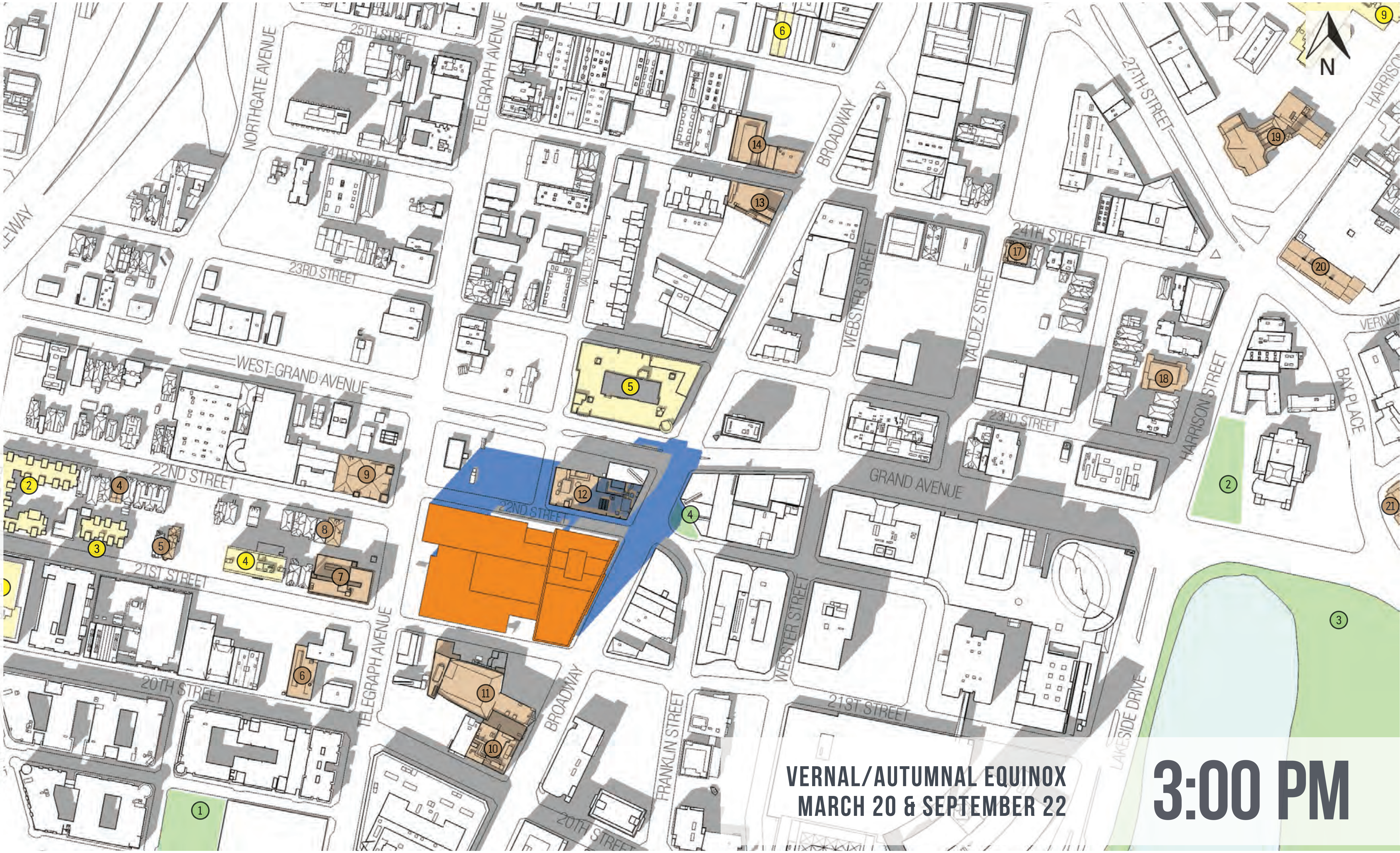

VERNAL/AUTUMNAL EQUINOX
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PREVISION DESIGN

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2100 TELEGRAPH: ALL OFFICE SCENARIO + CUMULATIVE

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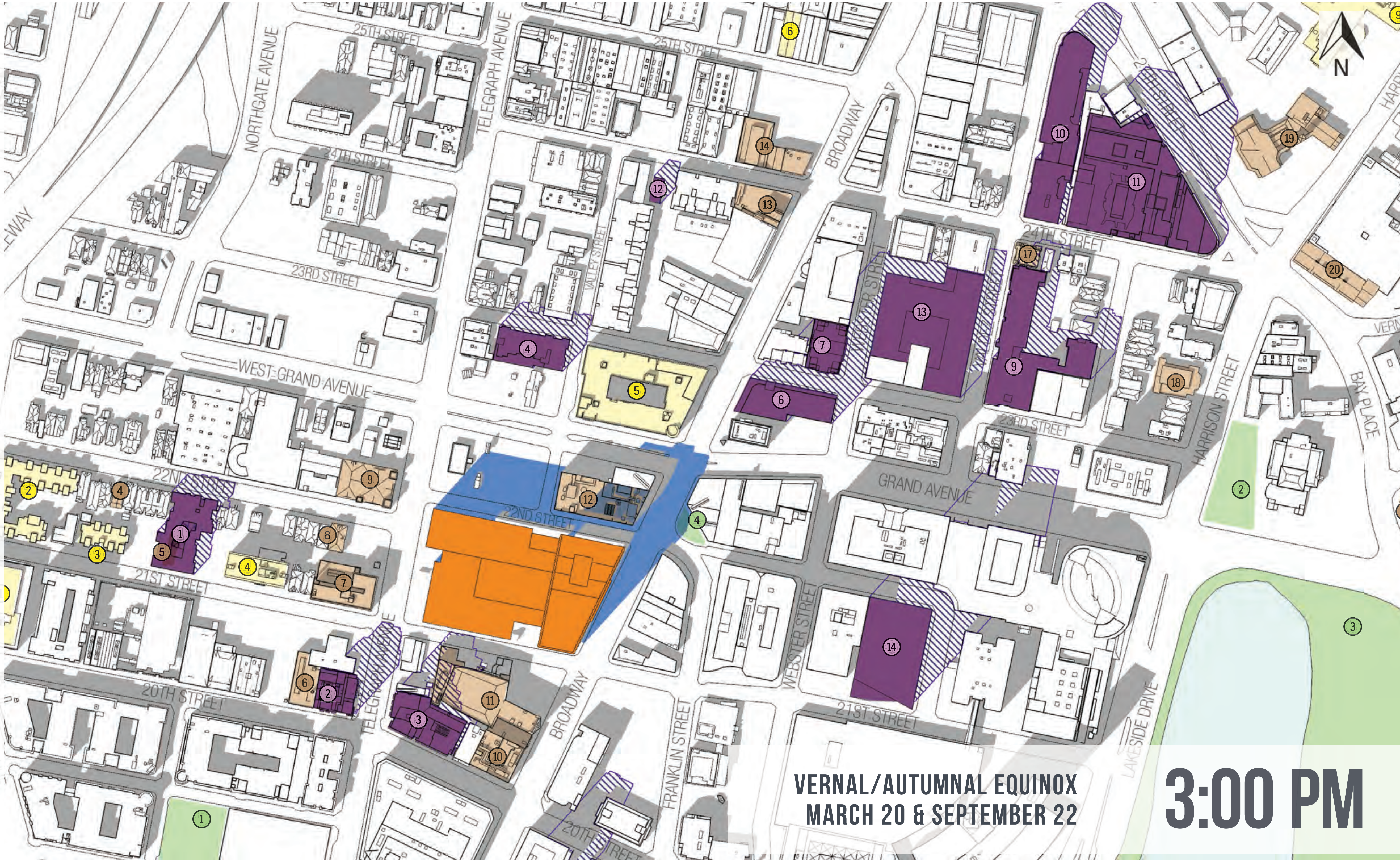

PREVISION DESIGN

Proposed Project
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2100 TELEGRAPH: ALL OFFICE SCENARIO

Shading diagrams on the Winter Solstice

D.3-1

PREVISION DESIGN

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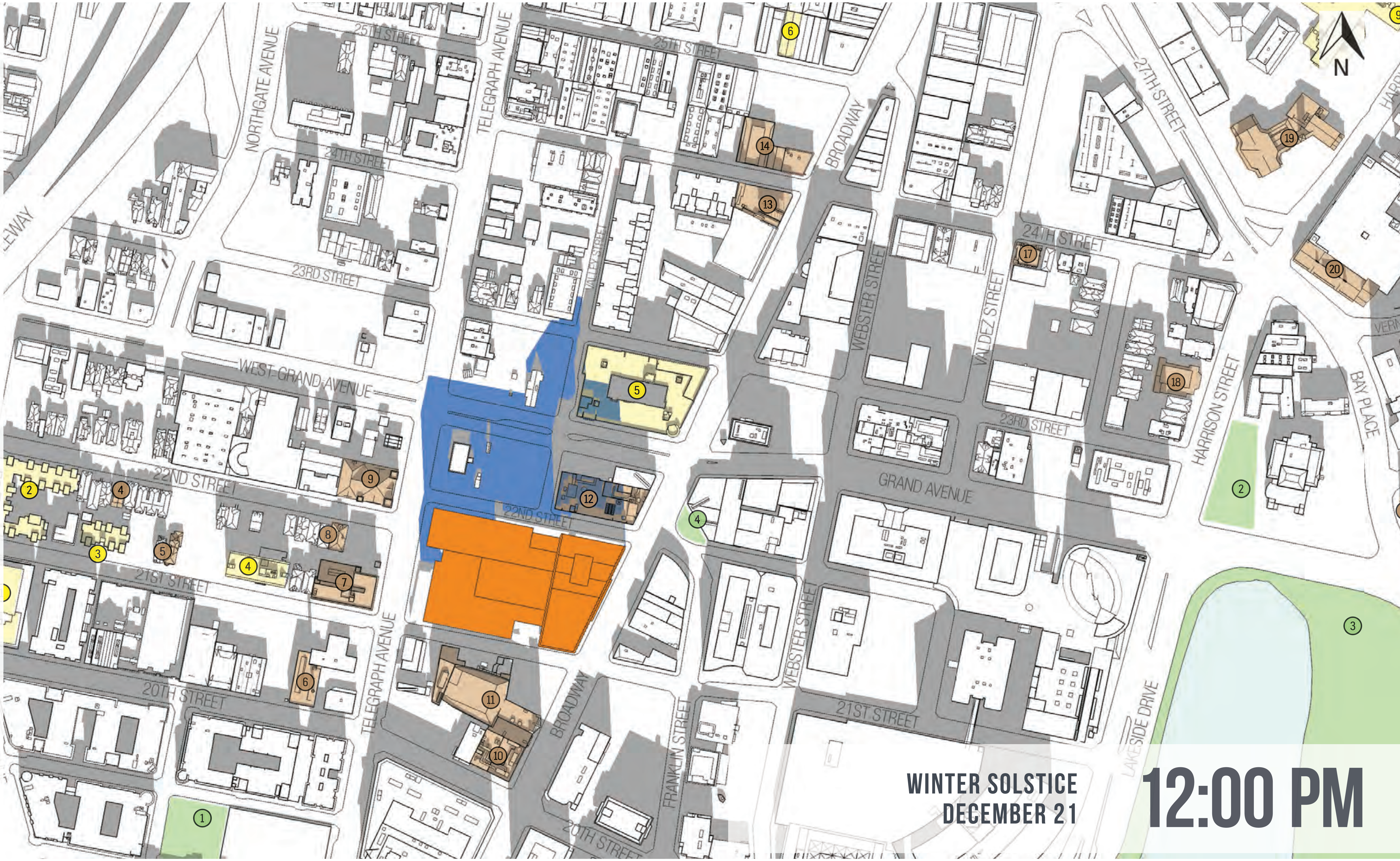

WINTER SOLSTICE
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12:00 PM

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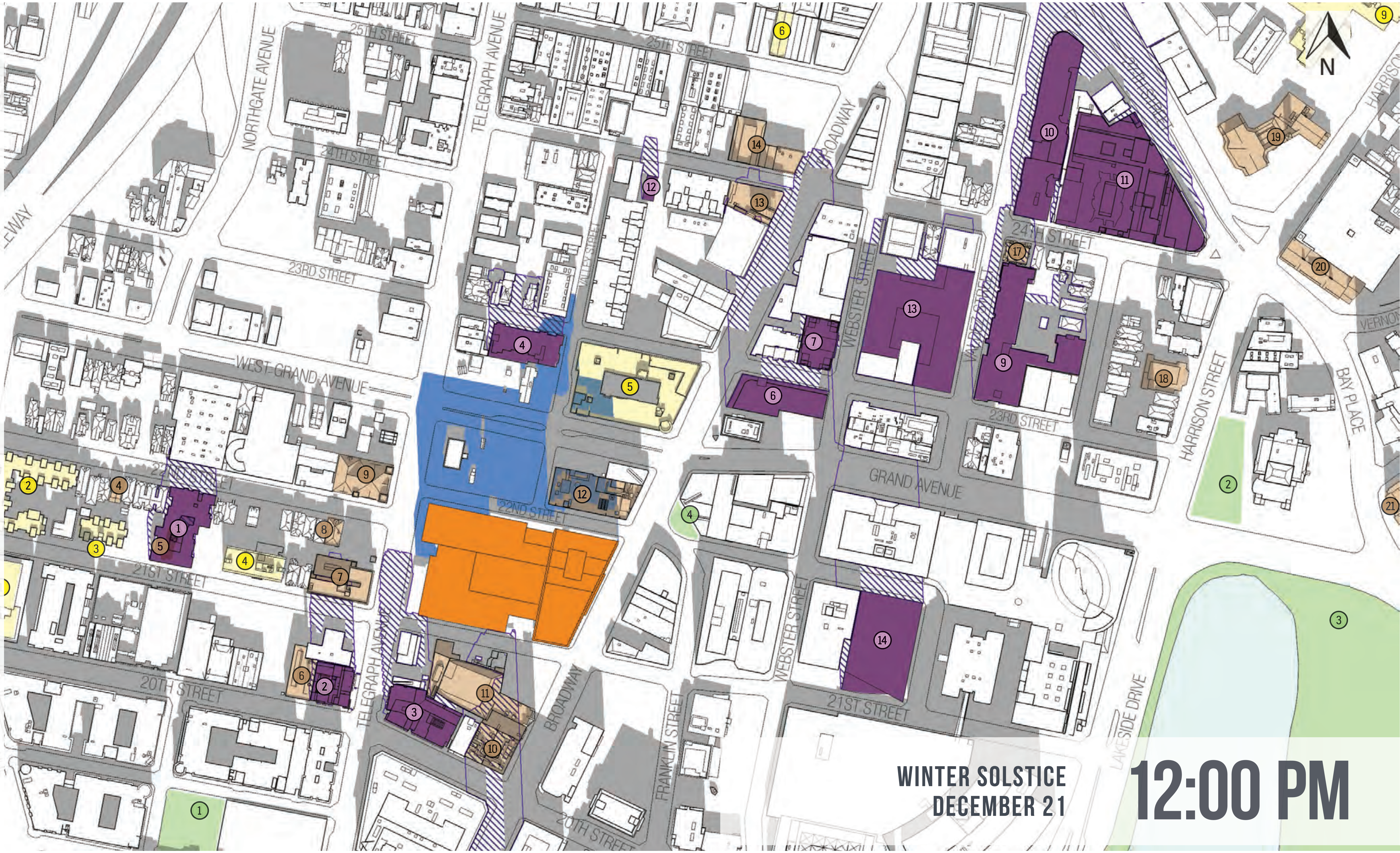

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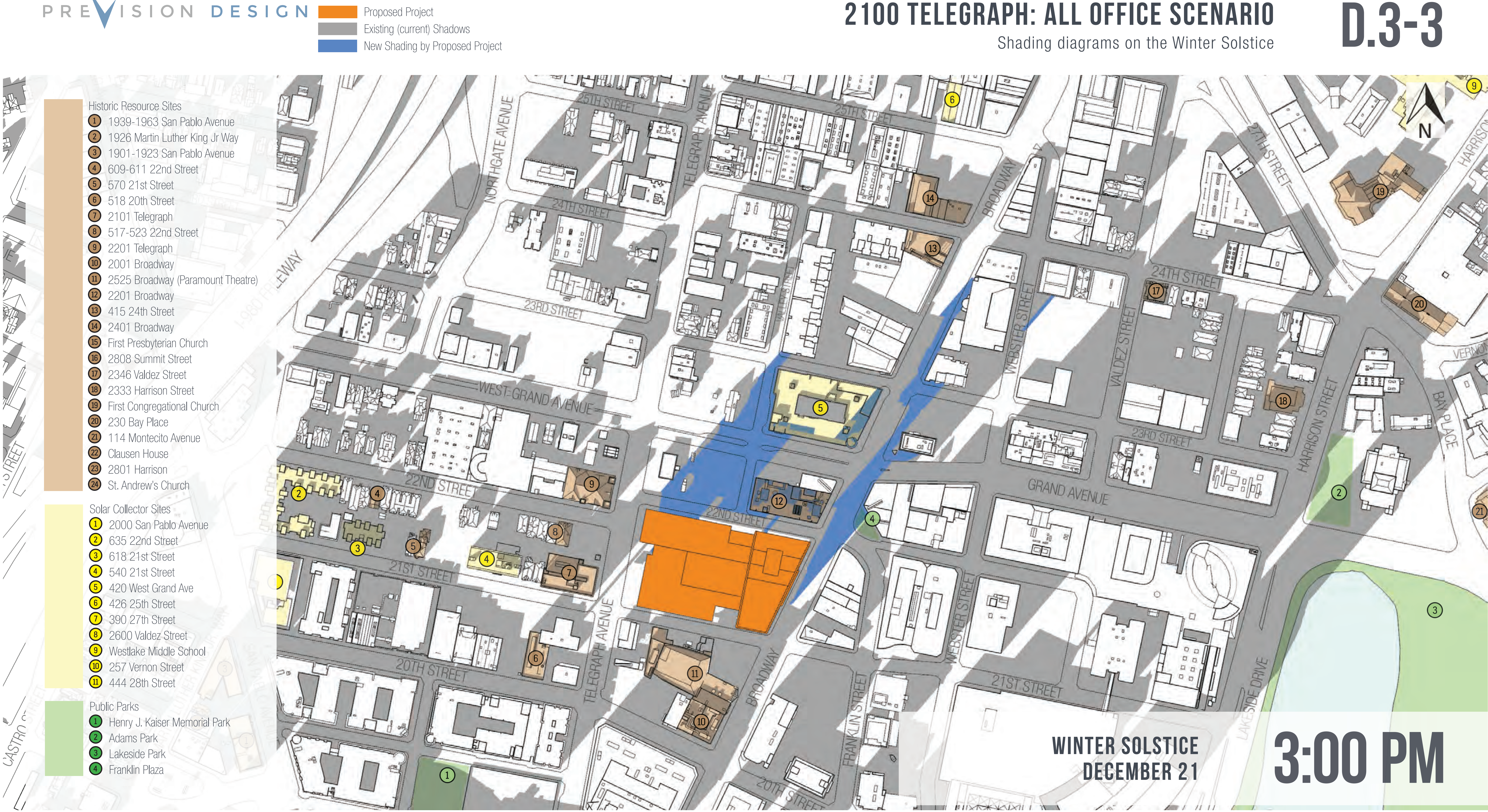

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WINTER SOLSTICE
DECEMBER 21

3:00 PM

REPORT

2100 TELEGRAPH AVE

OAKLAND, CA

PEDESTRIAN WIND STUDY

RWDI #1601334

November 14, 2017

SUBMITTED TO

Carla Violet
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EXECUTIVE SUMMARY

The wind conditions around the proposed 2100 Telegraph Ave development are discussed in detail within the content of this report and are summarized as follows:

- For the Existing Configuration, winds at all grade level locations are anticipated to meet the wind hazard criterion.
- The addition of the proposed Residential, Office Mix Final Development Plan is not expected to induce a location exceeding the wind hazard criterion.
- The addition of the proposed All Office Final Development Plan is expected to induce one location exceeding the wind hazard criterion. The number of hours that exceed the hazard criteria is 5.
- For the two Project plus Cumulative Configurations, the addition of the future developments is expected to improve conditions slightly for both versions of the project. They are not expected to influence the number of hazard exceedance locations when compared to the respective Existing plus Project configurations.

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1 INTRODUCTION

Rowan Williams Davies & Irwin Inc. (RWDI) was retained by Urban Planning Partners Inc. to assess and consult on the pedestrian wind conditions on and around the proposed 2100 Telegraph Avenue (Project) in Oakland, California. The Project site, as shown in Image 1, is bound between 22nd St to the north, Broadway to the east, 21st St to the south and Telegraph Ave to the west. The design team is considering multiple massing options, two of which are presented in this report.

The purpose of the study is to assess the wind environment around the Project in terms of pedestrian comfort and safety. The quantitative assessment was based on wind speed measurements on a 1:300 (1" = 25') scale model of the project and its surroundings in a boundary-layer wind tunnel.

This report summarizes the methodology of wind tunnel studies for pedestrian wind conditions, describes the Oakland wind criteria and presents the local wind conditions and their effects on pedestrians.

Image 1: Site plan – Aerial view of site and surroundings (Google™ Earth)

2 METHODOLOGY

2.1 Wind Tunnel Study Model

To assess the wind environment around the proposed Project, a 1:300 scale model of the project site and surroundings was constructed for the wind tunnel tests and the following configurations were tested:

A - Existing:

Existing site with existing surroundings, including buildings that are approved/under-construction (Image 2a);

B – Existing + Residential/Office Mix Final Development Plan:

Proposed Residential/Office Mix Final Development Plan present with existing and approved/under construction surrounding buildings, (Image 2b);

C – Existing + All Office Final Development Plan:

Proposed All Office Final Development Plan present with existing and approved/under-construction surrounding buildings, (Image 2c);

D - Residential/Office Mix Final Development Plan + Cumulative:

Proposed Residential/Office Mix Final Development Plan present with existing and approved/under-construction surrounding buildings as well as anticipated future buildings (Image 2d); and,

E - All Office Final Development Plan + Cumulative:

Proposed All Office Final Development Plan present with existing and approved/under-construction surrounding buildings as well as anticipated future buildings (Image 2e).

The scale model of the proposed Project (as shown in Images 2b through 2e) was constructed using the design information and drawings listed in Appendix A. The wind tunnel model included all relevant surrounding buildings and topography within an approximately 1200ft radius of the study site. The boundary-layer wind conditions beyond the modelled area were also simulated in RWDI's wind tunnel. The wind tunnel model was instrumented with up to 76 wind speed sensors to measure mean and gust wind speeds at a full-scale height of 5 ft. The placement of wind measurement locations was based on our experience and understanding of the pedestrian usage for this site, and reviewed by Urban Planning Partners. These measurements were recorded for 36 equally incremented wind directions.

Image 2a: Wind tunnel study model - Existing configuration

Image 2b: Wind tunnel study model – Existing + Residential/Office Mix Final Development Plan configuration

Image 2c: Wind tunnel study model – Existing + All Office Final Development Plan configuration

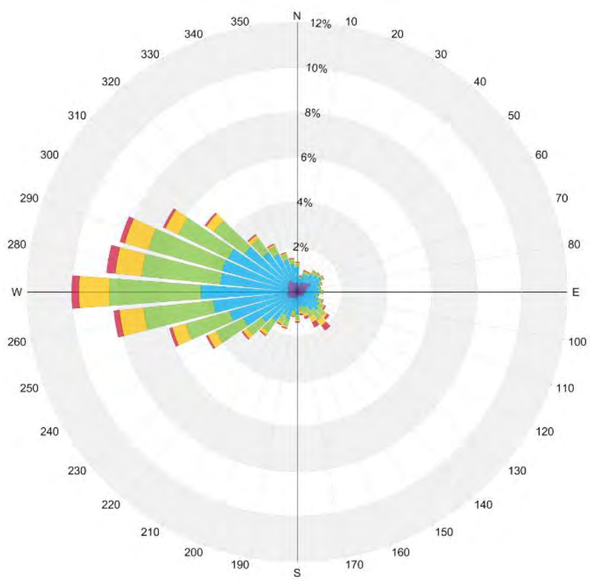
Image 2d: Wind tunnel study model - Residential/Office Mix Final Development Plan + Cumulative configuration

Image 2e: Wind tunnel study model - All Office Final Development Plan + Cumulative configuration

2.2 Meteorological Data

Wind statistics recorded at the Metropolitan Oakland International Airport between 1984 and 2014 were analyzed for annual wind conditions. Image 3 graphically depicts the directional distributions of annual wind frequencies and speeds. Winds are frequent from the northwest through west-southwest directions throughout the year, as indicated by the wind rose. Strong winds of a mean speed greater than 20 mph measured at the airport (at an anemometer height of 33 feet) occur 3.0% of the time annually.

Wind statistics from the Metropolitan Oakland International Airport were combined with the wind tunnel data in order to predict the frequency of occurrence of full-scale wind speeds. The full-scale wind predictions were then compared with the City of Oakland Significant Wind Impact Criterion.



Wind Speed (km/h)	Probability (%)
Calm	0.0
1-5	14.0
6-10	44.1
11-15	29.4
16-20	9.4
>20	3.0

Annual Winds

Image 3: Directional distribution of winds approaching Metropolitan Oakland International Airport from 1984-2014

2.3 Planning Code Requirements

A wind analysis needs to be done if the height of the project is 100 feet or greater (measured to the roof) and one of the following conditions exists: (a) the project is located adjacent to a substantial water body (i.e. Oakland Estuary, Lake Merritt or San Francisco Bay); or (b) the project is located Downtown. Since the proposed project (approximately 130 feet tall) exceeds 100 feet in height and is located Downtown, it is subject to the thresholds of significance.

For the purposes of this study, the City of Oakland considers a significant wind impact to occur if a project were to "Create winds exceeding 36 mph for more than one hour during daylight hours during the year". The Planning Code defines these wind speeds in terms of equivalent wind speeds, and average wind speed (mean velocity), adjusted to include the level of gustiness and turbulence. Equivalent wind speeds were calculated according to the specifications in the City of Oakland Significant Wind Impact Criterion, whereby the mean hourly wind speed is increased when the turbulence intensity is greater than 15% according to the following formula:

$$\boldsymbol{EWS} = \boldsymbol{V_m} \times (\mathbf{2} \times \boldsymbol{TI} + \mathbf{0.7})$$

where $\boldsymbol{EWS}$ = equivalent wind speed

$\boldsymbol{V_m}$ = mean pedestrian-level wind speed

$\boldsymbol{TI}$ = turbulence intensity

2.4 Pedestrian Comfort

Although not applicable towards Significant Wind Impacts as defined by the City of Oakland, wind comfort speeds have been calculated for informational purposes. The comfort criteria are that wind speeds do not exceed 11 mph for more than 10% of the time during the year, when calculated for daylight hours, in substantial pedestrian use areas. A lower wind speed threshold of 7 mph may be considered for public seating areas where calmer wind conditions are ideal.

2.5 In-Construction and Cumulative Buildings

Buildings in the surrounding area that are under construction and/or have been approved were modeled in accordance with the information as agreed on April 20th, 2017 with the project team. Anticipated future buildings were included in the Project plus Cumulative configurations. These sites are shown in Image 4 and listed in the table below.

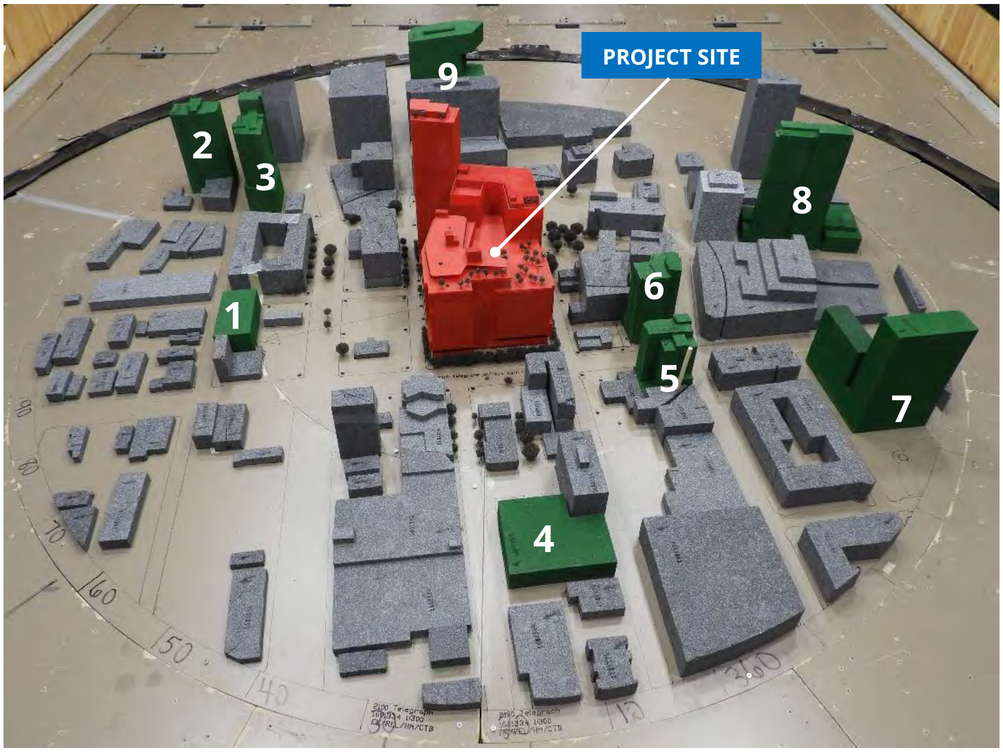


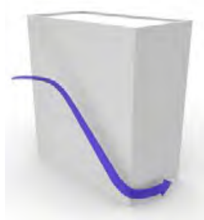
Image 4: Cumulative buildings

CUMULATIVE BUILDING LIST			
1	459 23rd Street	6	2016 Telegraph Avenue
2	2305 Webster Street	7	1911 Telegraph Avenue
3	2270 Broadway	8	1900 Broadway
4	535 22nd Street	9	Kaiser Plaza
5	2015 Telegraph Avenue		

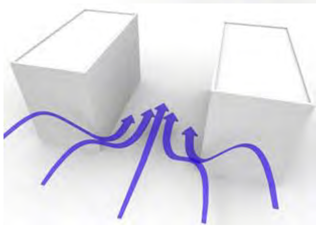
3 OVERVIEW OF PEDESTRIAN WINDS

In our discussion of anticipated wind conditions, reference may be made to the following generalized wind flows:

Downwashing Tall buildings tend to intercept the stronger winds at higher elevations and redirect them to the ground level. This is often the main cause for wind accelerations around large buildings at the pedestrian level;



Corner Acceleration When winds approach at an oblique angle to a tall façade and are deflected down, a localized increase in the wind activity or corner acceleration can be expected around the downwind building corner at pedestrian level; and,



Channeling Effect When two buildings are situated side by side, wind flow tends to accelerate through the space between the buildings due to channeling effect caused by the narrow gap.

If these building/wind combinations occur for prevailing winds, there is a greater potential for increased wind activity. Design details such as; setting back a tall tower from the edges of a podium, deep canopies close to ground level, wind screens, tall trees with dense landscaping, etc. (Image 5) can help reduce wind speeds. The choice and effectiveness of these measures would depend on the exposure and orientation of the site with respect to the prevailing wind directions and the size and massing of the proposed buildings.

Podium/tower setback, canopy, landscaping and wind screens (left to right)

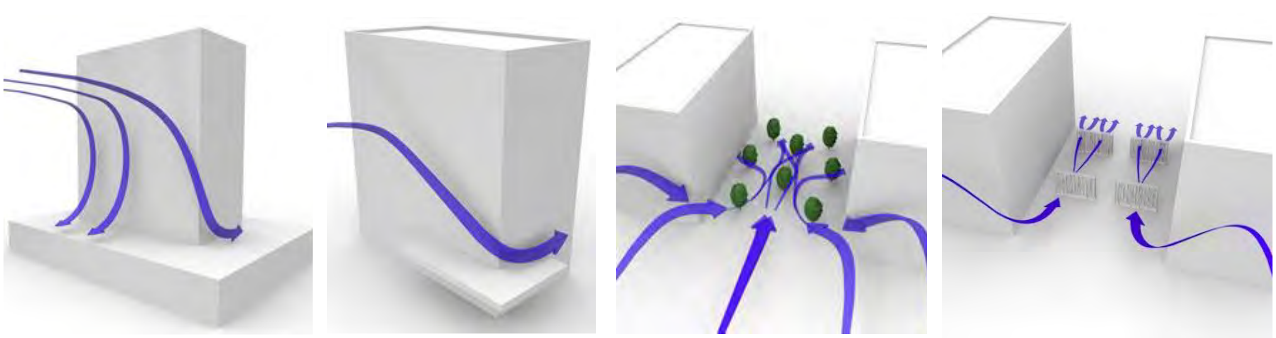


Image 5: Common flow patterns and wind control measures

4 PREDICTED WIND CONDITIONS

This section presents the results of the wind tunnel measurements analyzed in terms of equivalent wind speeds as defined by the equation in Section 2.3. The text in the report simply refers to the data as wind speeds.

Table 1 presents the wind hazard results for the five configurations tested, and lists the wind speed predicted to be exceeded one hour per year at each measurement point. The predicted number of hours per year that the City of Oakland Significant Wind Impact Criterion (one-minute wind speed of 36 mph) is exceeded is also provided. A letter “e” in the last column of each configuration indicates an exceedance of the wind hazard.

Also included in Table 1, are the wind comfort results for the five configurations tested. For each measurement point, the measured 10% exceeded (90^{th} percentile) equivalent wind speed and the percentage of time that the wind speed exceeds 11 mph are shown for areas considered to be used primarily for walking. A letter “e” in the last column of each configuration indicates a wind comfort exceedance above 11 mph.

4.1 Wind Hazard Conditions

4.1.1 Configuration A – Existing

Of the 74 grade level locations tested for the Existing configuration, wind speeds at none currently exceed the hazard criterion and wind speeds average at 23 mph (Figure 1a and Page 10 of Table 1).

4.1.2 Configuration B – Existing + Residential/Office Mix Final Development Plan

76 grade level locations were measured in this configuration, of which, wind speeds at none of the tested locations is expected to exceed the hazard criterion (Figure 1b and Table 1). Considering all grade level locations, the average wind speed is predicted increase slightly to be 26 mph.

4.1.3 Configuration C - Existing + All Office Final Development Plan

76 grade level locations were measured in this configuration, of which, wind speeds at one of the tested locations is expected to exceed the hazard criterion (Location 52, Figure 1c and Table 1). This is an offsite location and if this version of the project is to be chosen as the final option, this location will need to be mitigated by massing refinements or off-site wind control measures. Considering all grade level locations, the average wind speed is predicted to increase further to be 28 mph, with the number of hours of the threshold exceedance equal to 5 hours.

4.1.4 Configuration D - Residential/Office Mix Final Development Plan + Cumulative

Conditions are improved with the addition of the cumulative buildings with the number of exceedance location remaining at zero and the average wind speed decreases to 25mph when compared to Configuration B.

4.1.5 Configuration E - All Office Final Development Plan + Cumulative

Conditions are improved with the addition of the cumulative buildings for this massing option also and the number of exceedance location remains at one with the average wind speed decreasing to 27mph and the number of hours of exceedance is down to 3 hours when compared to Configuration C.

4.2 Wind Comfort Conditions

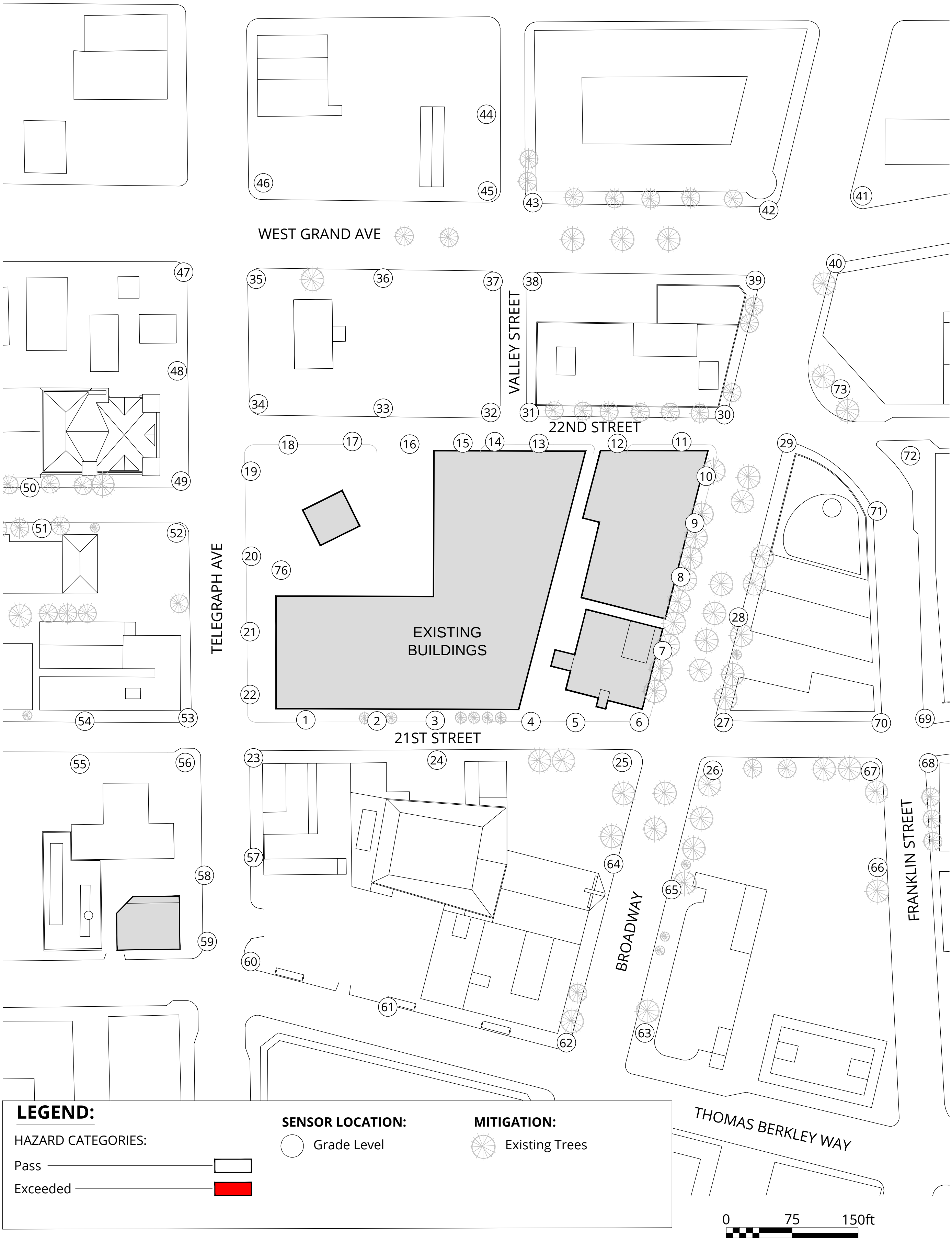
Wind comfort speeds have been calculated for informational purposes, and are not applicable towards Significant Wind Impacts as defined by the City of Oakland. In the Existing configuration, the wind speeds in the vicinity of the project site are predicted to be moderate, with those at a majority of locations meeting the 11 mph criterion (Figure 2a and Table 1). Higher wind speeds exceeding the 11 mph criterion are expected at 12 isolated locations at street intersections surrounding the project site (Figure 2a).

With the addition of the proposed project (Residential/ Office Mix or All Residential), wind activity in the areas surrounding the project are predicted to increase in general. The resulting wind speeds are expected to exceed the 11 mph criterion at additional locations around the project (Figures 2b and 2c). Again, the future cumulative buildings improve the wind conditions and reduce the numbers of exceedances.

5 APPLICABILITY

The wind conditions presented in this report pertain to the proposed 2100 Telegraph Avenue as detailed in the architectural design drawings listed in Appendix A. Should there be any design changes that deviate from this list of drawings, the wind condition predictions presented may change. Therefore, if changes in the design are made, it is recommended that RWDI be contacted and requested to review their potential effects on wind conditions.

FIGURES

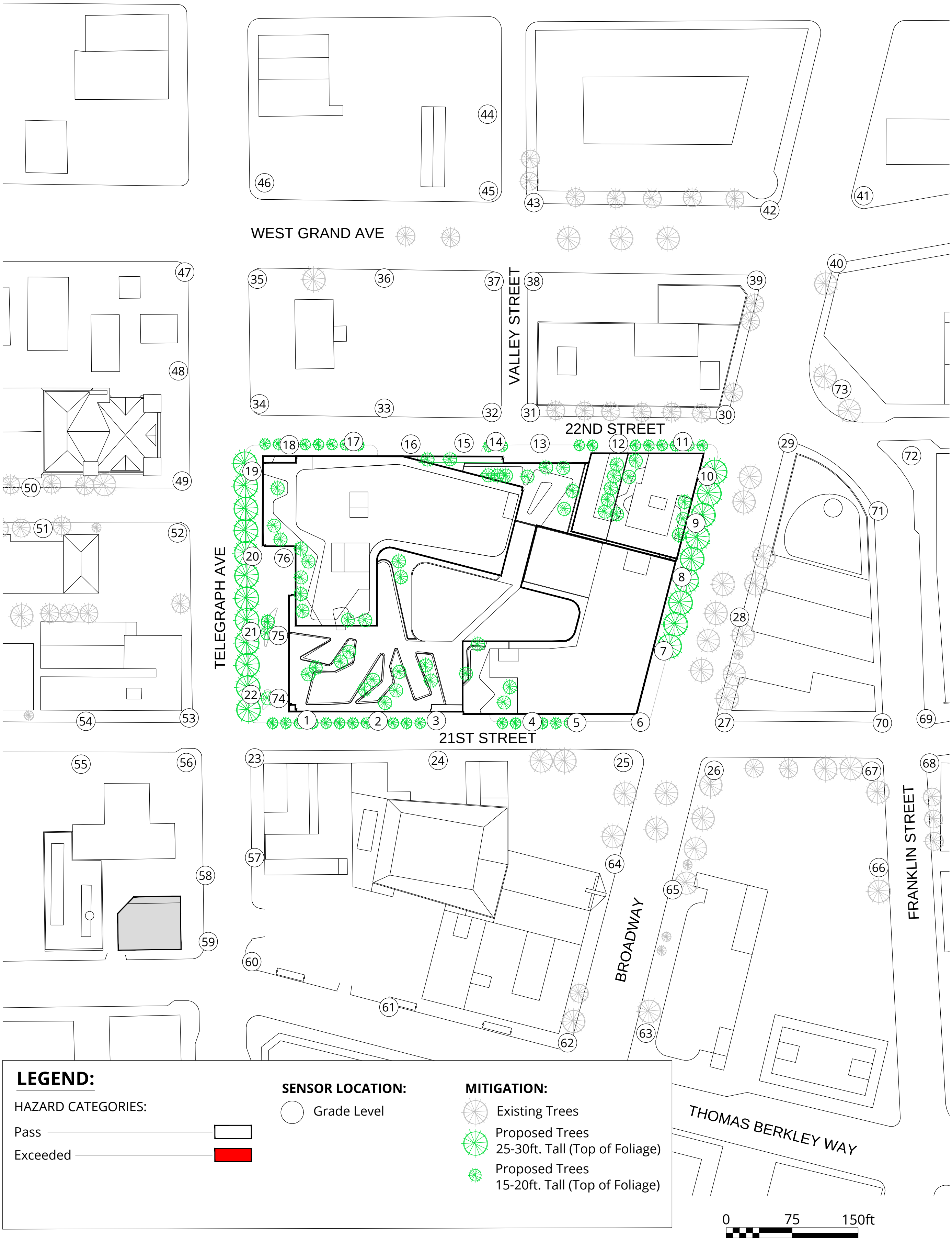


Pedestrian Wind Hazard Conditions
Existing
Annual (January to December)

True North

Drawn by: DBB | Figure: 1a
Approx. Scale: 1"=150'
Date Revised: Nov. 9, 2017

Project Name - Oakland, CA
Project #1601334



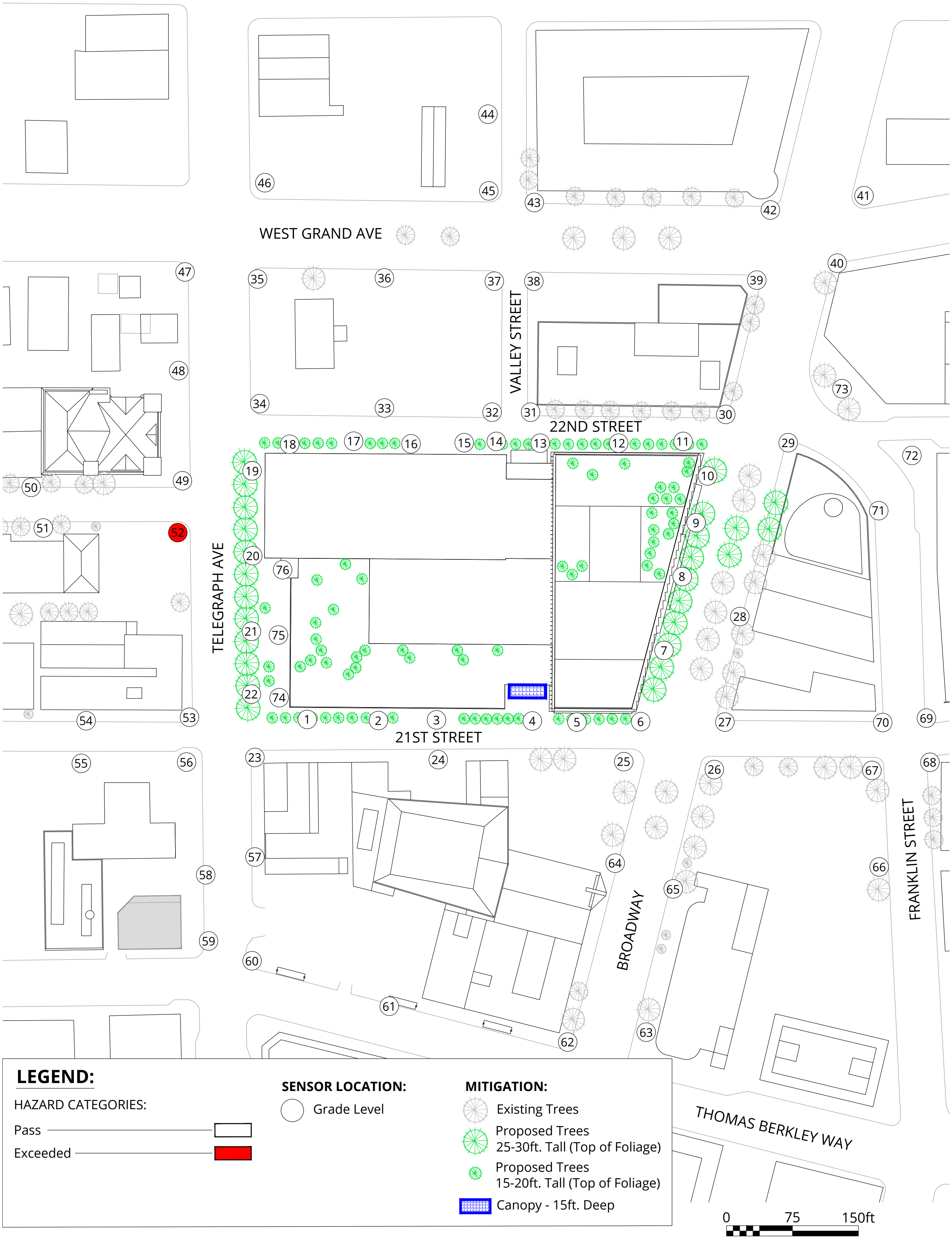
Pedestrian Wind Hazard Conditions
Existing + Residential, Office Mix Final Development Plan
Annual (January to December)

2100 Telegraph Avenue - Oakland, CA

True North

Project #1601334

Drawn by: DBB	Figure: 1b
Approx. Scale:	1"=150'
Date Revised:	Nov. 9, 2017



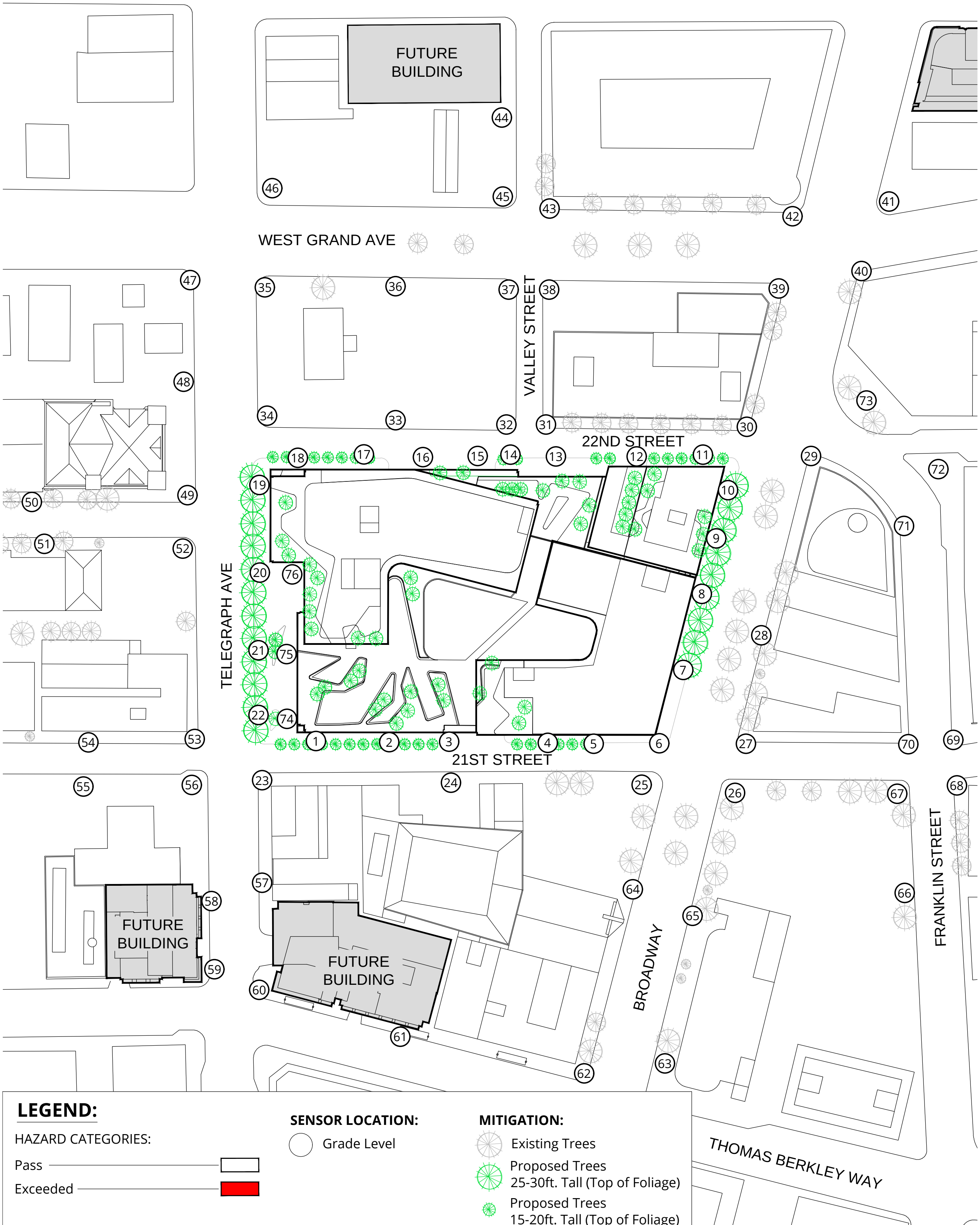
Pedestrian Wind Hazard Conditions
Existing + All Office Final Development Plan
Annual (January to December)

2100 Telegraph Avenue - Oakland, CA

True North

Project #1601334

Drawn by:	DBB	Figure:	1c
Approx. Scale:		1"=150'	
Date Revised:		Nov 9, 2017	



LEGEND:

HAZARD CATEGORIES:

Pass

Exceeded

SENSOR LOCATION:

Grade Level

MITIGATION:

Existing Trees

Proposed Trees
25-30ft. Tall (Top of Foliage)

Proposed Trees
15-20ft. Tall (Top of Foliage)

Pedestrian Wind Hazard Conditions

Residential, Office Mix Final Development Plan + Cumulative

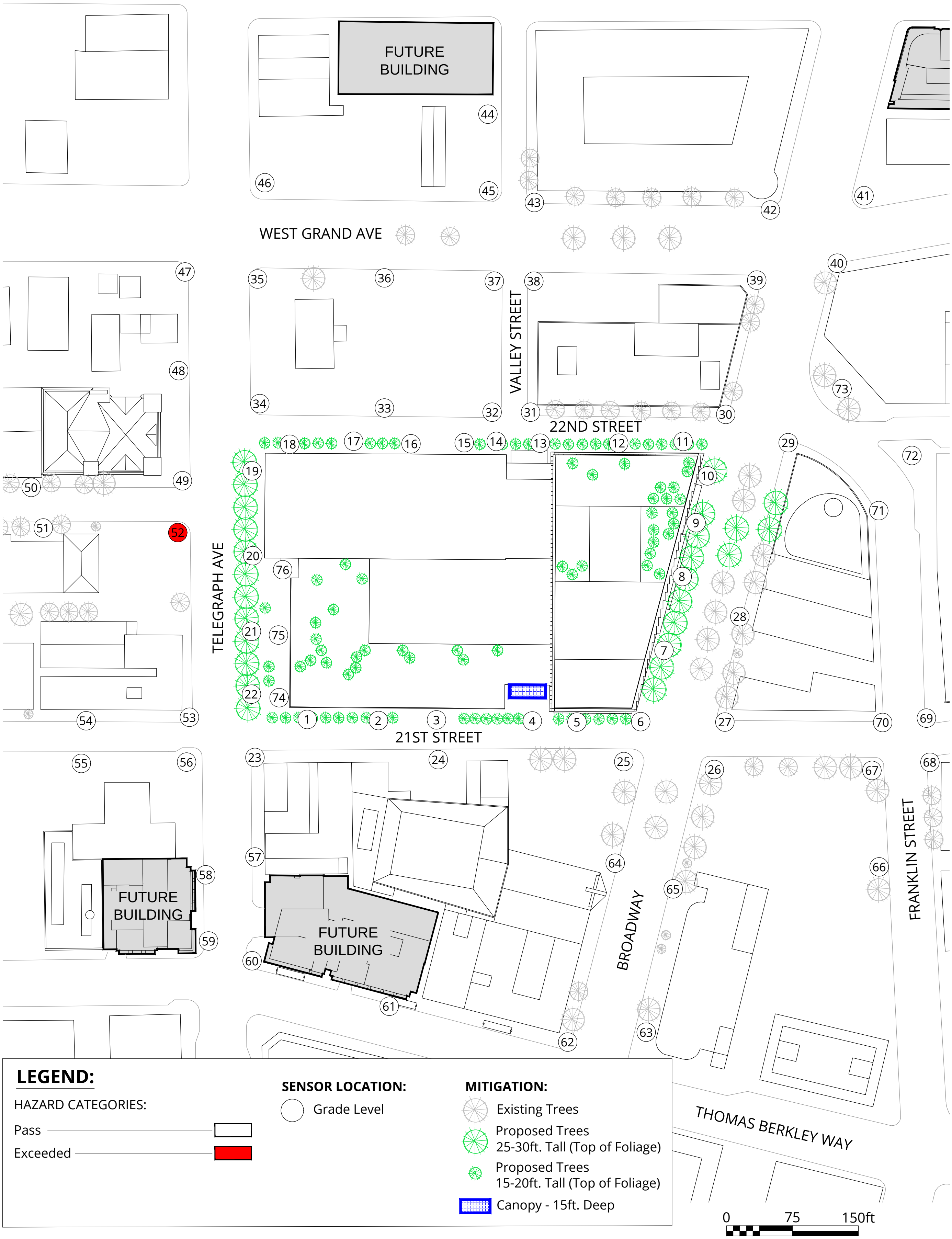
Annual (January to December)

2100 Telegraph Avenue - Oakland, CA

True North

Project #1601334

Drawn by: DBB	Figure: 1d
Approx. Scale:	1"=150'
Date Revised:	Nov. 9, 2017



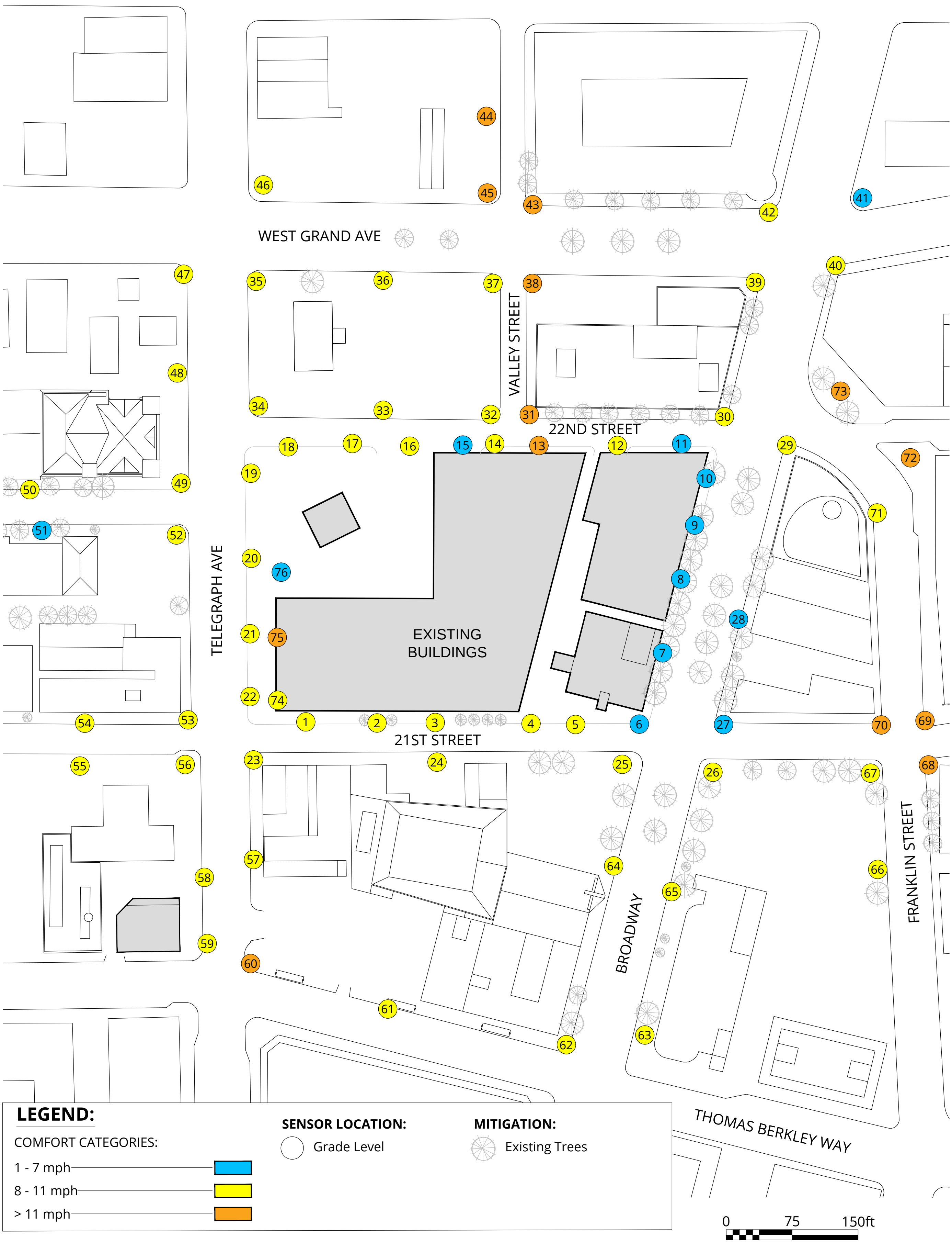
Pedestrian Wind Hazard Conditions
All Office Final Development Plan + Cumulative
Annual (January to December)

2100 Telegraph Avenue - Oakland, CA

True North

Project #1601334

Drawn by: DBB	Figure: 1e
Approx. Scale:	1"=150'
Date Revised:	Nov 9, 2017



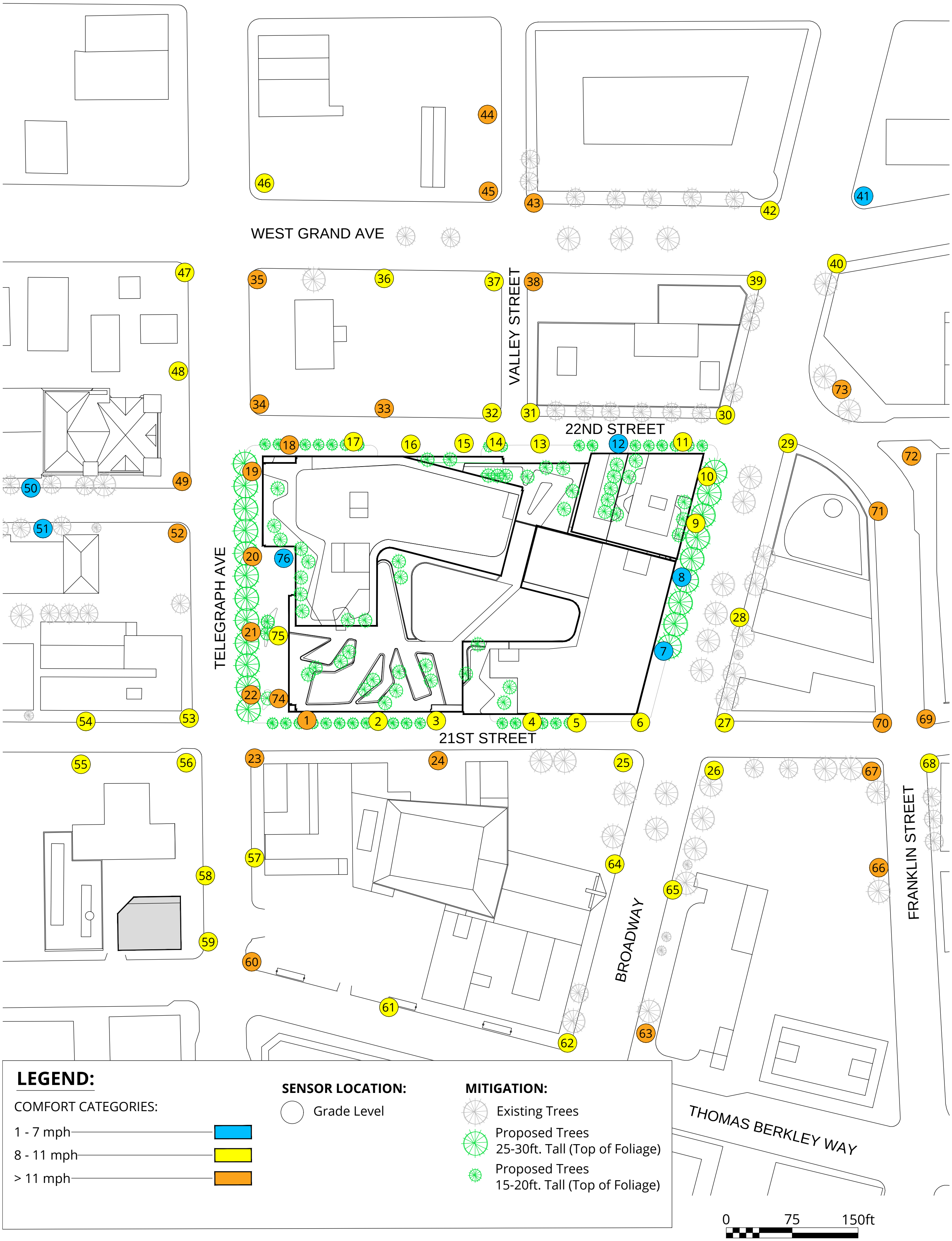
Pedestrian Wind Comfort Conditions
Existing
Annual (January to December)

Project Name - Oakland, CA

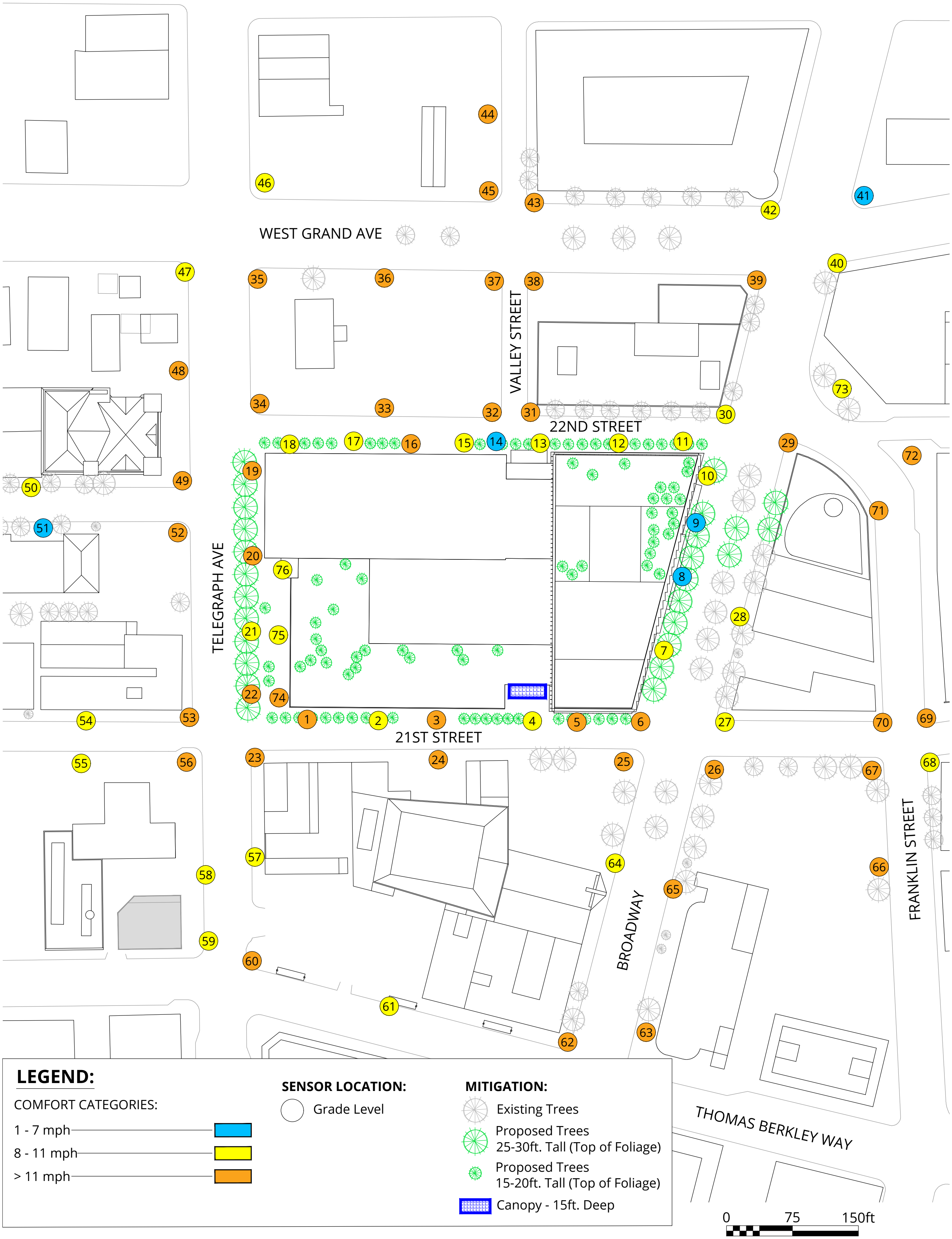
True North

Project #1601334

Drawn by: DBB	Figure: 2a
Approx. Scale:	1"=150'
Date Revised:	Nov. 9, 2017



Pedestrian Wind Comfort Conditions Existing + Residential, Office Mix Final Development Plan Annual (January to December)	True North	Drawn by: DBB	Figure: 2b
		Approx. Scale:	1"=150'
2100 Telegraph Avenue - Oakland, CA	Project #1601334	Date Revised:	Nov. 9, 2017



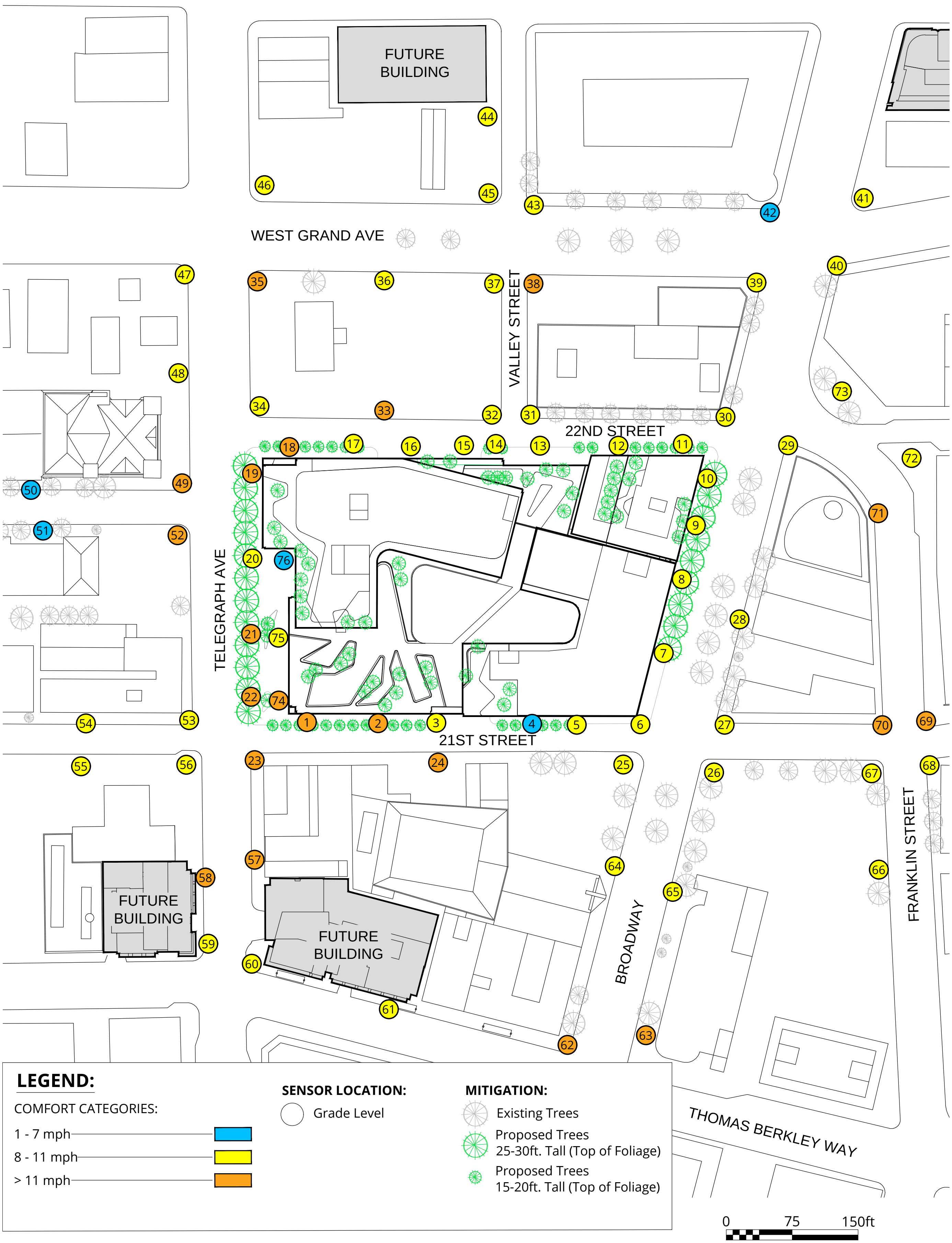
Pedestrian Wind Comfort Conditions
Existing + All Office Final Development Plan
Annual (January to December)

2100 Telegraph Avenue - Oakland, CA

True North

Project #1601334

Drawn by: DBB	Figure: 2c
Approx. Scale:	1"=150'
Date Revised:	Nov 9, 2017



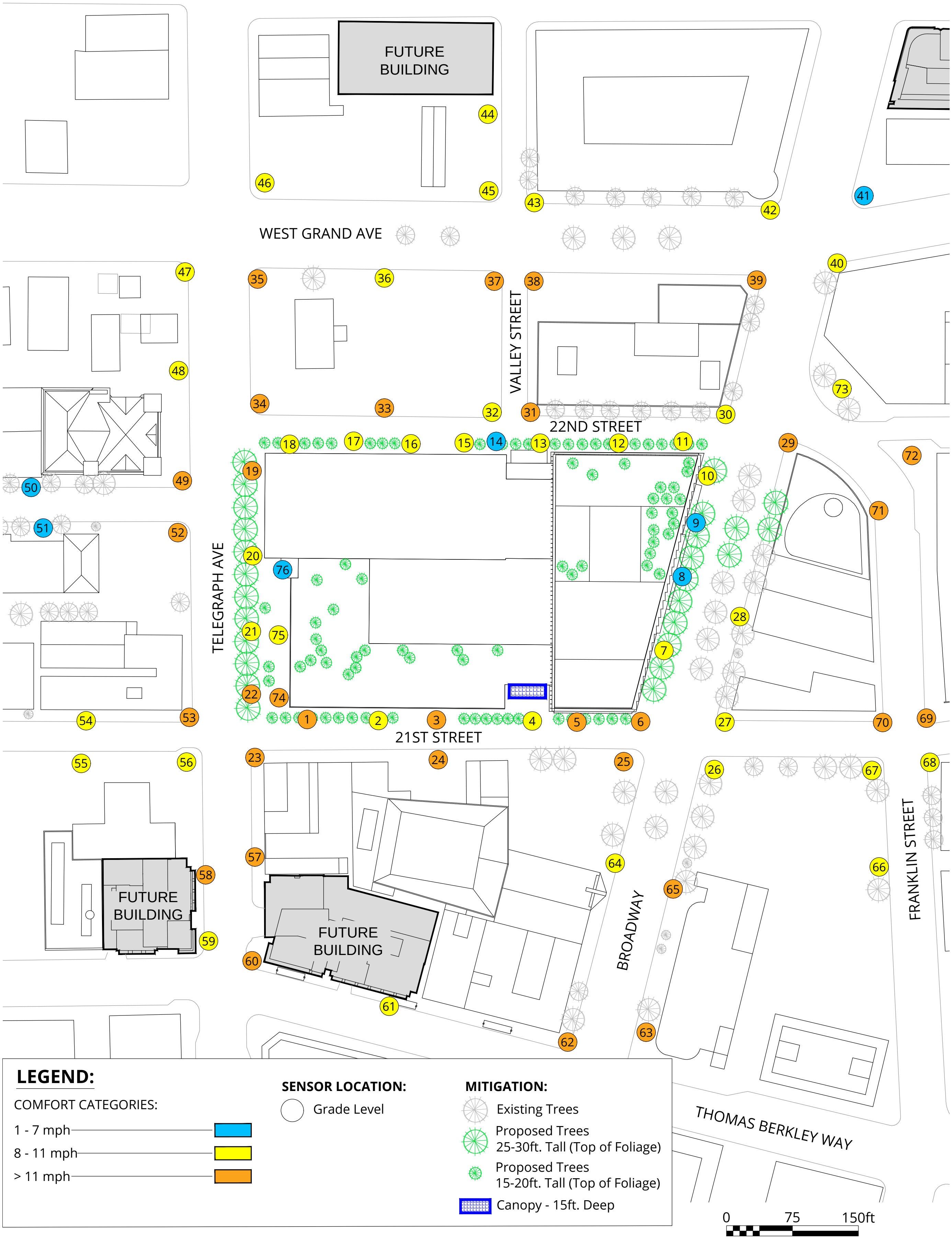
Pedestrian Wind Comfort Conditions
Residential, Office Mix Final Development Plan + Cumulative
Annual (January to December)

2100 Telegraph Avenue - Oakland, CA

True North

Project #1601334

Drawn by: DBB	Figure: 2d
Approx. Scale:	1"=150'
Date Revised:	Nov. 9, 2017



Pedestrian Wind Comfort Conditions
All Office Final Development Plan + Cumulative
Annual (January to December)

2100 Telegraph Avenue - Oakland, CA

True North

Project #1601334

Drawn by: DBB	Figure: 2e
Approx. Scale:	1"=150'
Date Revised:	Nov 9, 2017

TABLES

Table 1: Pedestrian Wind Hazard and Comfort Results

Location	Configuration	WIND HAZARD (Wind speeds exceeding 36 mph for 1hour/year)				WIND COMFORT (Wind speeds exceeding 11 mph for 10% of the time)			
		Wind Speed Exceeded (mph)	Hours per Year Exceeding	Hours Change	Exceeds	Wind Speed Exceeded (mph)	% of Time Exceeding	Speed Change (mph)	Exceeds
1	Existing	21	0			10	5		
	Existing + Resi/Office	35	0	0		19	39	9	e
	Existing + All Office	28	0	0		13	18	3	e
	Resi/Office + Cumulative	34	0	0		16	32	6	e
	All Office + Cumulative	27	0	0		13	18	3	e
2	Existing	19	0			9	3		
	Existing + Resi/Office	22	0	0		10	5	1	
	Existing + All Office	23	0	0		11	10	2	
	Resi/Office + Cumulative	27	0	0		12	12	3	e
	All Office + Cumulative	23	0	0		10	8	1	
3	Existing	18	0			8	2		
	Existing + Resi/Office	21	0	0		10	6	2	
	Existing + All Office	27	0	0		12	15	4	e
	Resi/Office + Cumulative	24	0	0		11	10	3	
	All Office + Cumulative	27	0	0		12	13	4	e
4	Existing	19	0			9	2		
	Existing + Resi/Office	23	0	0		8	2	-1	
	Existing + All Office	28	0	0		11	10	2	
	Resi/Office + Cumulative	22	0	0		7	2	-2	
	All Office + Cumulative	27	0	0		10	7	1	
5	Existing	22	0			10	6		
	Existing + Resi/Office	24	0	0		8	3	-2	
	Existing + All Office	32	0	0		13	18	3	e
	Resi/Office + Cumulative	23	0	0		9	4	-1	
	All Office + Cumulative	30	0	0		12	14	2	e
6	Existing	20	0			5	1		
	Existing + Resi/Office	26	0	0		9	4	4	
	Existing + All Office	33	0	0		14	26	9	e
	Resi/Office + Cumulative	26	0	0		11	10	6	
	All Office + Cumulative	29	0	0		13	23	8	e
7	Existing	17	0			7	1		
	Existing + Resi/Office	23	0	0		7	2	0	
	Existing + All Office	22	0	0		8	3	1	
	Resi/Office + Cumulative	27	0	0		9	4	2	
	All Office + Cumulative	19	0	0		8	1	1	
8	Existing	16	0			5	1		
	Existing + Resi/Office	22	0	0		7	2	2	
	Existing + All Office	20	0	0		7	2	2	
	Resi/Office + Cumulative	22	0	0		6	2	1	
	All Office + Cumulative	19	0	0		7	1	2	

Table 1: Pedestrian Wind Hazard and Comfort Results

Location	Configuration	WIND HAZARD (Wind speeds exceeding 36 mph for 1hour/year)				WIND COMFORT (Wind speeds exceeding 11 mph for 10% of the time)			
		Wind Speed Exceeded (mph)	Hours per Year Exceeding	Hours Change	Exceeds	Wind Speed Exceeded (mph)	% of Time Exceeding	Speed Change (mph)	Exceeds
9	Existing	16	0			5	0		
	Existing + Resi/Office	25	0	0		8	3	3	
	Existing + All Office	20	0	0		7	1	2	
	Resi/Office + Cumulative	24	0	0		7	2	2	
	All Office + Cumulative	19	0	0		7	1	2	
10	Existing	20	0			5	1		
	Existing + Resi/Office	19	0	0		8	2	3	
	Existing + All Office	26	0	0		10	6	5	
	Resi/Office + Cumulative	20	0	0		8	2	3	
	All Office + Cumulative	25	0	0		8	3	3	
11	Existing	21	0			7	2		
	Existing + Resi/Office	28	0	0		11	10	4	
	Existing + All Office	33	0	0		11	10	4	
	Resi/Office + Cumulative	24	0	0		10	7	3	
	All Office + Cumulative	32	0	0		10	8	3	
12	Existing	19	0			8	1		
	Existing + Resi/Office	17	0	0		6	1	-2	
	Existing + All Office	30	0	0		8	3	0	
	Resi/Office + Cumulative	22	0	0		10	7	2	
	All Office + Cumulative	28	0	0		8	3	0	
13	Existing	26	0			12	12		e
	Existing + Resi/Office	22	0	0		10	5	-2	
	Existing + All Office	24	0	0		11	10	-1	
	Resi/Office + Cumulative	20	0	0		9	4	-3	
	All Office + Cumulative	23	0	0		11	10	-1	
14	Existing	22	0			8	2		
	Existing + Resi/Office	23	0	0		9	3	1	
	Existing + All Office	16	0	0		7	1	-1	
	Resi/Office + Cumulative	20	0	0		8	1	0	
	All Office + Cumulative	16	0	0		7	0	-1	
15	Existing	19	0			7	1		
	Existing + Resi/Office	19	0	0		8	2	1	
	Existing + All Office	19	0	0		9	3	2	
	Resi/Office + Cumulative	18	0	0		8	1	1	
	All Office + Cumulative	18	0	0		9	2	2	
16	Existing	20	0			8	2		
	Existing + Resi/Office	19	0	0		9	2	1	
	Existing + All Office	25	0	0		12	12	4	e
	Resi/Office + Cumulative	17	0	0		8	1	0	
	All Office + Cumulative	24	0	0		11	10	3	

Table 1: Pedestrian Wind Hazard and Comfort Results

Location	Configuration	WIND HAZARD (Wind speeds exceeding 36 mph for 1hour/year)				WIND COMFORT (Wind speeds exceeding 11 mph for 10% of the time)			
		Wind Speed Exceeded (mph)	Hours per Year Exceeding	Hours Change	Exceeds	Wind Speed Exceeded (mph)	% of Time Exceeding	Speed Change (mph)	Exceeds
17	Existing	20	0			9	3		
	Existing + Resi/Office	21	0	0		9	4	0	
	Existing + All Office	21	0	0		9	3	0	
	Resi/Office + Cumulative	20	0	0		8	2	-1	
	All Office + Cumulative	21	0	0		9	2	0	
18	Existing	22	0			9	3		
	Existing + Resi/Office	30	0	0		14	23	5	e
	Existing + All Office	26	0	0		10	6	1	
	Resi/Office + Cumulative	27	0	0		12	16	3	e
	All Office + Cumulative	25	0	0		9	4	0	
19	Existing	23	0			8	2		
	Existing + Resi/Office	32	0	0		14	26	6	e
	Existing + All Office	29	0	0		13	18	5	e
	Resi/Office + Cumulative	31	0	0		14	27	6	e
	All Office + Cumulative	27	0	0		12	16	4	e
20	Existing	21	0			8	2		
	Existing + Resi/Office	24	0	0		12	14	4	e
	Existing + All Office	25	0	0		12	15	4	e
	Resi/Office + Cumulative	24	0	0		11	10	3	
	All Office + Cumulative	24	0	0		11	10	3	
21	Existing	25	0			11	10		
	Existing + Resi/Office	31	0	0		12	17	1	e
	Existing + All Office	33	0	0		11	10	0	
	Resi/Office + Cumulative	27	0	0		12	17	1	e
	All Office + Cumulative	29	0	0		10	7	-1	
22	Existing	23	0			9	4		
	Existing + Resi/Office	31	0	0		15	29	6	e
	Existing + All Office	30	0	0		14	23	5	e
	Resi/Office + Cumulative	30	0	0		14	27	5	e
	All Office + Cumulative	29	0	0		14	23	5	e
23	Existing	25	0			10	5		
	Existing + Resi/Office	34	0	0		16	29	6	e
	Existing + All Office	30	0	0		13	22	3	e
	Resi/Office + Cumulative	28	0	0		13	19	3	e
	All Office + Cumulative	28	0	0		13	17	3	e
24	Existing	24	0			10	6		
	Existing + Resi/Office	26	0	0		12	14	2	e
	Existing + All Office	28	0	0		13	17	3	e
	Resi/Office + Cumulative	26	0	0		12	12	2	e
	All Office + Cumulative	28	0	0		13	16	3	e

Table 1: Pedestrian Wind Hazard and Comfort Results

Location	Configuration	WIND HAZARD (Wind speeds exceeding 36 mph for 1hour/year)				WIND COMFORT (Wind speeds exceeding 11 mph for 10% of the time)			
		Wind Speed Exceeded (mph)	Hours per Year Exceeding	Hours Change	Exceeds	Wind Speed Exceeded (mph)	% of Time Exceeding	Speed Change (mph)	Exceeds
25	Existing	18	0			8	2		
	Existing + Resi/Office	29	0	0		10	7	2	
	Existing + All Office	32	0	0		13	20	5	e
	Resi/Office + Cumulative	28	0	0		9	5	1	
	All Office + Cumulative	30	0	0		12	14	4	e
26	Existing	22	0			9	4		
	Existing + Resi/Office	30	0	0		9	5	0	
	Existing + All Office	32	0	0		12	14	3	e
	Resi/Office + Cumulative	26	0	0		9	3	0	
	All Office + Cumulative	29	0	0		11	10	2	
27	Existing	25	0			6	2		
	Existing + Resi/Office	27	0	0		9	4	3	
	Existing + All Office	29	0	0		10	7	4	
	Resi/Office + Cumulative	23	0	0		8	2	2	
	All Office + Cumulative	27	0	0		10	6	4	
28	Existing	15	0			7	0		
	Existing + Resi/Office	34	0	0		9	4	2	
	Existing + All Office	32	0	0		10	8	4	
	Resi/Office + Cumulative	33	0	0		8	3	1	
	All Office + Cumulative	32	0	0		10	7	3	
29	Existing	25	0			9	5		
	Existing + Resi/Office	27	0	0		11	10	2	
	Existing + All Office	32	0	0		12	14	3	e
	Resi/Office + Cumulative	27	0	0		10	8	1	
	All Office + Cumulative	33	0	0		12	12	3	e
30	Existing	26	0			9	4		
	Existing + Resi/Office	30	0	0		11	10	2	
	Existing + All Office	33	0	0		10	8	1	
	Resi/Office + Cumulative	30	0	0		11	10	2	
	All Office + Cumulative	33	0	0		10	5	1	
31	Existing	29	0			13	17		e
	Existing + Resi/Office	25	0	0		11	10	-2	
	Existing + All Office	32	0	0		15	31	2	e
	Resi/Office + Cumulative	24	0	0		11	10	-2	
	All Office + Cumulative	31	0	0		15	29	2	e
32	Existing	20	0			9	3		
	Existing + Resi/Office	26	0	0		10	8	1	
	Existing + All Office	27	0	0		12	13	3	e
	Resi/Office + Cumulative	25	0	0		9	4	0	
	All Office + Cumulative	26	0	0		11	10	2	

Table 1: Pedestrian Wind Hazard and Comfort Results

Location	Configuration	WIND HAZARD (Wind speeds exceeding 36 mph for 1hour/year)				WIND COMFORT (Wind speeds exceeding 11 mph for 10% of the time)			
		Wind Speed Exceeded (mph)	Hours per Year Exceeding	Hours Change	Exceeds	Wind Speed Exceeded (mph)	% of Time Exceeding	Speed Change (mph)	Exceeds
33	Existing	22	0			9	3		
	Existing + Resi/Office	31	0	0		14	21	5	e
	Existing + All Office	35	0	0		15	26	6	e
	Resi/Office + Cumulative	30	0	0		13	16	4	e
	All Office + Cumulative	32	0	0		14	24	5	e
34	Existing	24	0			10	6		
	Existing + Resi/Office	34	0	0		12	15	2	e
	Existing + All Office	35	0	0		16	36	6	e
	Resi/Office + Cumulative	33	0	0		11	10	1	
	All Office + Cumulative	35	0	0		15	33	5	e
35	Existing	23	0			10	5		
	Existing + Resi/Office	25	0	0		12	12	2	e
	Existing + All Office	31	0	0		14	24	4	e
	Resi/Office + Cumulative	25	0	0		12	13	2	e
	All Office + Cumulative	29	0	0		13	21	3	e
36	Existing	23	0			10	5		
	Existing + Resi/Office	26	0	0		10	7	0	
	Existing + All Office	33	0	0		12	13	2	e
	Resi/Office + Cumulative	27	0	0		10	8	0	
	All Office + Cumulative	33	0	0		11	10	1	
37	Existing	28	0			9	4		
	Existing + Resi/Office	29	0	0		11	10	2	
	Existing + All Office	33	0	0		13	20	4	e
	Resi/Office + Cumulative	26	0	0		10	7	1	
	All Office + Cumulative	33	0	0		13	18	4	e
38	Existing	31	0			12	17		e
	Existing + Resi/Office	32	0	0		14	23	2	e
	Existing + All Office	34	0	0		15	29	3	e
	Resi/Office + Cumulative	30	0	0		12	17	0	e
	All Office + Cumulative	33	0	0		14	25	2	e
39	Existing	26	0			8	4		
	Existing + Resi/Office	30	0	0		11	10	3	
	Existing + All Office	35	0	0		13	18	5	e
	Resi/Office + Cumulative	30	0	0		11	10	3	
	All Office + Cumulative	33	0	0		12	15	4	e
40	Existing	23	0			8	3		
	Existing + Resi/Office	28	0	0		9	4	1	
	Existing + All Office	30	0	0		10	7	2	
	Resi/Office + Cumulative	23	0	0		9	3	1	
	All Office + Cumulative	25	0	0		11	10	3	

Table 1: Pedestrian Wind Hazard and Comfort Results

Location	Configuration	WIND HAZARD (Wind speeds exceeding 36 mph for 1hour/year)				WIND COMFORT (Wind speeds exceeding 11 mph for 10% of the time)			
		Wind Speed Exceeded (mph)	Hours per Year Exceeding	Hours Change	Exceeds	Wind Speed Exceeded (mph)	% of Time Exceeding	Speed Change (mph)	Exceeds
41	Existing	33	0			3	0		
	Existing + Resi/Office	33	0	0		3	0	0	
	Existing + All Office	33	0	0		3	0	0	
	Resi/Office + Cumulative	33	0	0		14	22	11	e
	All Office + Cumulative	33	0	0		3	0	0	
42	Existing	25	0			10	5		
	Existing + Resi/Office	32	0	0		9	5	-1	
	Existing + All Office	32	0	0		9	6	-1	
	Resi/Office + Cumulative	27	0	0		7	3	-3	
	All Office + Cumulative	30	0	0		9	5	-1	
43	Existing	26	0			12	16		e
	Existing + Resi/Office	31	0	0		14	23	2	e
	Existing + All Office	30	0	0		13	20	1	e
	Resi/Office + Cumulative	22	0	0		10	5	-2	
	All Office + Cumulative	27	0	0		11	10	-1	
44	Existing	29	0			13	22		e
	Existing + Resi/Office	28	0	0		13	18	0	e
	Existing + All Office	25	0	0		12	15	-1	e
	Resi/Office + Cumulative	21	0	0		10	6	-3	
	All Office + Cumulative	22	0	0		11	10	-2	
45	Existing	28	0			13	16		e
	Existing + Resi/Office	31	0	0		14	21	1	e
	Existing + All Office	31	0	0		13	18	0	e
	Resi/Office + Cumulative	25	0	0		9	4	-4	
	All Office + Cumulative	29	0	0		10	5	-3	
46	Existing	23	0			11	10		
	Existing + Resi/Office	22	0	0		11	10	0	
	Existing + All Office	24	0	0		11	10	0	
	Resi/Office + Cumulative	22	0	0		11	10	0	
	All Office + Cumulative	23	0	0		10	7	-1	
47	Existing	21	0			10	5		
	Existing + Resi/Office	21	0	0		9	3	-1	
	Existing + All Office	27	0	0		9	4	-1	
	Resi/Office + Cumulative	24	0	0		11	10	1	
	All Office + Cumulative	30	0	0		9	3	-1	
48	Existing	26	0			9	5		
	Existing + Resi/Office	27	0	0		10	7	1	
	Existing + All Office	32	0	0		12	12	3	e
	Resi/Office + Cumulative	27	0	0		10	7	1	
	All Office + Cumulative	31	0	0		11	10	2	

Table 1: Pedestrian Wind Hazard and Comfort Results

Location	Configuration	WIND HAZARD (Wind speeds exceeding 36 mph for 1hour/year)				WIND COMFORT (Wind speeds exceeding 11 mph for 10% of the time)			
		Wind Speed Exceeded (mph)	Hours per Year Exceeding	Hours Change	Exceeds	Wind Speed Exceeded (mph)	% of Time Exceeding	Speed Change (mph)	Exceeds
49	Existing	23	0			9	3		
	Existing + Resi/Office	30	0	0		13	22	4	e
	Existing + All Office	36	0	0		16	35	7	e
	Resi/Office + Cumulative	30	0	0		12	16	3	e
	All Office + Cumulative	34	0	0		15	30	6	e
50	Existing	18	0			9	2		
	Existing + Resi/Office	17	0	0		7	0	-2	
	Existing + All Office	17	0	0		8	1	-1	
	Resi/Office + Cumulative	15	0	0		6	0	-3	
	All Office + Cumulative	15	0	0		7	0	-2	
51	Existing	14	0			6	0		
	Existing + Resi/Office	15	0	0		5	0	-1	
	Existing + All Office	17	0	0		6	0	0	
	Resi/Office + Cumulative	15	0	0		5	0	-1	
	All Office + Cumulative	17	0	0		5	0	-1	
52	Existing	23	0			9	3		
	Existing + Resi/Office	36	0	0		16	35	7	e
	Existing + All Office	42	5	5	e	18	41	9	e
	Resi/Office + Cumulative	34	0	0		15	29	6	e
	All Office + Cumulative	41	3	3	e	16	36	7	e
53	Existing	28	0			11	10		
	Existing + Resi/Office	26	0	0		11	10	0	
	Existing + All Office	25	0	0		12	13	1	e
	Resi/Office + Cumulative	24	0	0		10	7	-1	
	All Office + Cumulative	24	0	0		12	12	1	e
54	Existing	20	0			8	2		
	Existing + Resi/Office	24	0	0		8	3	0	
	Existing + All Office	24	0	0		8	3	0	
	Resi/Office + Cumulative	24	0	0		9	5	1	
	All Office + Cumulative	23	0	0		8	3	0	
55	Existing	26	0			11	10		
	Existing + Resi/Office	23	0	0		10	7	-1	
	Existing + All Office	23	0	0		10	8	-1	
	Resi/Office + Cumulative	22	0	0		10	7	-1	
	All Office + Cumulative	22	0	0		10	6	-1	
56	Existing	26	0			10	7		
	Existing + Resi/Office	23	0	0		11	10	1	
	Existing + All Office	25	0	0		12	13	2	e
	Resi/Office + Cumulative	23	0	0		10	8	0	
	All Office + Cumulative	24	0	0		11	10	1	

Table 1: Pedestrian Wind Hazard and Comfort Results

Location	Configuration	WIND HAZARD (Wind speeds exceeding 36 mph for 1hour/year)				WIND COMFORT (Wind speeds exceeding 11 mph for 10% of the time)			
		Wind Speed Exceeded (mph)	Hours per Year Exceeding	Hours Change	Exceeds	Wind Speed Exceeded (mph)	% of Time Exceeding	Speed Change (mph)	Exceeds
57	Existing	24	0			9	3		
	Existing + Resi/Office	22	0	0		9	4	0	
	Existing + All Office	23	0	0		10	7	1	
	Resi/Office + Cumulative	28	0	0		12	15	3	e
	All Office + Cumulative	26	0	0		12	13	3	e
58	Existing	22	0			8	2		
	Existing + Resi/Office	18	0	0		8	2	0	
	Existing + All Office	20	0	0		9	4	1	
	Resi/Office + Cumulative	25	0	0		12	13	4	e
	All Office + Cumulative	29	0	0		13	18	5	e
59	Existing	22	0			10	4		
	Existing + Resi/Office	21	0	0		9	4	-1	
	Existing + All Office	20	0	0		8	1	-2	
	Resi/Office + Cumulative	24	0	0		9	4	-1	
	All Office + Cumulative	24	0	0		8	3	-2	
60	Existing	28	0			13	18		e
	Existing + Resi/Office	26	0	0		12	12	-1	e
	Existing + All Office	26	0	0		12	14	-1	e
	Resi/Office + Cumulative	24	0	0		11	10	-2	
	All Office + Cumulative	25	0	0		12	13	-1	e
61	Existing	25	0			11	10		
	Existing + Resi/Office	24	0	0		11	10	0	
	Existing + All Office	26	0	0		11	10	0	
	Resi/Office + Cumulative	23	0	0		11	10	0	
	All Office + Cumulative	22	0	0		10	7	-1	
62	Existing	23	0			11	10		
	Existing + Resi/Office	24	0	0		11	10	0	
	Existing + All Office	26	0	0		12	14	1	e
	Resi/Office + Cumulative	27	0	0		12	16	1	e
	All Office + Cumulative	27	0	0		12	16	1	e
63	Existing	22	0			10	8		
	Existing + Resi/Office	27	0	0		12	13	2	e
	Existing + All Office	28	0	0		12	16	2	e
	Resi/Office + Cumulative	28	0	0		13	16	3	e
	All Office + Cumulative	30	0	0		14	23	4	e
64	Existing	25	0			10	5		
	Existing + Resi/Office	22	0	0		9	3	-1	
	Existing + All Office	26	0	0		10	7	0	
	Resi/Office + Cumulative	20	0	0		9	3	-1	
	All Office + Cumulative	24	0	0		10	5	0	

Table 1: Pedestrian Wind Hazard and Comfort Results

Location	Configuration	WIND HAZARD (Wind speeds exceeding 36 mph for 1hour/year)				WIND COMFORT (Wind speeds exceeding 11 mph for 10% of the time)			
		Wind Speed Exceeded (mph)	Hours per Year Exceeding	Hours Change	Exceeds	Wind Speed Exceeded (mph)	% of Time Exceeding	Speed Change (mph)	Exceeds
65	Existing	22	0			11	10		
	Existing + Resi/Office	22	0	0		10	8	-1	
	Existing + All Office	27	0	0		13	17	2	e
	Resi/Office + Cumulative	23	0	0		11	10	0	
	All Office + Cumulative	27	0	0		12	16	1	e
66	Existing	20	0			9	3		
	Existing + Resi/Office	29	0	0		12	12	3	e
	Existing + All Office	32	0	0		13	19	4	e
	Resi/Office + Cumulative	28	0	0		10	7	1	
	All Office + Cumulative	32	0	0		11	10	2	
67	Existing	29	0			11	10		
	Existing + Resi/Office	30	0	0		12	12	1	e
	Existing + All Office	30	0	0		12	15	1	e
	Resi/Office + Cumulative	30	0	0		10	8	-1	
	All Office + Cumulative	31	0	0		11	10	0	
68	Existing	32	0			15	30		e
	Existing + Resi/Office	29	0	0		11	10	-4	
	Existing + All Office	30	0	0		11	10	-4	
	Resi/Office + Cumulative	28	0	0		11	10	-4	
	All Office + Cumulative	30	0	0		11	10	-4	
69	Existing	35	0			16	31		e
	Existing + Resi/Office	34	0	0		14	21	-2	e
	Existing + All Office	35	0	0		14	23	-2	e
	Resi/Office + Cumulative	33	0	0		12	14	-4	e
	All Office + Cumulative	34	0	0		14	20	-2	e
70	Existing	33	0			14	24		e
	Existing + Resi/Office	33	0	0		12	14	-2	e
	Existing + All Office	34	0	0		12	14	-2	e
	Resi/Office + Cumulative	33	0	0		12	14	-2	e
	All Office + Cumulative	32	0	0		12	16	-2	e
71	Existing	28	0			11	10		
	Existing + Resi/Office	29	0	0		12	16	1	e
	Existing + All Office	31	0	0		14	22	3	e
	Resi/Office + Cumulative	27	0	0		12	14	1	e
	All Office + Cumulative	28	0	0		12	14	1	e
72	Existing	31	0			13	21		e
	Existing + Resi/Office	28	0	0		13	20	0	e
	Existing + All Office	31	0	0		14	27	1	e
	Resi/Office + Cumulative	23	0	0		11	10	-2	
	All Office + Cumulative	26	0	0		13	17	0	e

Table 1: Pedestrian Wind Hazard and Comfort Results

Location	Configuration	WIND HAZARD (Wind speeds exceeding 36 mph for 1hour/year)				WIND COMFORT (Wind speeds exceeding 11 mph for 10% of the time)			
		Wind Speed Exceeded (mph)	Hours per Year Exceeding	Hours Change	Exceeds	Wind Speed Exceeded (mph)	% of Time Exceeding	Speed Change (mph)	Exceeds
73	Existing	24	0			12	13		e
	Existing + Resi/Office	26	0	0		12	13	0	e
	Existing + All Office	23	0	0		11	10	-1	
	Resi/Office + Cumulative	23	0	0		11	10	-1	
	All Office + Cumulative	23	0	0		11	10	-1	
74	Existing	-	-			-	-		
	Existing + Resi/Office	33	0	-		15	30	-	e
	Existing + All Office	30	0	-		13	19	-	e
	Resi/Office + Cumulative	31	0	-		14	25	-	e
	All Office + Cumulative	28	0	-		13	17	-	e
75	Existing	-	-			-	-		
	Existing + Resi/Office	22	0	-		11	10	-	
	Existing + All Office	21	0	-		10	5	-	
	Resi/Office + Cumulative	21	0	-		10	7	-	
	All Office + Cumulative	21	0	-		10	4	-	
76	Existing	16	0			7	1		
	Existing + Resi/Office	17	0	0		7	1	0	
	Existing + All Office	23	0	0		8	2	1	
	Resi/Office + Cumulative	17	0	0		6	0	-1	
	All Office + Cumulative	22	0	0		7	1	0	

SUMMARY	Configurations	WIND HAZARD				WIND COMFORT			
		Average (mph)	Total Hours (> 0)	Hours Change	Total Exceedences	Average (mph)	Average (%)	Speed Change (mph)	Total Exceedences
	Existing	**23 mph**	**0 hrs**		**0**	**9 mph**	**4%**		**12**
	Existing + All Resi	**26 mph**	**0 hrs**	**0 hrs**	**0**	**10 mph**	**8%**	**1 mph**	**27**
	Existing + All Office	**28 mph**	**5 hrs**	**5 hrs**	**1**	**11 mph**	**11%**	**2 mph**	**41**
	All Resi + Cumulative	**25 mph**	**0 hrs**	**0 hrs**	**0**	**10 mph**	**8%**	**1 mph**	**22**
	All Office + Cumulative	**27 mph**	**3 hrs**	**3 hrs**	**1**	**11 mph**	**9%**	**2 mph**	**31**

Notes:

1) Wind Hazard = Wind speeds exceeding 36 mph for ≥ 1 hour/year

2) Wind Comfort = Wind speeds exceeding 11 mph for > 10% of the time

APPENDIX A

Drawing List for Model Construction

The drawings and information listed below were received from Urban Planning Partners, Inc. and were used to construct the scale model of the proposed 2100 Telegraph Avenue. Should there be any design changes that deviate from this list of drawings, the results may change. Therefore, if changes in the design are made, it is recommended that RWDI be contacted and requested to review their potential effects on wind conditions.

File Name	File Type	Date Received (dd/mm/yyyy)
2100 Mixed Use_Plan A	.3dm (Rhinoceros)	14/10/2016
20171005_2100T Massing	.3dm (Rhinoceros)	05/10/2017

PEDESTRIAN WIND

CITY OF OAKLAND PLANNING CODE REQUIREMENT

The City of Oakland considers a significant wind impact to occur if a project were to "Create winds exceeding 36 mph for more than one hour during daylight hours during the year". A wind analysis only need to be done if the project's height is 100 feet or greater (Measured to the roof) and one of the following conditions exists: (a) the project is located adjacent to a substantial water body (i.e. Oakland Estuary, Lake Merritt or San Francisco Bay); or (b) the project is located in Downtown. Since the proposed project exceeds 100 feet in height and is located in Downtown, it is subject to the thresholds of significance.

The equivalent wind speeds for hazard exceedance were calculated according to the specifications in the City of Oakland Significant Wind Impact Criterion, whereby the mean hourly wind speed is increased when the turbulence intensity is greater than 15% according to the following formula:

$$\boldsymbol{EWS} = \boldsymbol{V_m} \times (\mathbf{2} \times \boldsymbol{TI} + \mathbf{0.7})$$

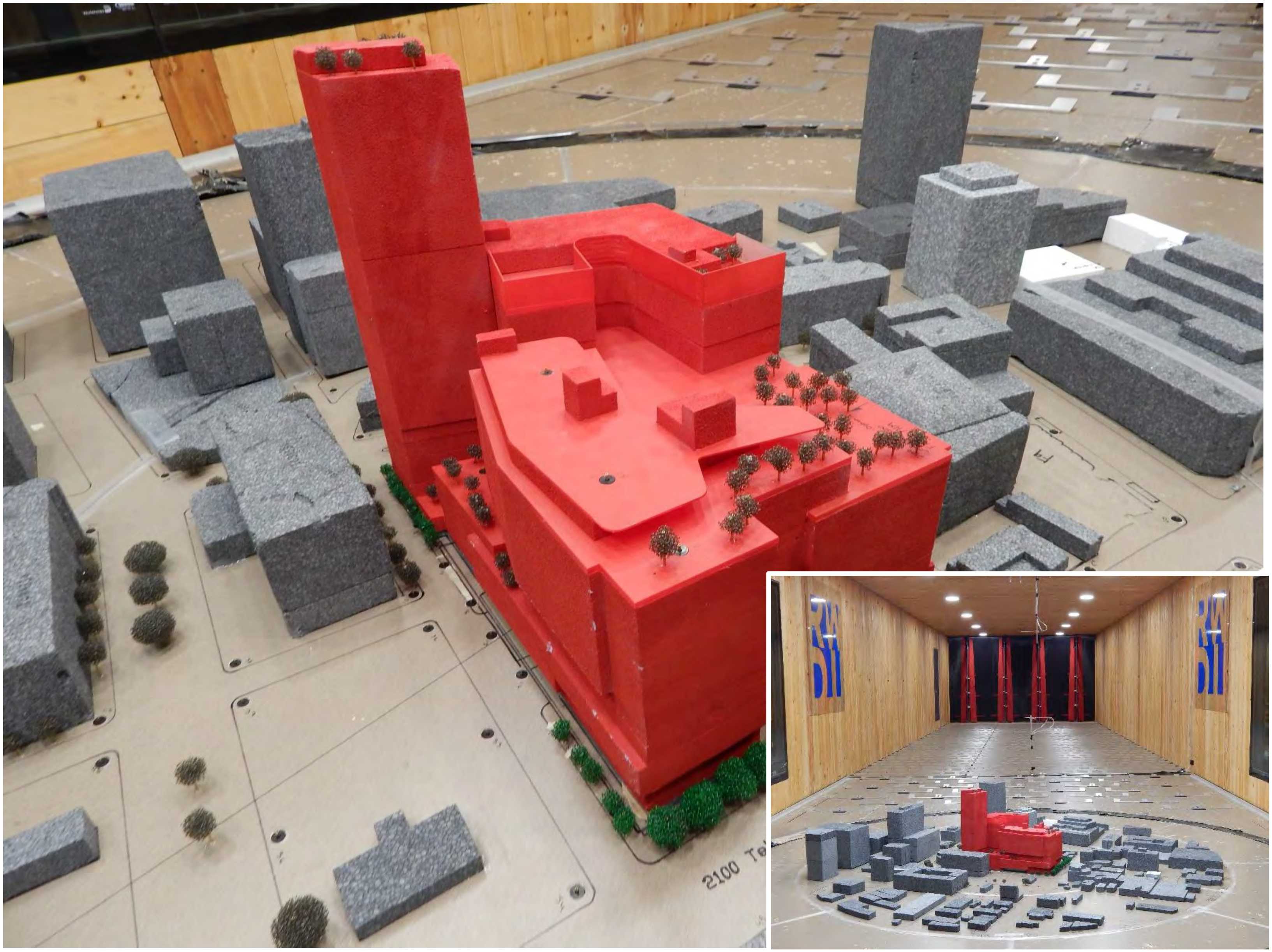
Where $\boldsymbol{EWS}$ = equivalent wind speed
$\boldsymbol{V_m}$ = mean pedestrian-level wind speed
$\boldsymbol{TI}$ = turbulence intensity

FIGURES

Wind Tunnel Study Model
Existing + Landscaping

2100 Telegraph Avenue – Oakland, CA	Project #1601334	Figure No. 1a
		Date: October 13, 2017

RWDI



Wind Tunnel Study Model **Residential/Office Mix Final Development Plan + Landscaping**	Figure No. 1b
2100 Telegraph Avenue – Oakland, CA Project #1601334	Date: October 13, 2017

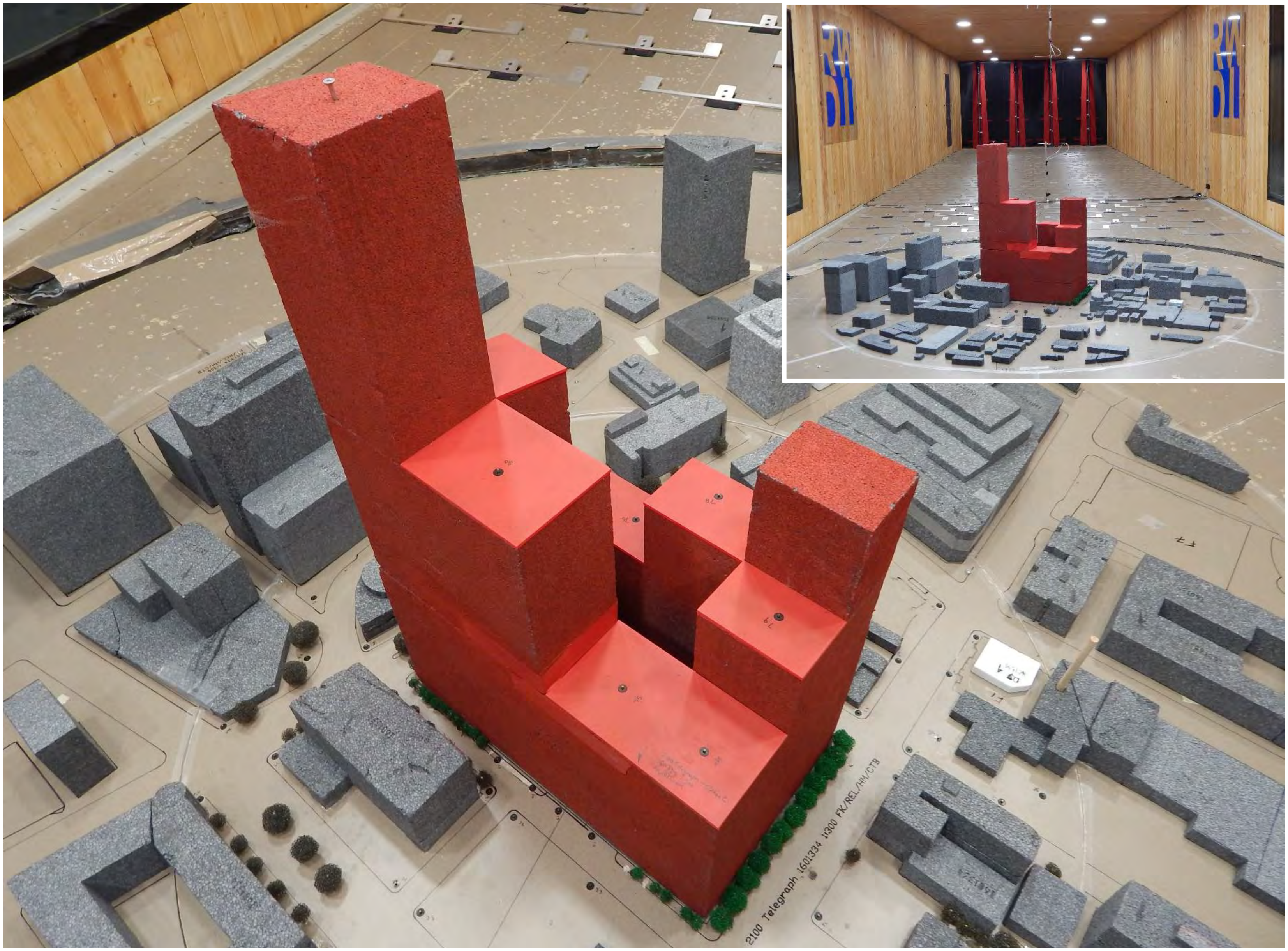
Wind Tunnel Study Model
Residential Mixed Use + Landscaping

2100 Telegraph Avenue – Oakland, CA

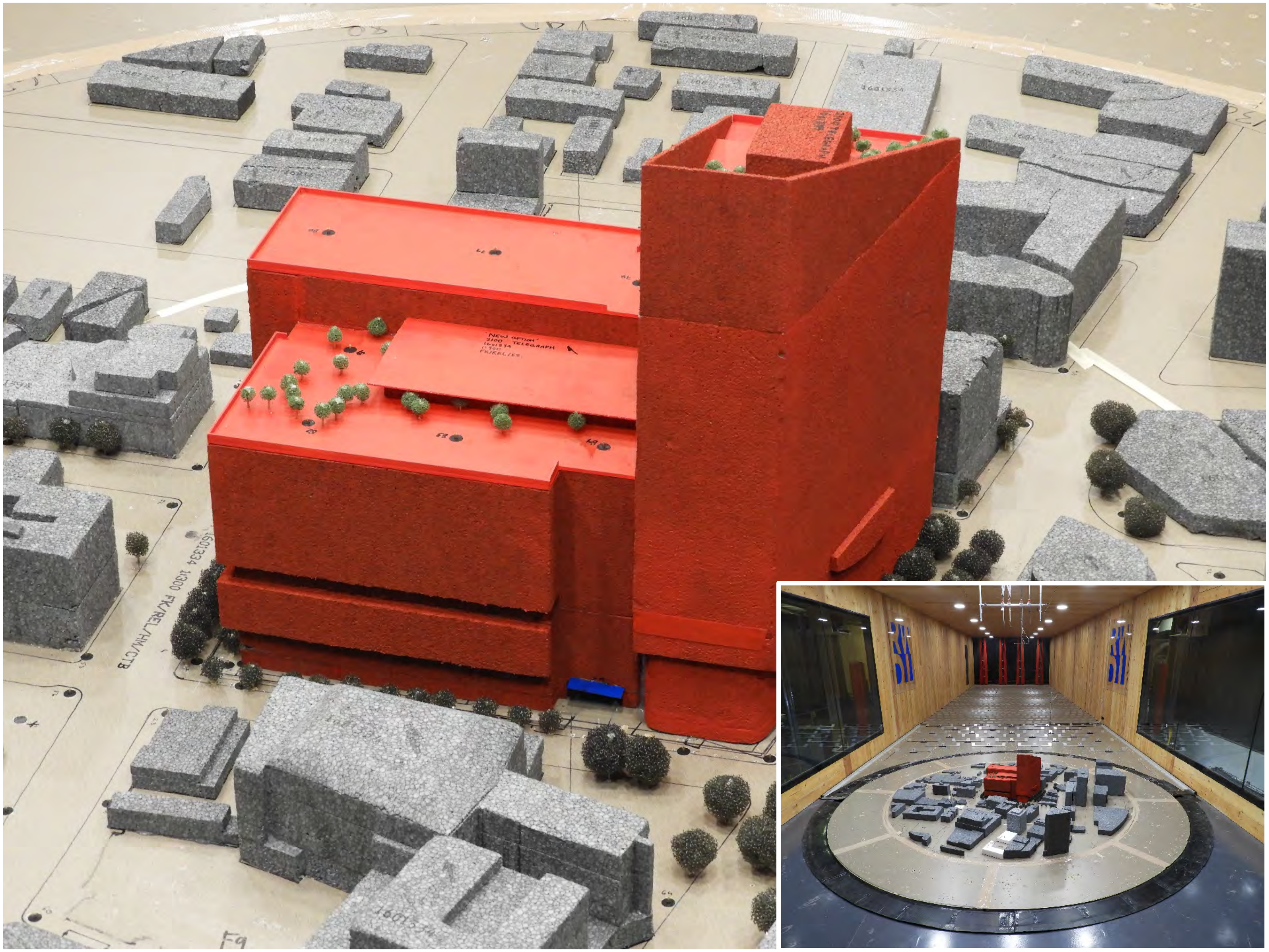
Project #1601334

Figure No. 1c

Date: October 13, 2017

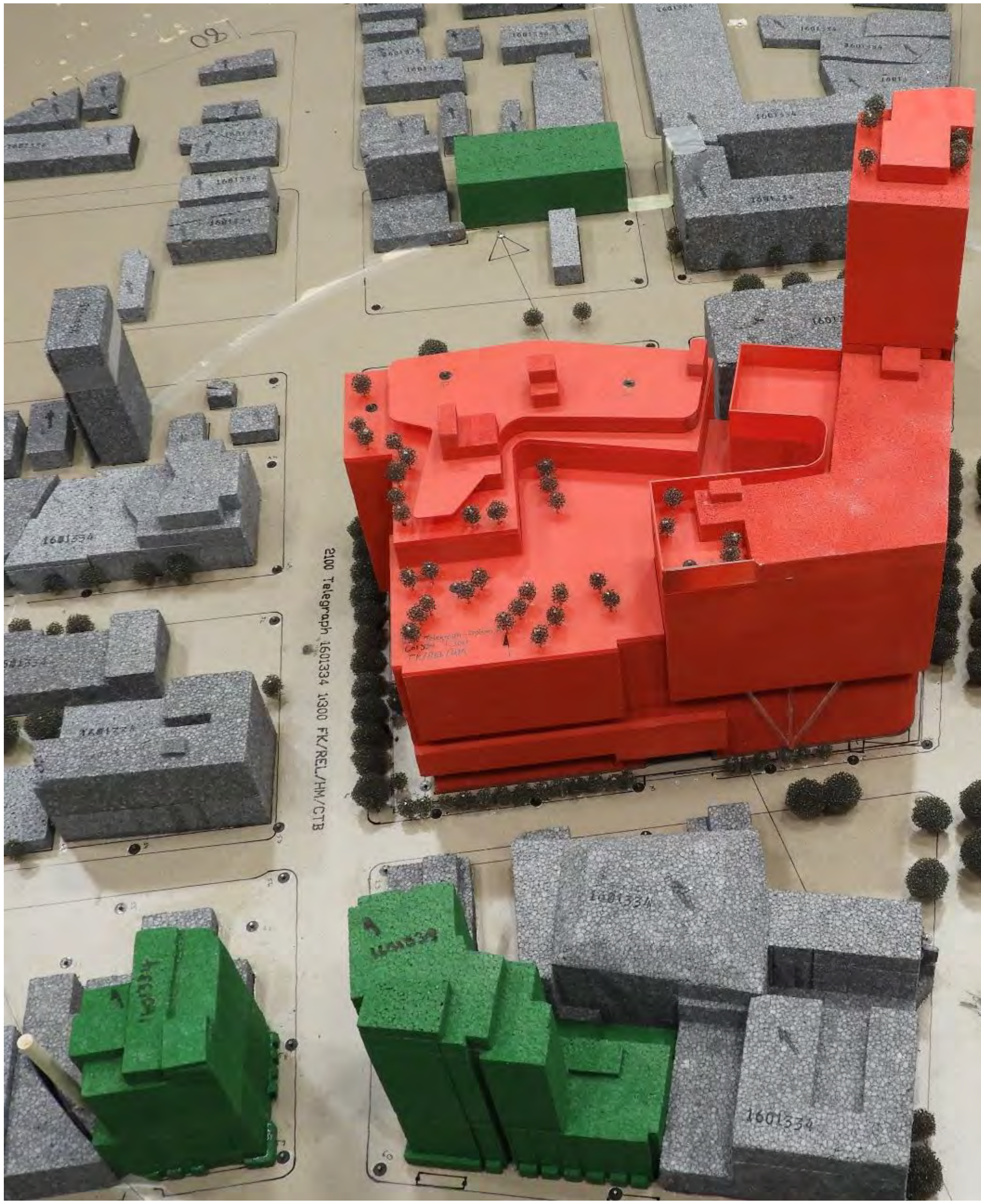


Wind Tunnel Study Model **Maximum Office Development Scenario + Landscaping** 2100 Telegraph Avenue – Oakland, CA Project #1601334	Figure No. 1d Date: October 13, 2017	RWDI



Wind Tunnel Study Model
All Office Final Development Plan + Landscaping

2100 Telegraph Avenue – Oakland, CA	Project #1601334	Figure No. 1e Date: November 17, 2017



Wind Tunnel Study Model
Residential/Office Mix Final Development Plan + Cumulative + Landscaping

2100 Telegraph Avenue – Oakland, CA

Project #1601334

Figure No. 1f

Date: November 17, 2017

Wind Tunnel Study Model
Residential Mixed Use + Cumulative + Landscaping

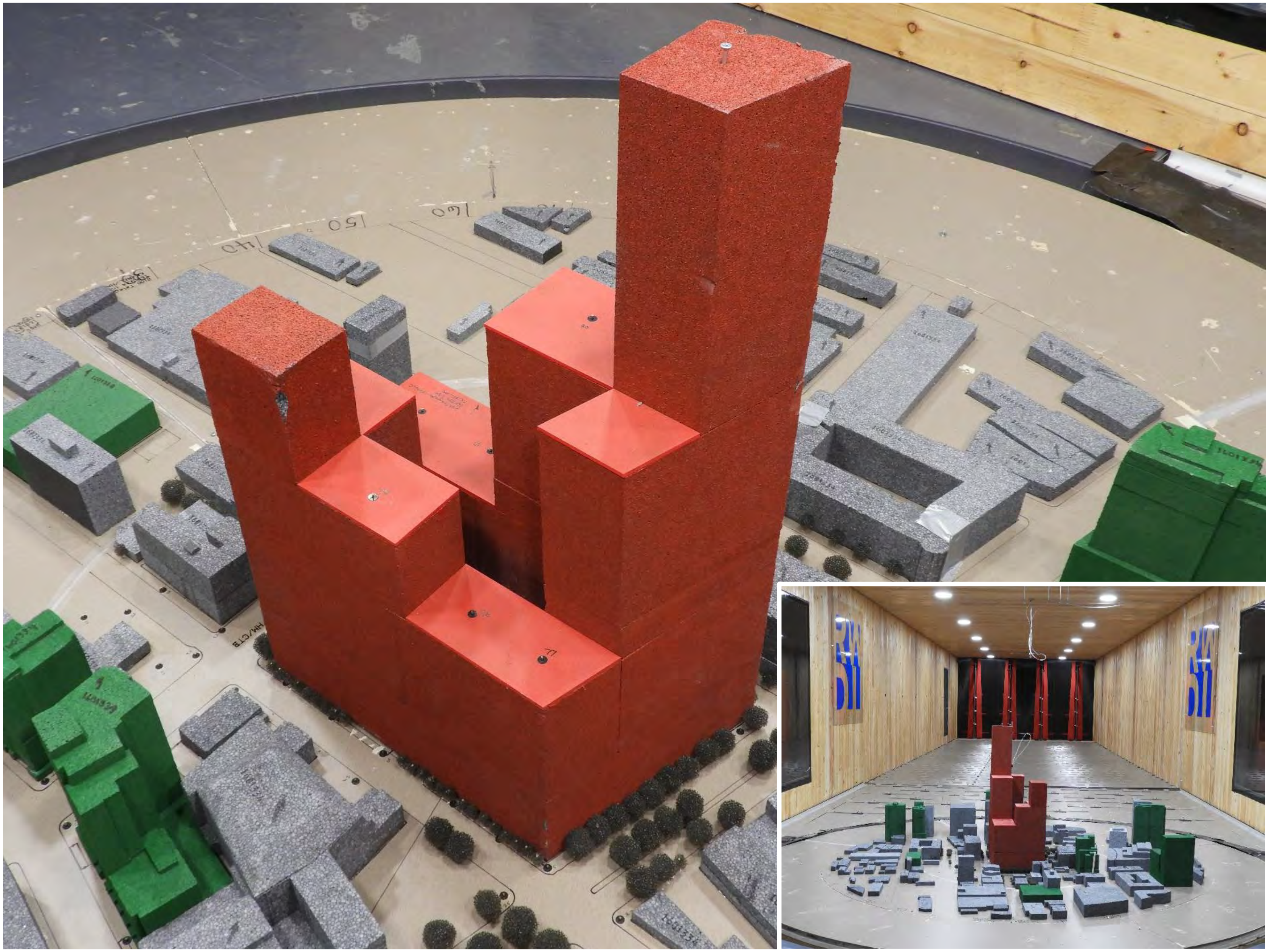
2100 Telegraph Avenue – Oakland, CA

Project #1601334

Figure No. 1g

Date: November 17, 2017

RWDI



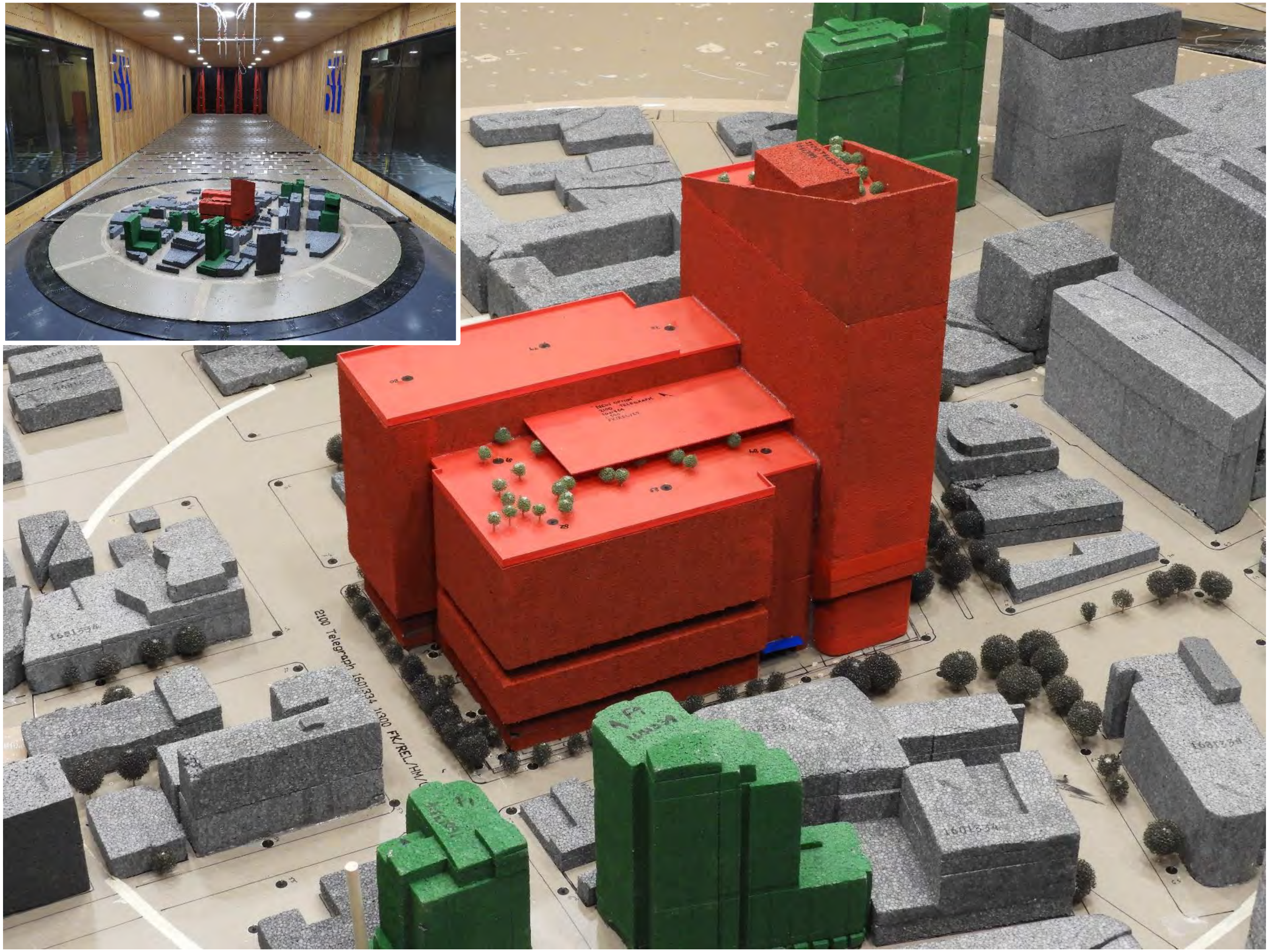
Wind Tunnel Study Model
Maximum Office Development Scenario + Cumulative + Landscaping

2100 Telegraph Avenue – Oakland, CA

Project #1601334

Figure No. 1h

Date: November 17, 2017



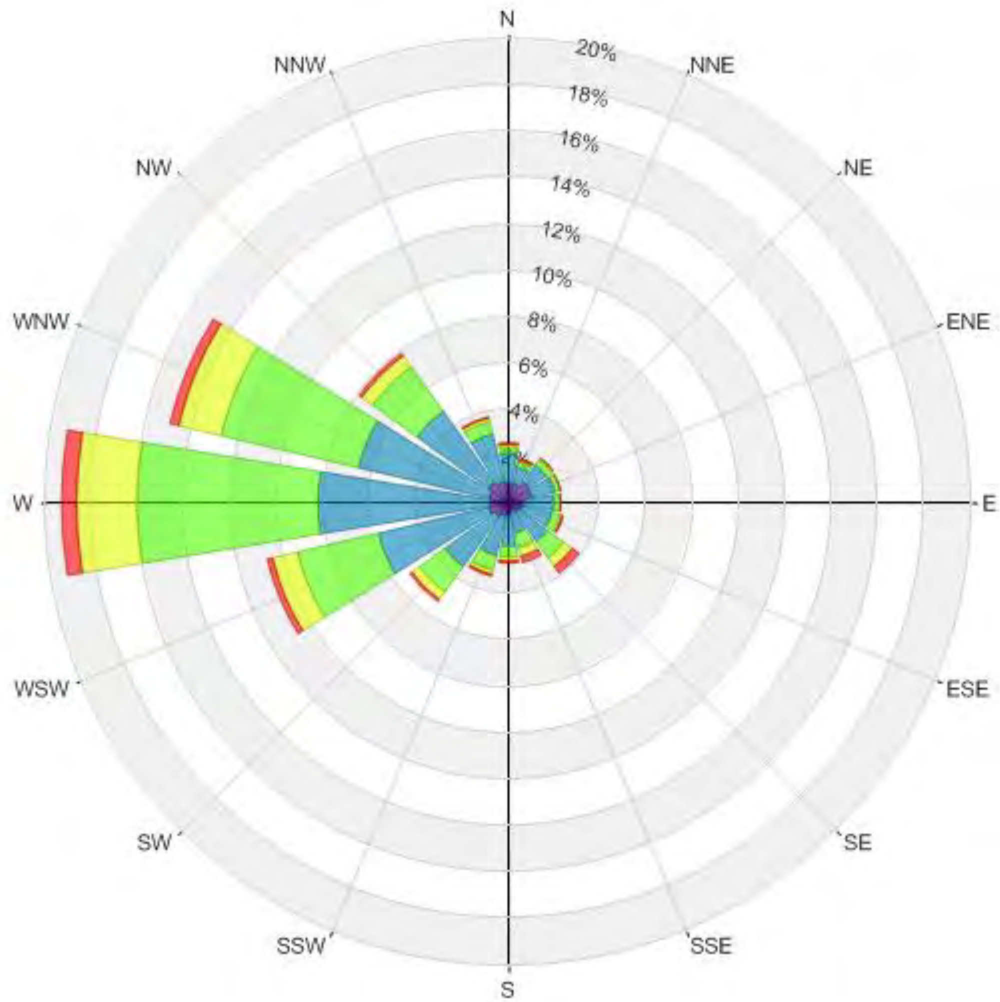
Wind Tunnel Study Model
All Office Final Development Plan + Cumulative + Landscaping

2100 Telegraph Avenue – Oakland, CA

Project #1601334

Figure No. 1i

Date: November 17, 2017



Annual Winds

Wind Speed (mph)	Probability (%)
Calm	11.8
1-5	12.4
6-10	39.0
11-15	26.0
16-20	8.3
>20	2.6

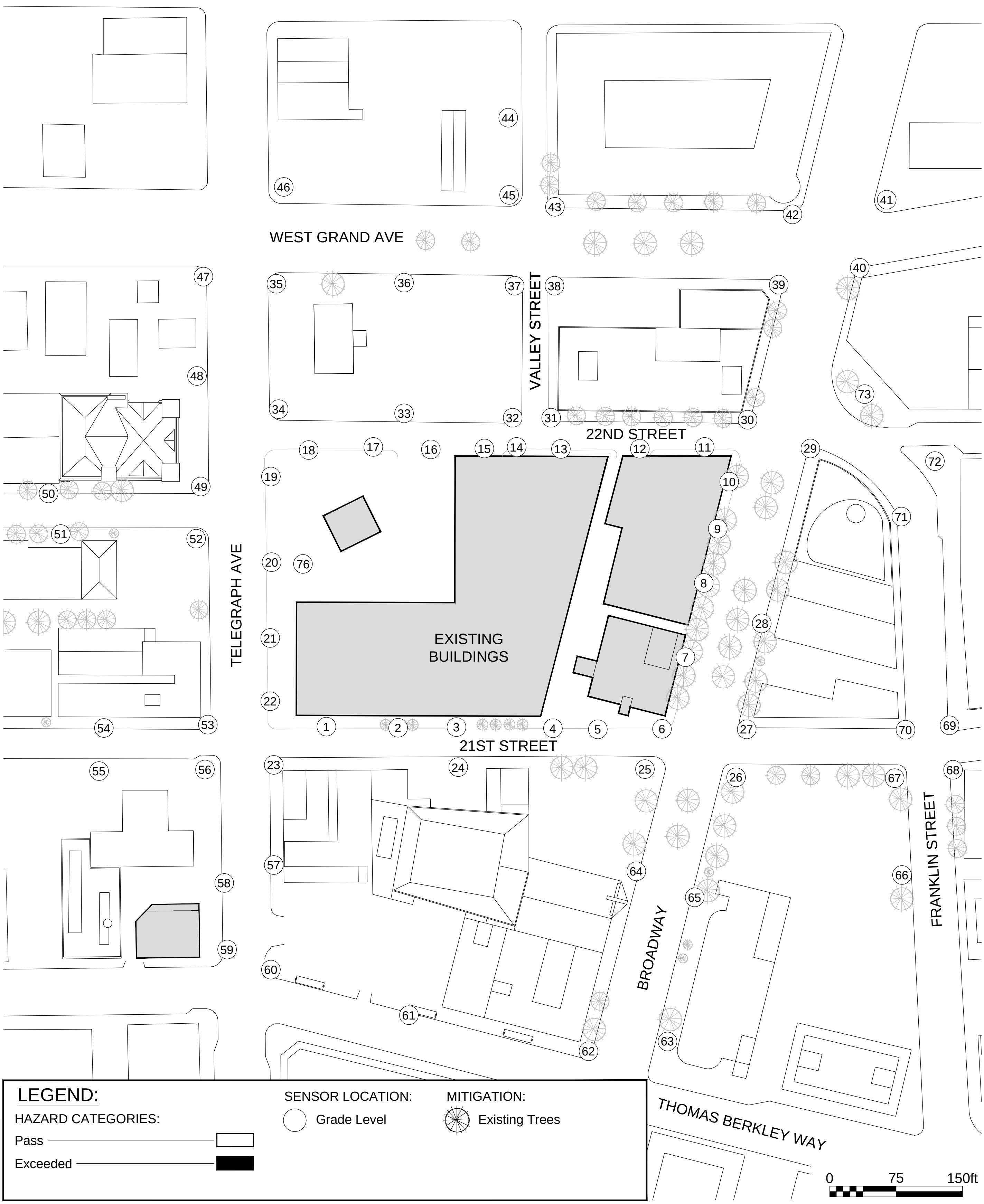
Directional Distribution (%) of Winds (Blowing From)
Metropolitan Oakland International Airport (1984 - 2014)

2100 Telegraph Avenue – Oakland, CA

Project #1601334

Figure No. 2

Date: April 28, 2017



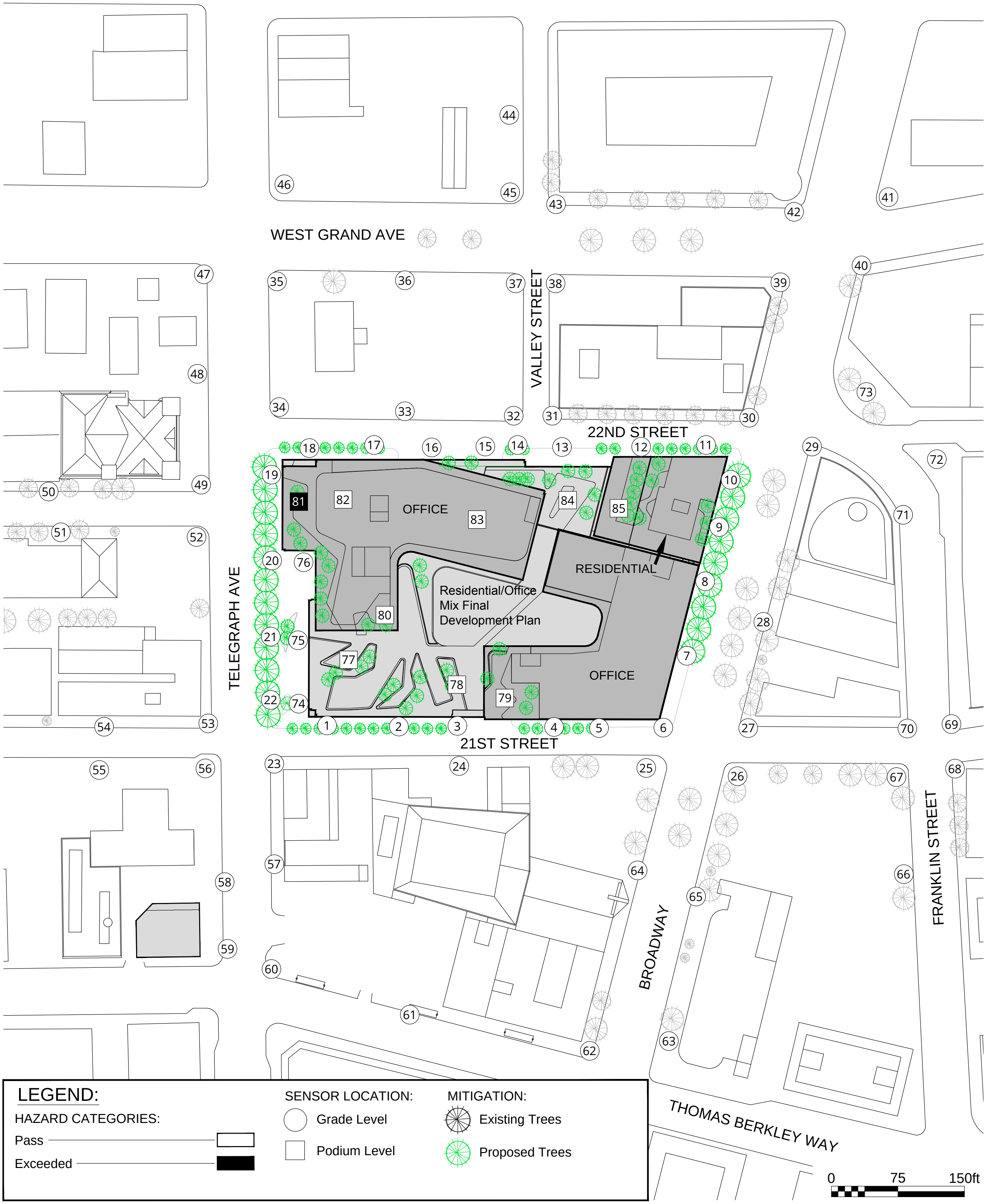
Pedestrian Wind Hazard Conditions
Existing + Landscaping
Annual (January to December)

2100 Telegraph Avenue - Oakland, CA

Project #1601334

Drawn by: ARM	Figure: 3a
Approx. Scale:	1"=150'
Date Revised:	Sept. 8, 2017

RWDI



Pedestrian Wind Hazard Conditions

Residential/Office Mix Final Development Plan + Landscaping

Annual (January to December)

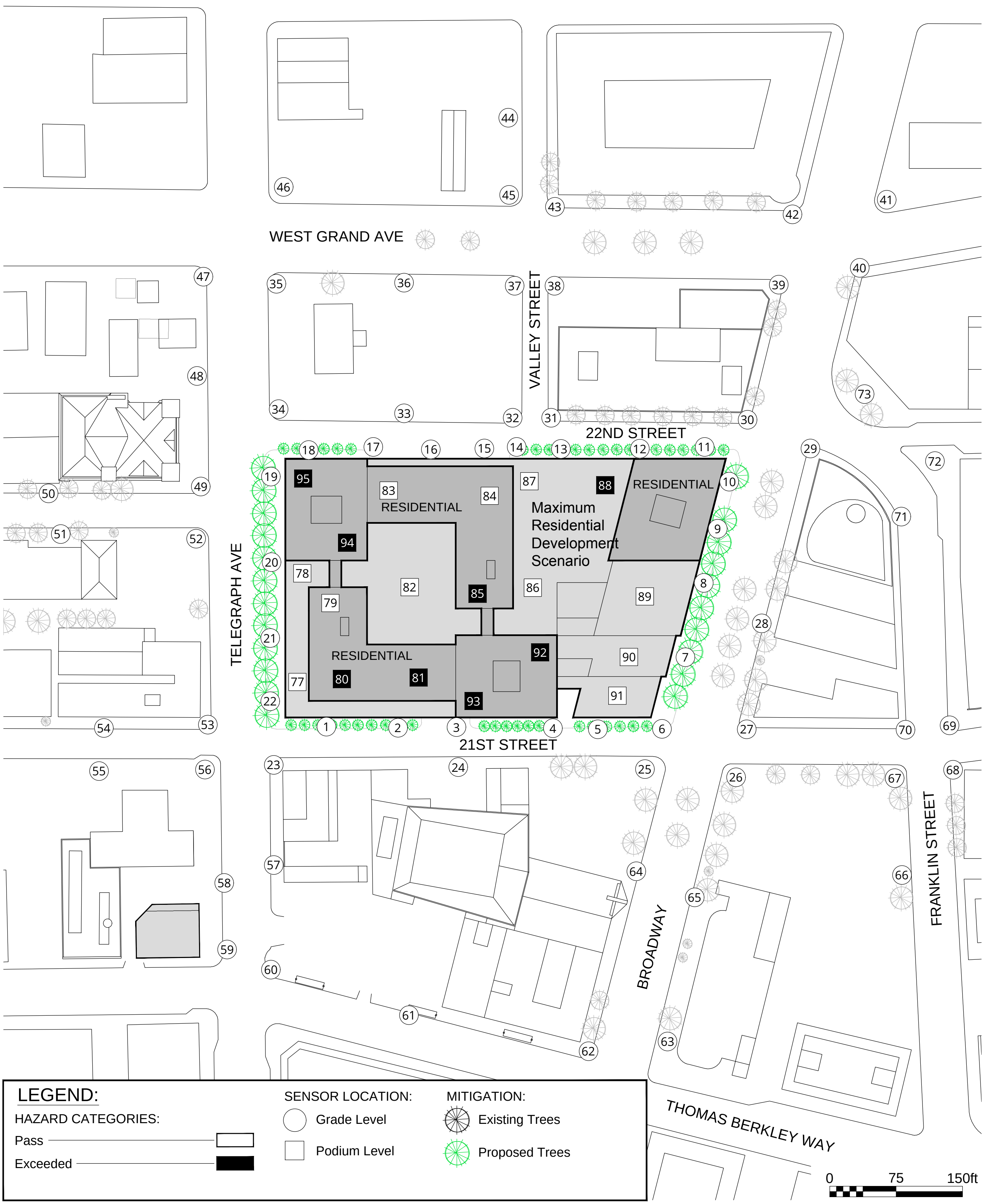
2100 Telegraph Avenue - Oakland, CA

True North

Project #1601334

Drawn by: ARM	Figure: 3b
Approx. Scale:	1"=150'
Date Revised:	Sept. 8, 2017

RWDI



Pedestrian Wind Hazard Conditions

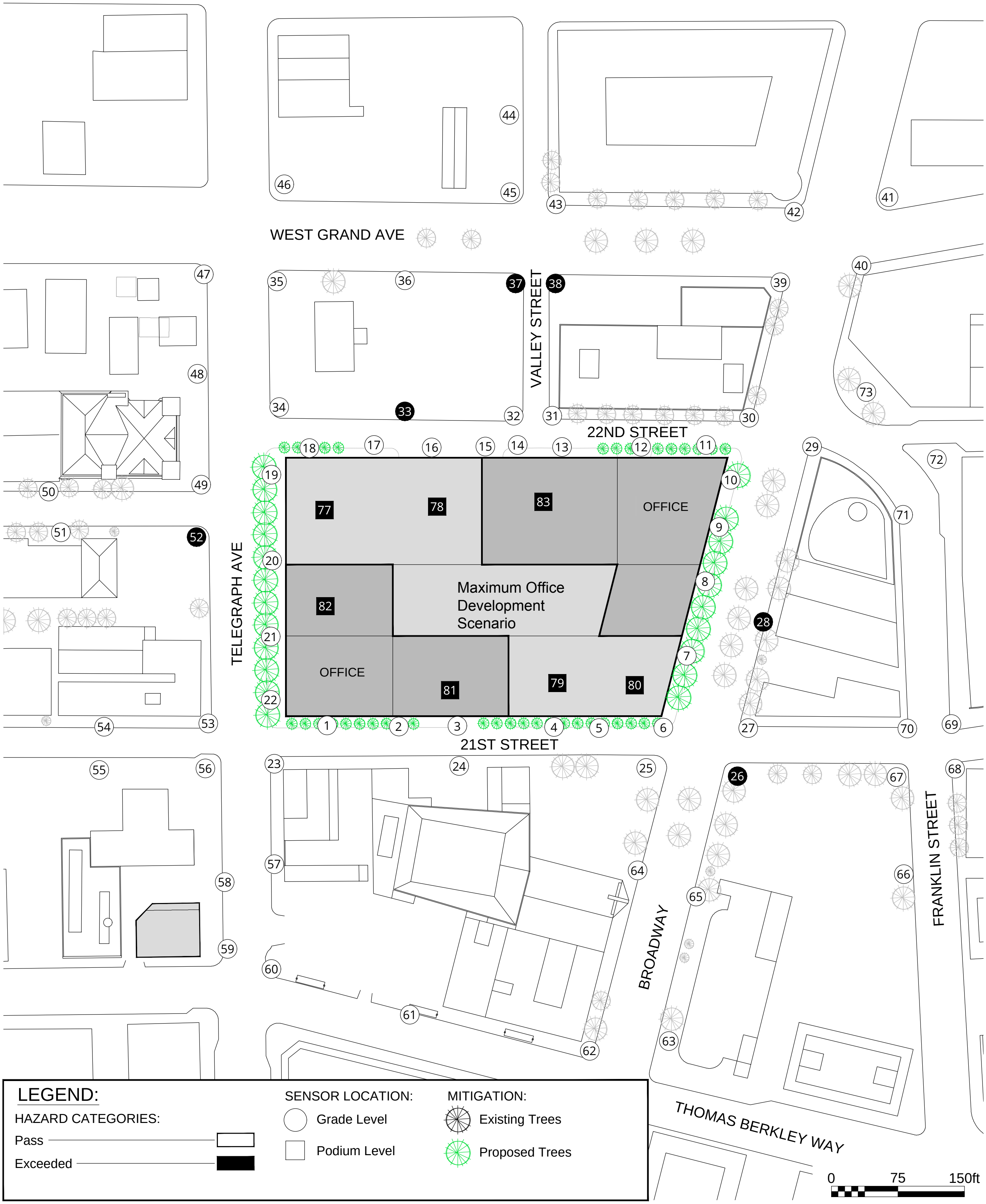
Maximum Residential Development Scenario+ Landscaping

Annual (January to December)

2100 Telegraph Avenue - Oakland, CA

Project #1601334

Drawn by: ARM	Figure: 3c
Approx. Scale:	1"=150'
Date Revised:	Sept. 8, 2017



Pedestrian Wind Hazard Conditions

Maximum Office Development Scenario+ Landscaping

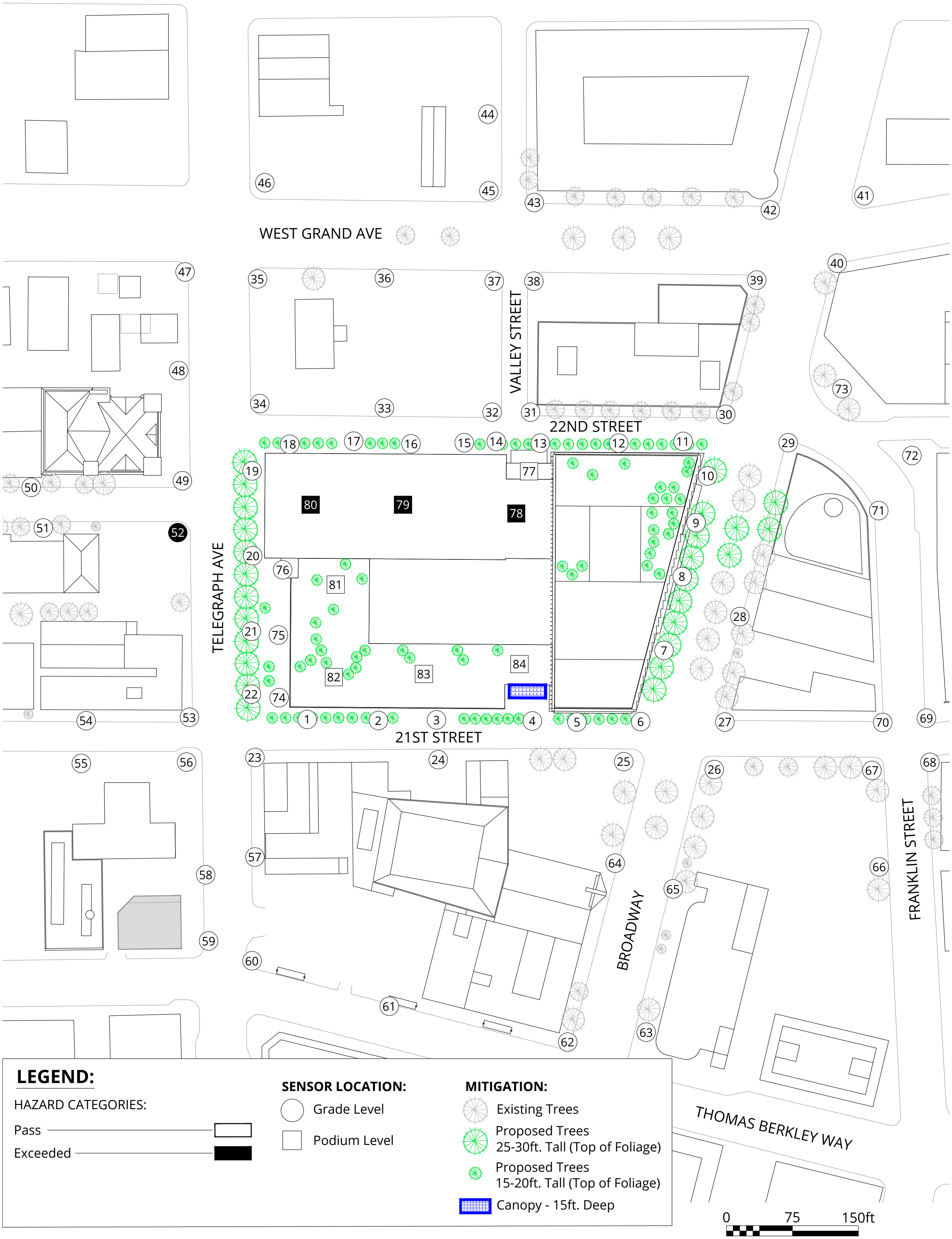
Annual (January to December)

2100 Telegraph Avenue - Oakland, CA

Project #1601334

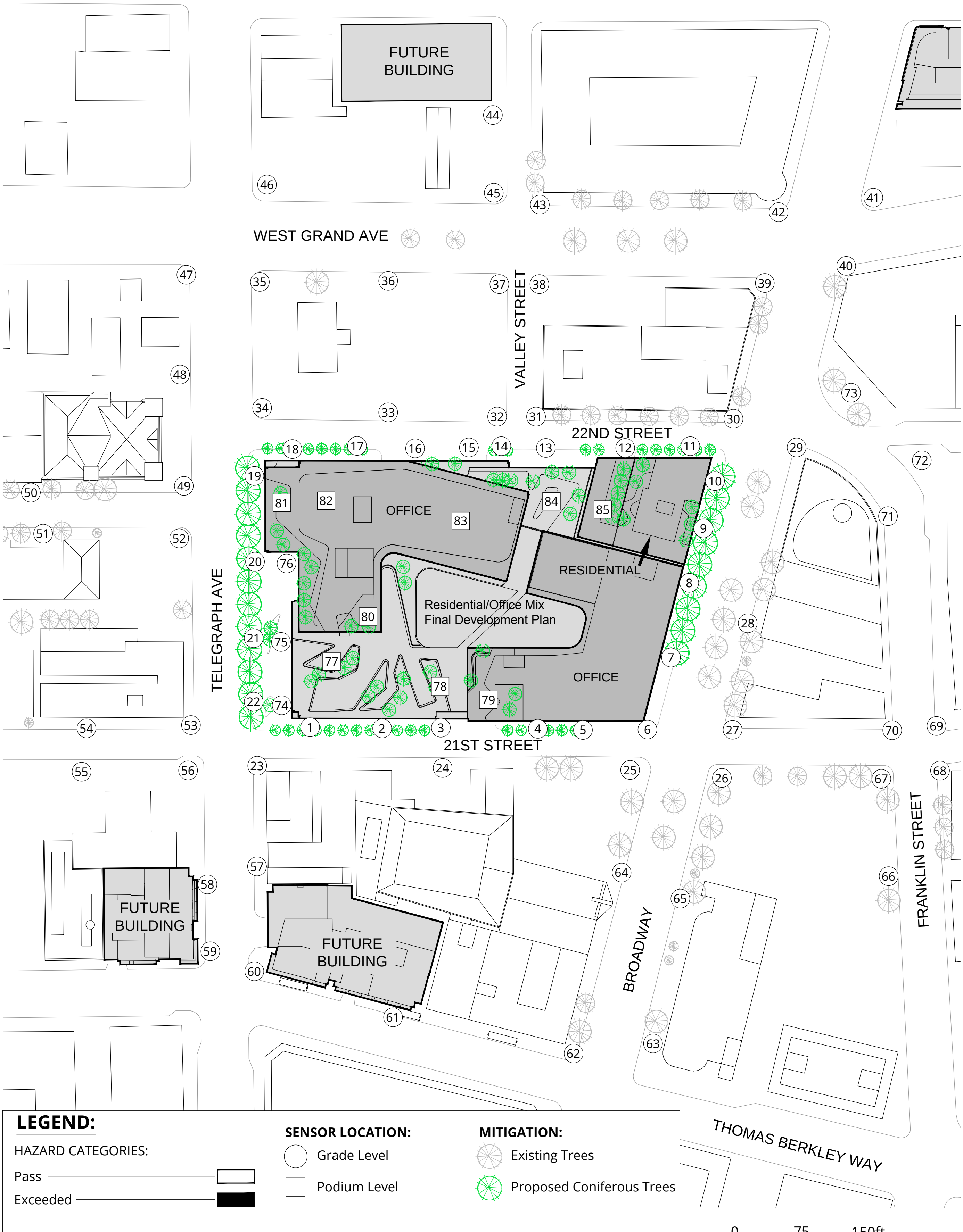
Drawn by: ARM	Figure: 3d
Approx. Scale:	1"=150'
Date Revised:	Sept. 8, 2017

RWDI



Pedestrian Wind Hazard Conditions Existing + All Office Final Development Plan Annual (January to December)	True North	Drawn by: DBB	Figure: 3e
		Approx. Scale:	1"=150'
2100 Telegraph Avenue - Oakland, CA	Project #1601334	Date Revised:	Nov 9, 2017

RWDI



Pedestrian Wind Hazard Conditions
Residential/Office Mix Final Development Plan
+ Cumulative + Landscaping
Annual (January to December)

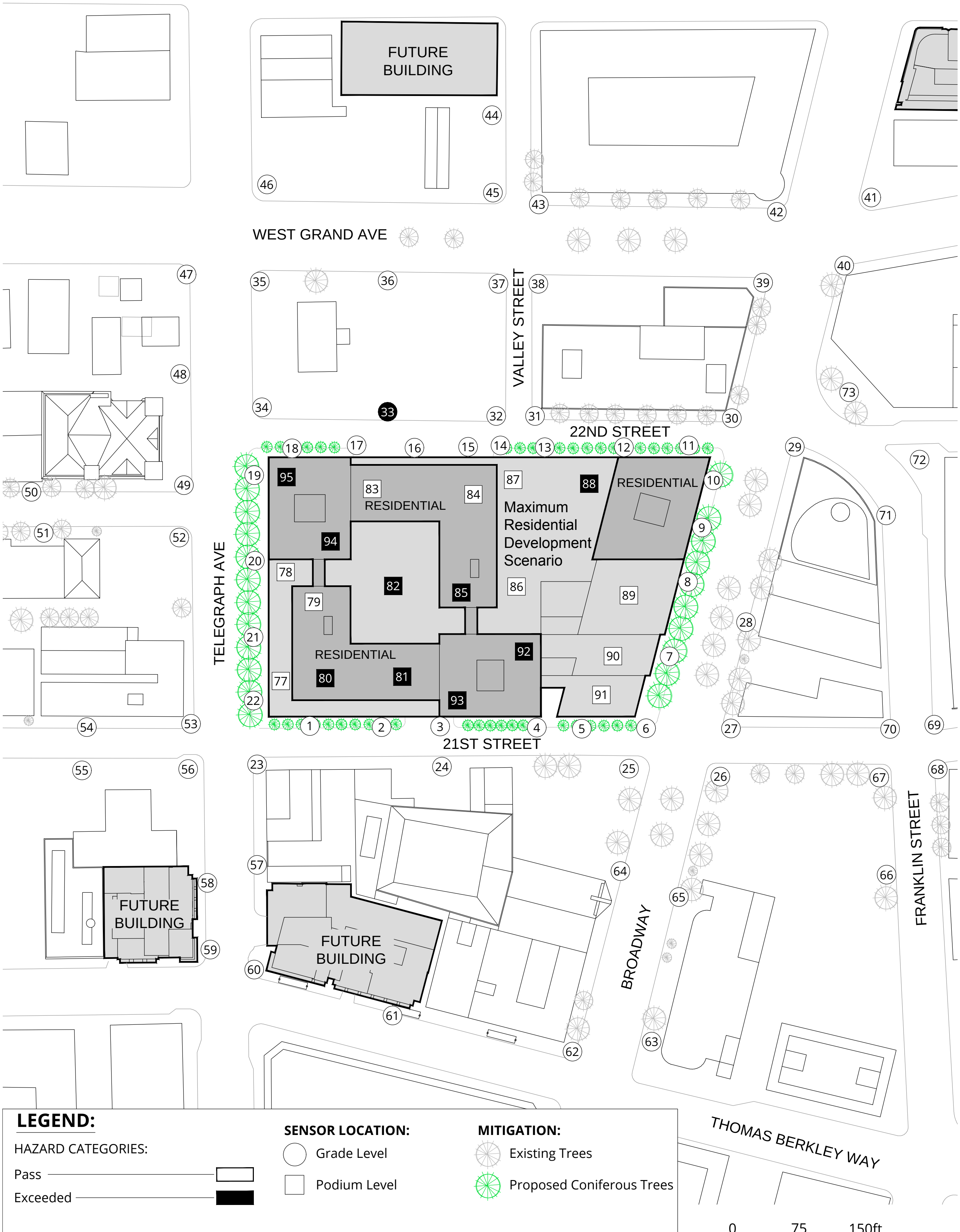
2100 Telegraph Avenue - Oakland, CA

True North

Project #1601334

Drawn by: ARM	Figure: 3f
Approx. Scale:	1"=150'
Date Revised:	May 2, 2017

RWDI



Pedestrian Wind Hazard Conditions

Maximum Residential Development Scenario + Cumulative + Landscaping

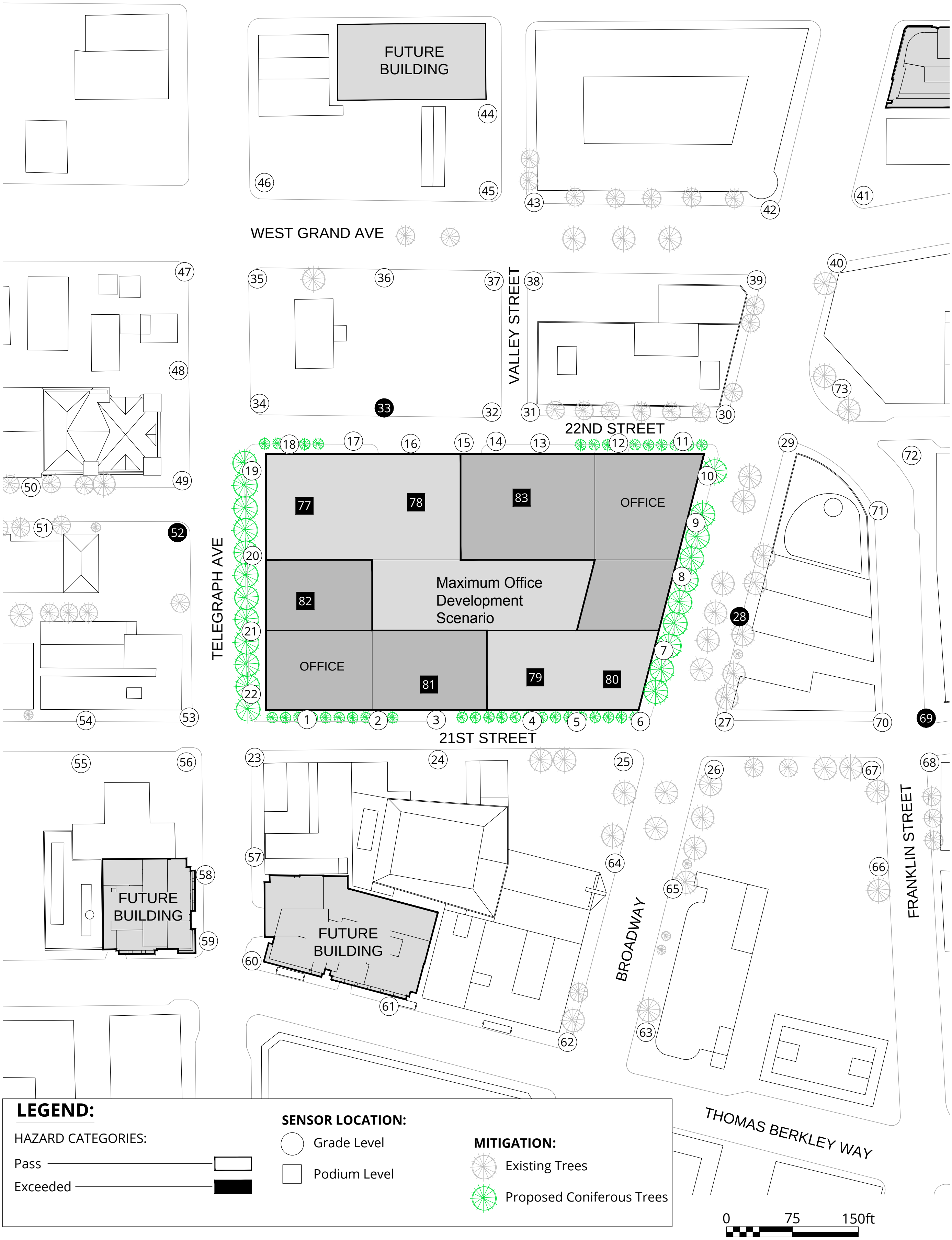
Annual (January to December)

2100 Telegraph Avenue - Oakland, CA

True North

Project #1601334

Drawn by: ARM	Figure: 3g	RWDI
Approx. Scale:	1"=150'	
Date Revised:	May 2, 2017	



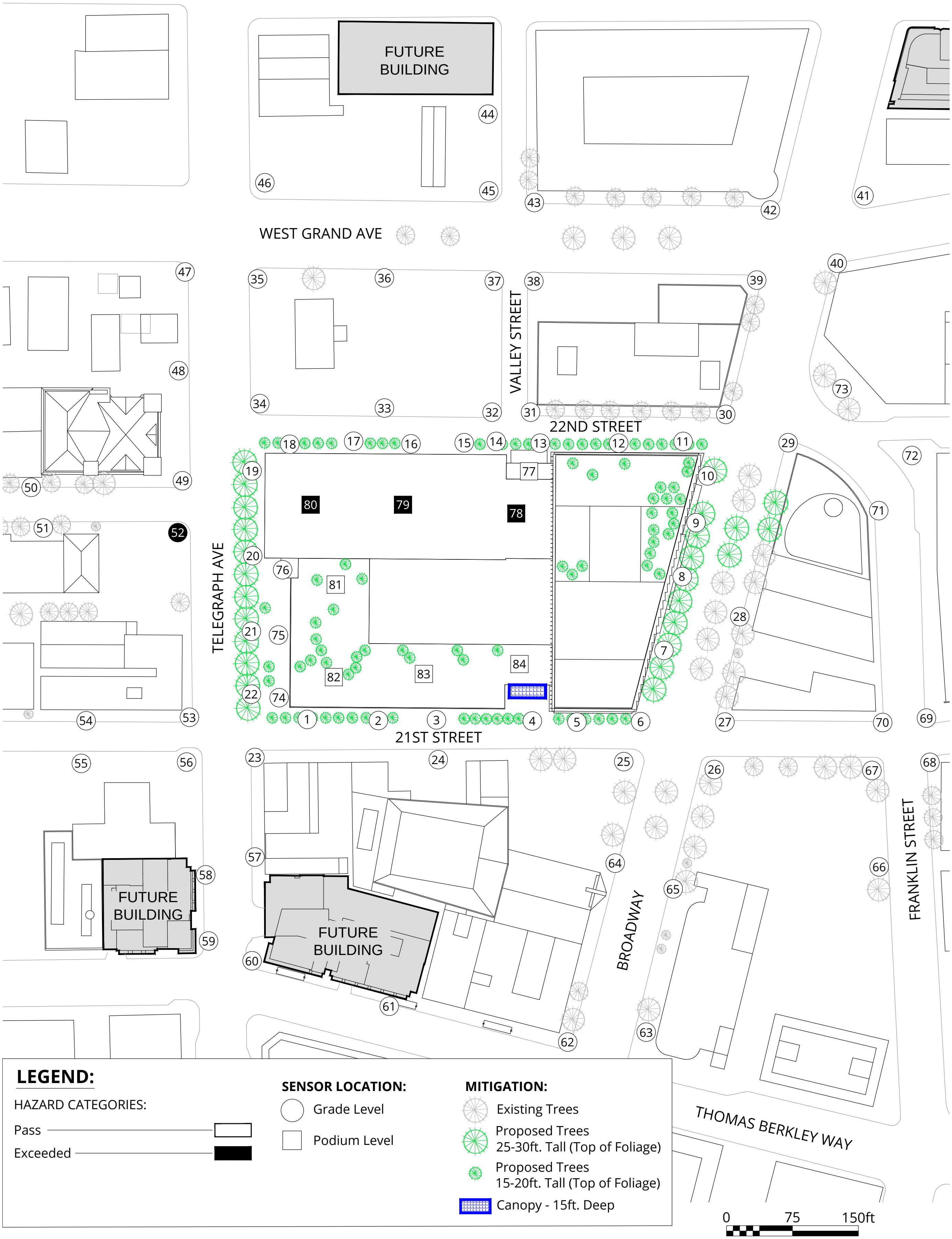
Pedestrian Wind Hazard Conditions
Maximum Office Development Scenario + Cumulative + Landscaping
Annual (January to December)
2100 Telegraph Avenue - Oakland, CA

True North

Project #1601334

Drawn by: ARM	Figure: 3h
Approx. Scale:	1"=150'
Date Revised:	May 2, 2017

RWDI



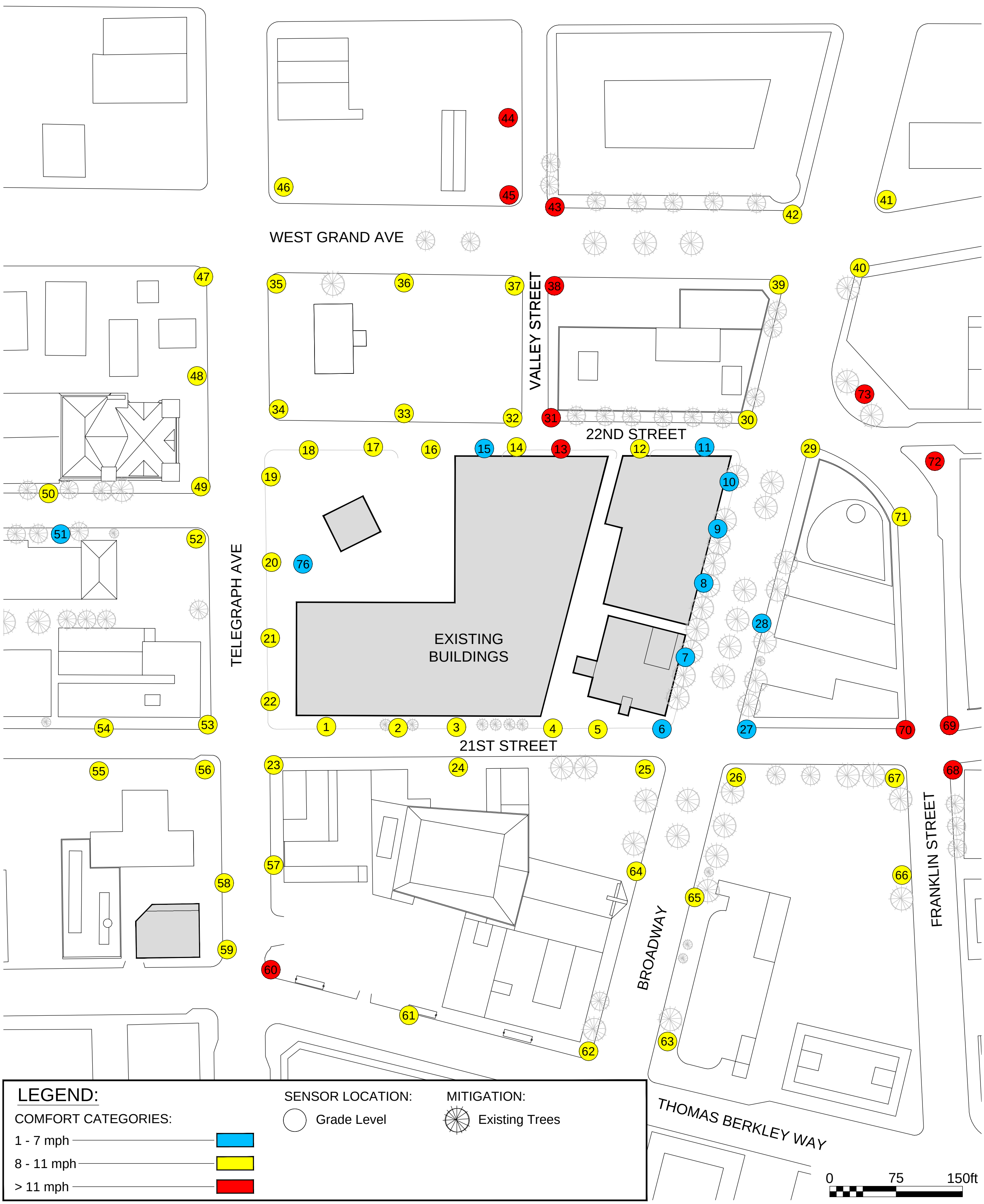
Pedestrian Wind Hazard Conditions
All Office Final Development Plan + Cumulative
Annual (January to December)

2100 Telegraph Avenue - Oakland, CA

True North

Project #1601334

Drawn by: DBB	Figure: 3i	RWDI
Approx. Scale:	1"=150'	
Date Revised:	Nov 9, 2017	



Pedestrian Wind Comfort Conditions

Existing + Landscaping

Annual (January to December)

2100 Telegraph Avenue - Oakland, CA

Project #1601334

True North

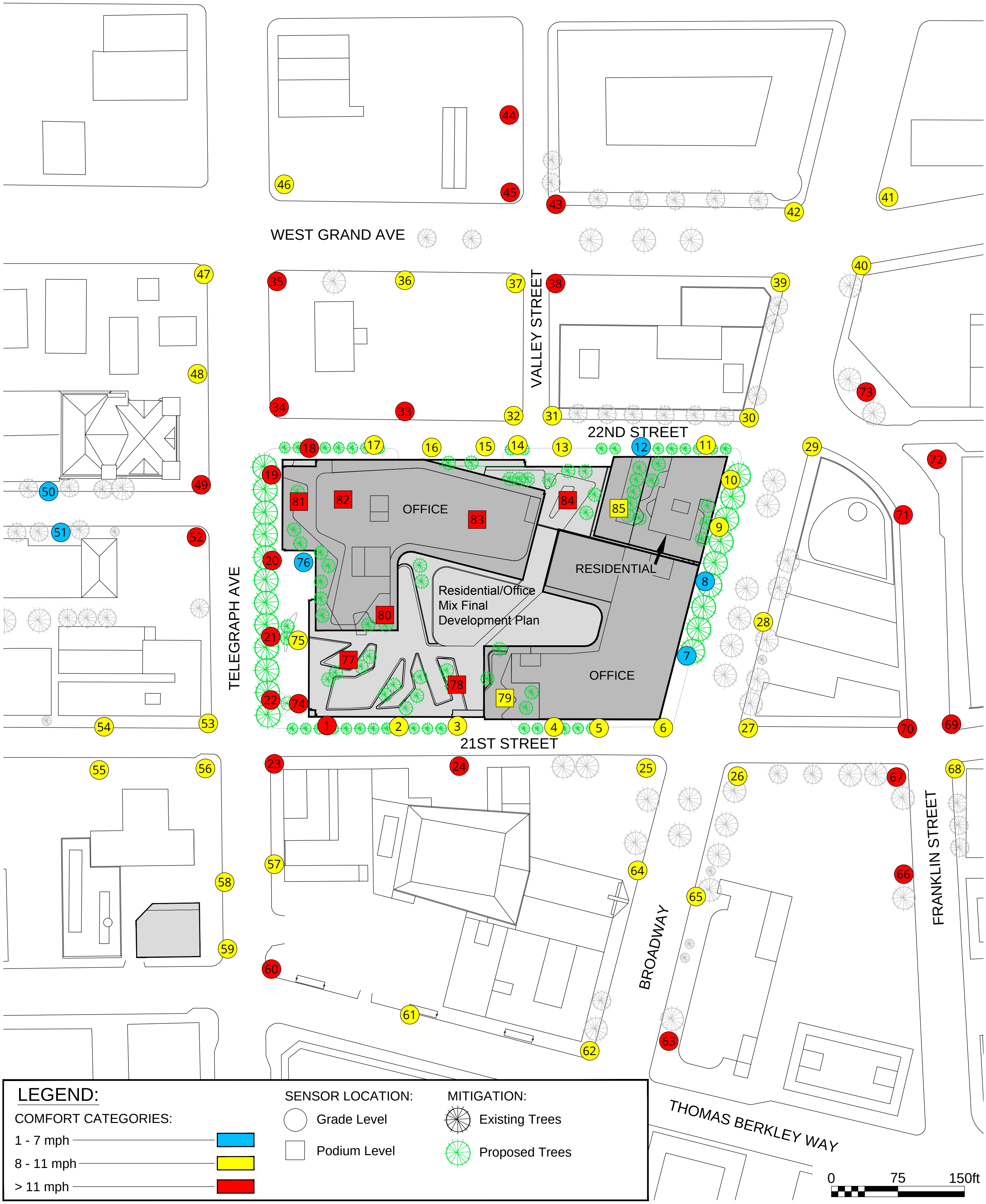
Drawn by: ARM

Figure: 4a

Approx. Scale: 1"=150'

Date Revised: Sept. 8, 2017

RWDI



Pedestrian Wind Comfort Conditions

Residential/Office Mix Final Development Plan + Landscaping Annual (January to December)

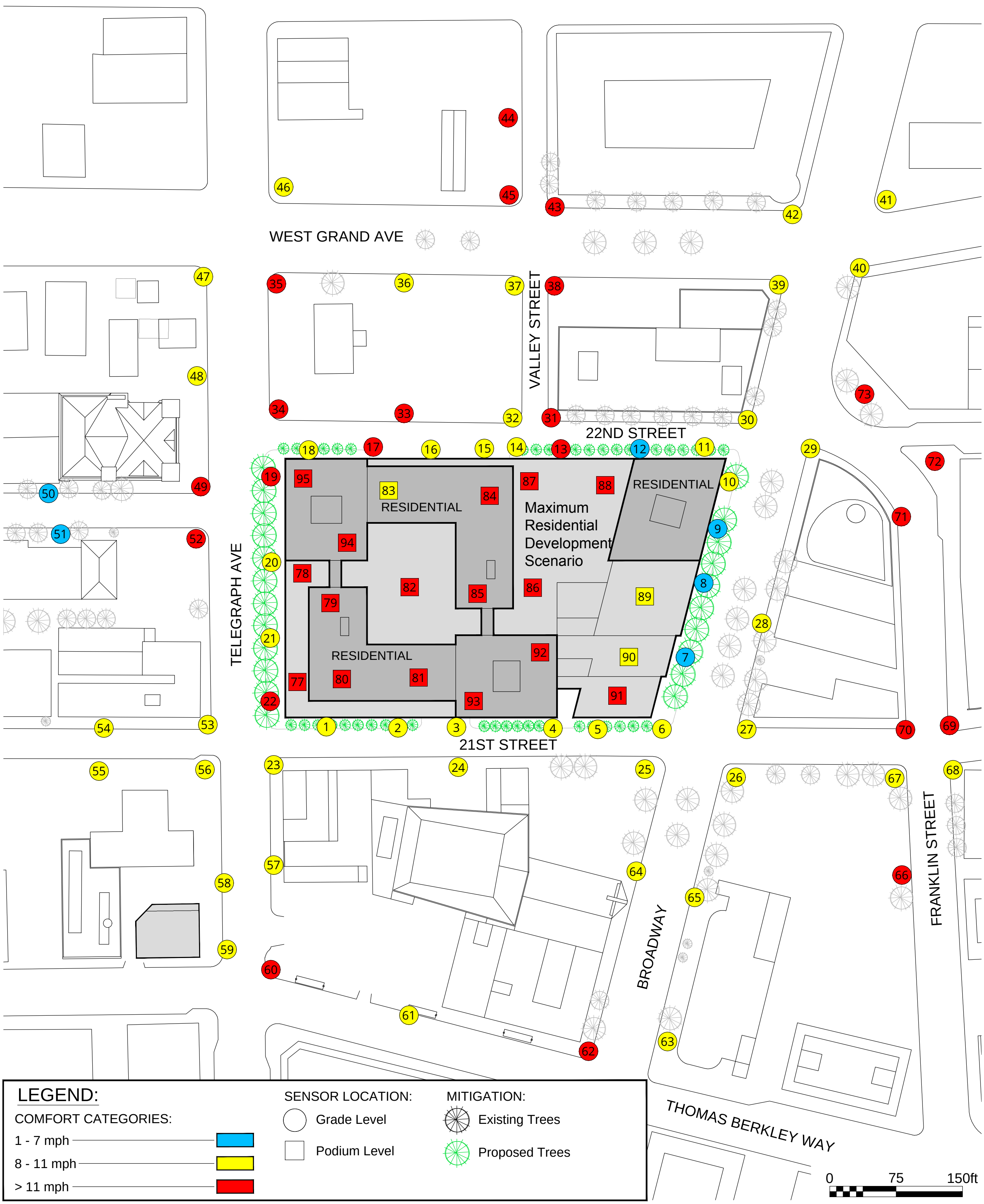
2100 Telegraph Avenue - Oakland, CA

True North

Project #1601334

Drawn by:	ARM	Figure:	4b
Approx. Scale:	1"=150'		
Date Revised:	Sept. 8, 2017		

RWDI



Pedestrian Wind Comfort Conditions

Maximum Residential Development Scenario + Landscaping

Annual (January to December)

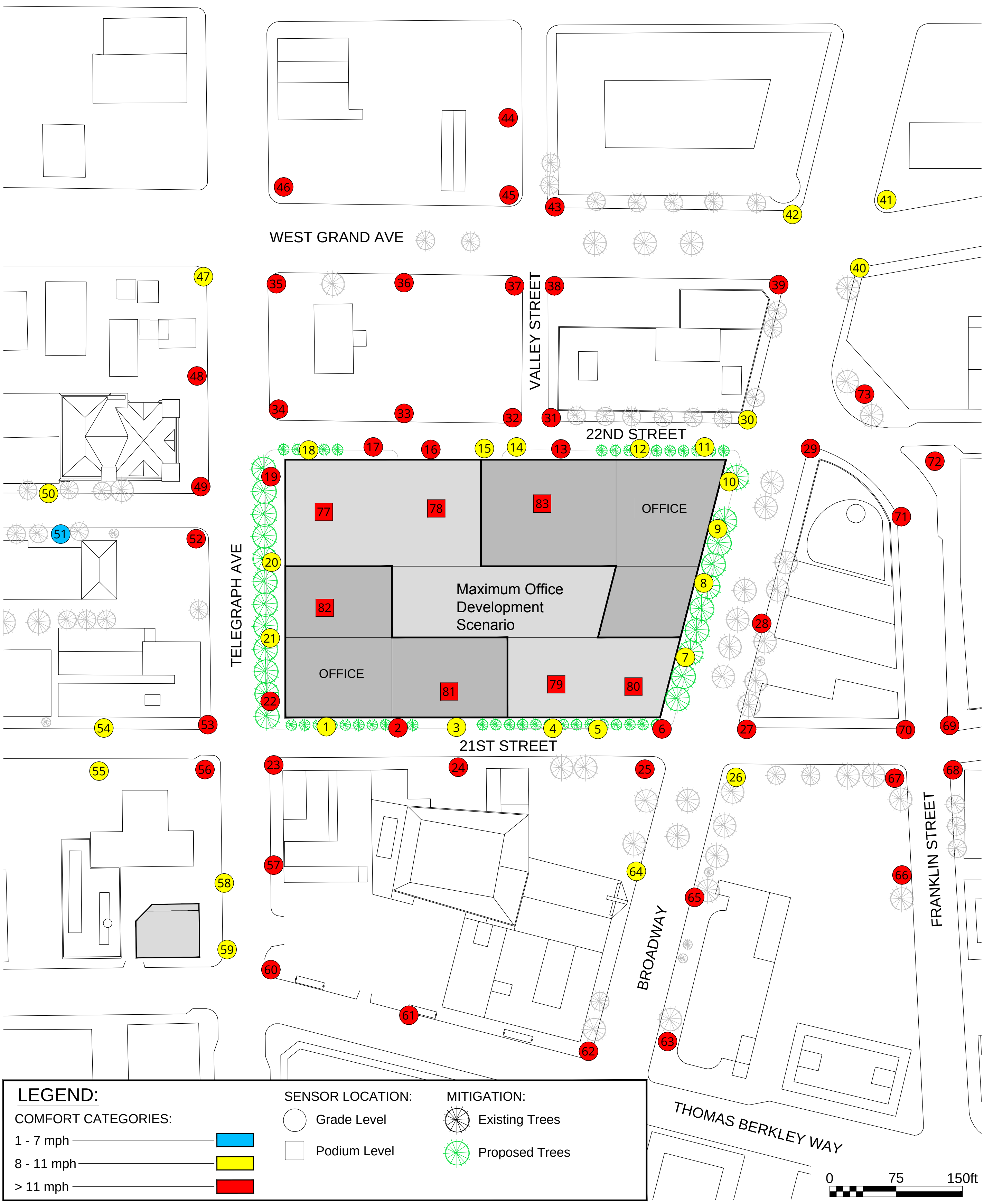
2100 Telegraph Avenue - Oakland, CA

Project #1601334

True North

Drawn by: ARM	Figure: 4c
Approx. Scale:	1"=150'
Date Revised:	Sept. 8, 2017

RWDI



Pedestrian Wind Comfort Conditions

Maximum Office Development Scenario + Landscaping

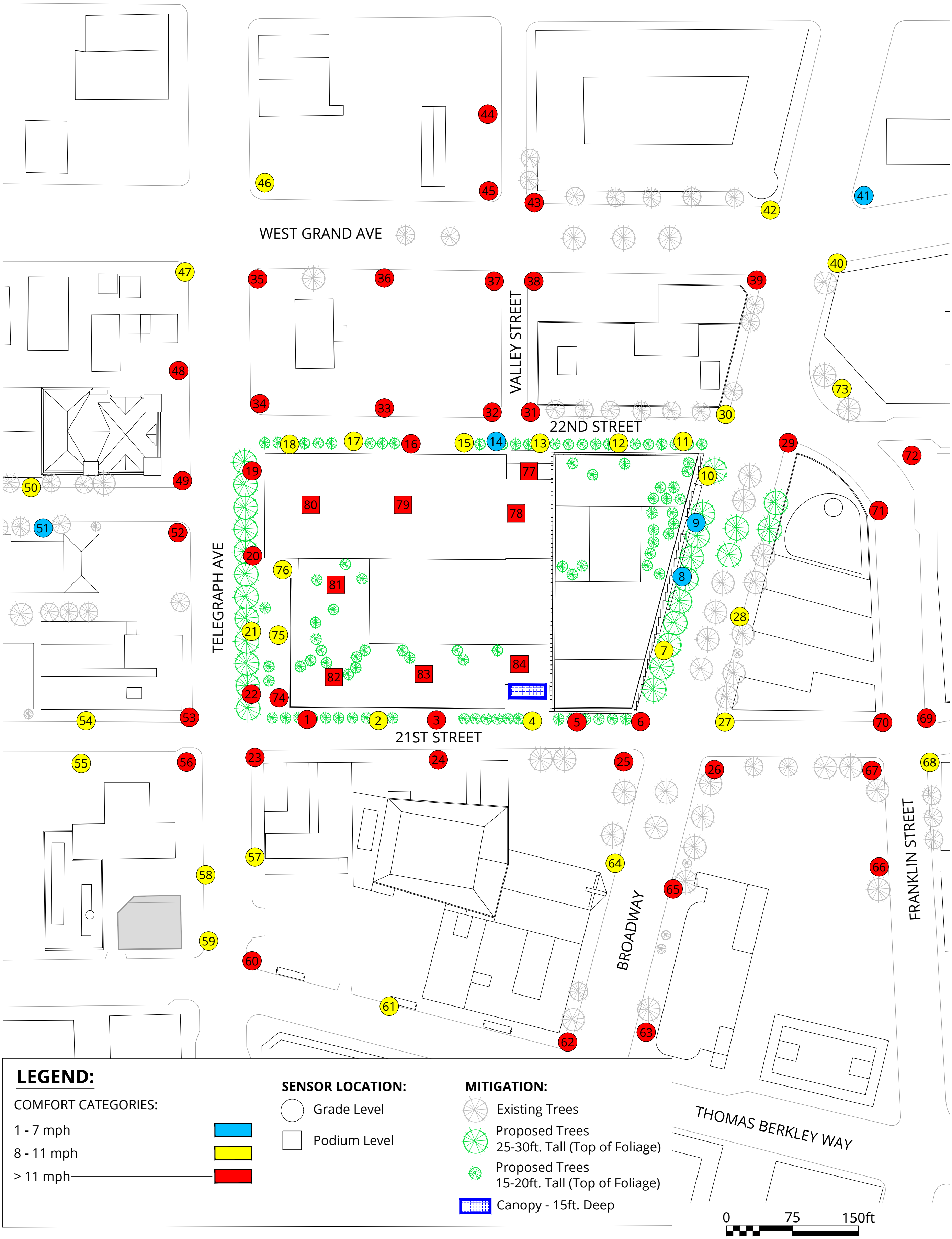
Annual (January to December)

2100 Telegraph Avenue - Oakland, CA

Project #1601334

True North

Drawn by:	ARM	Figure:	4d
Approx. Scale:			1"=150'
Date Revised:			Sept. 8, 2017



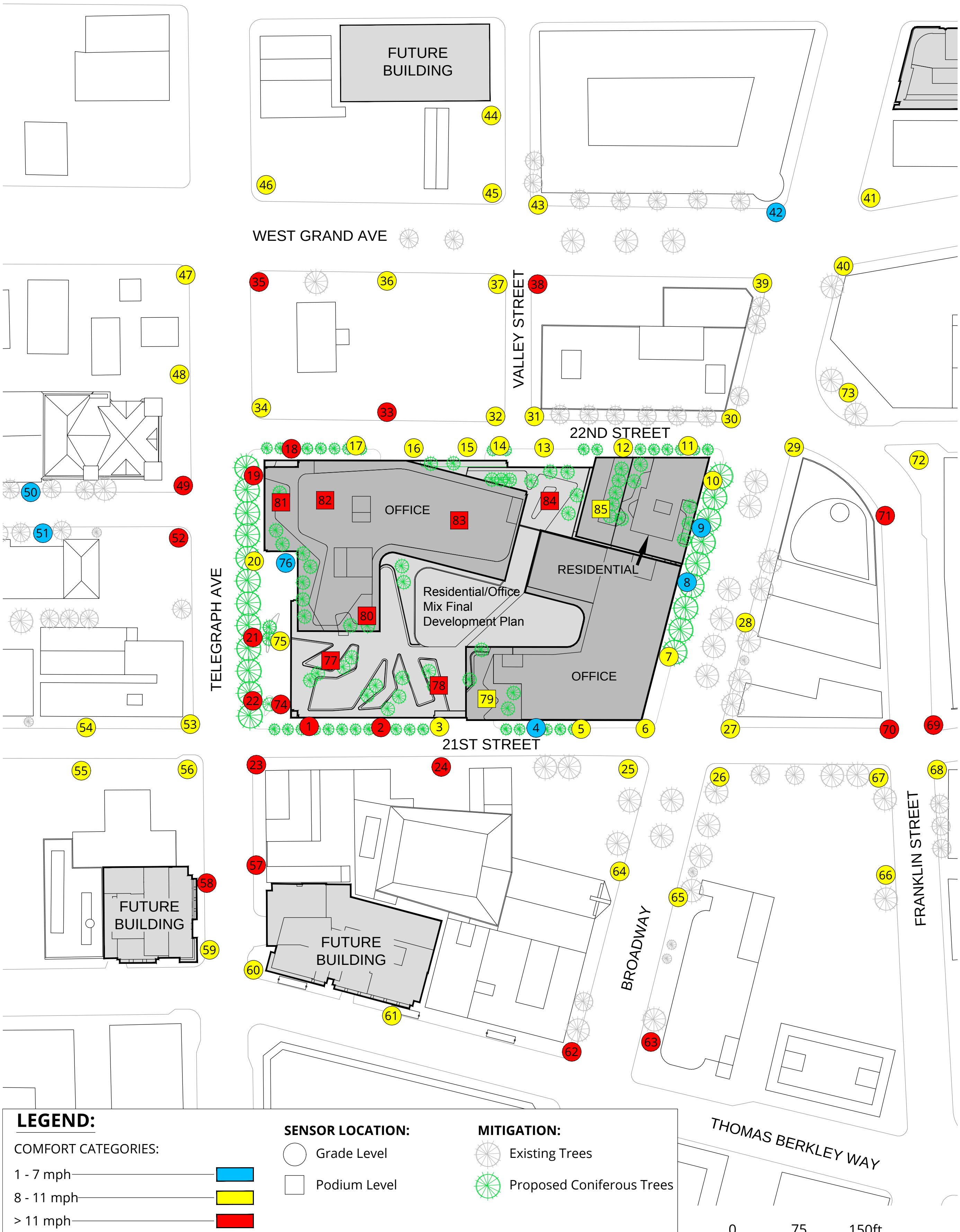
Pedestrian Wind Comfort Conditions
Existing + All Office Final Development Plan
Annual (January to December)

2100 Telegraph Avenue - Oakland, CA

True North

Project #1601334

Drawn by: DBB	Figure: 4e	RWDI
Approx. Scale:	1"=150'	
Date Revised:	Nov 9, 2017	



Pedestrian Wind Comfort Conditions

Residential/Office Mix Final Development Plan +
Cumulative + Landscaping

Annual (January to December)

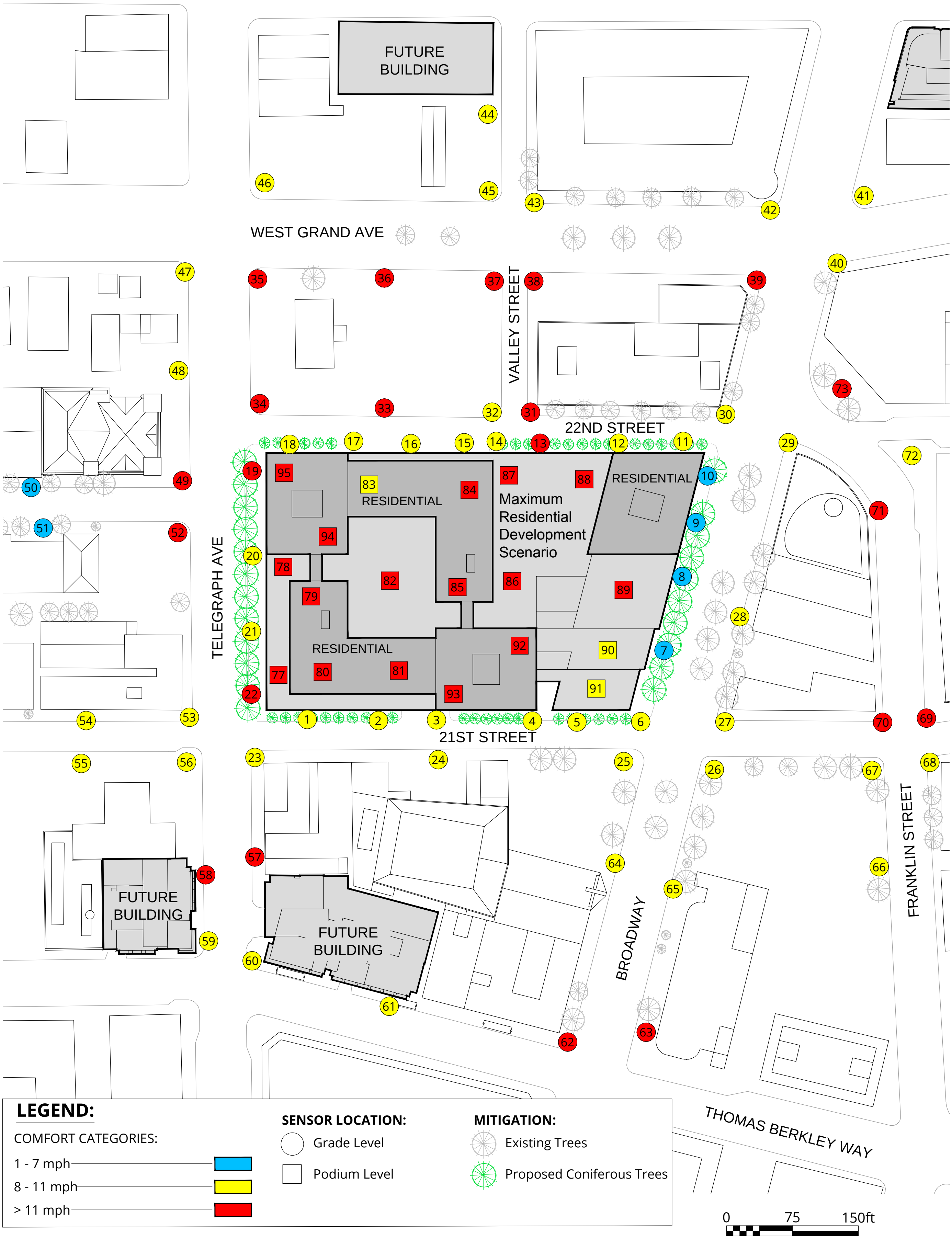
2100 Telegraph Avenue - Oakland, CA

True North

Project #1601334

Drawn by: ARM	Figure: 4f
Approx. Scale:	1"=150'
Date Revised:	May 2, 2017

RWDI



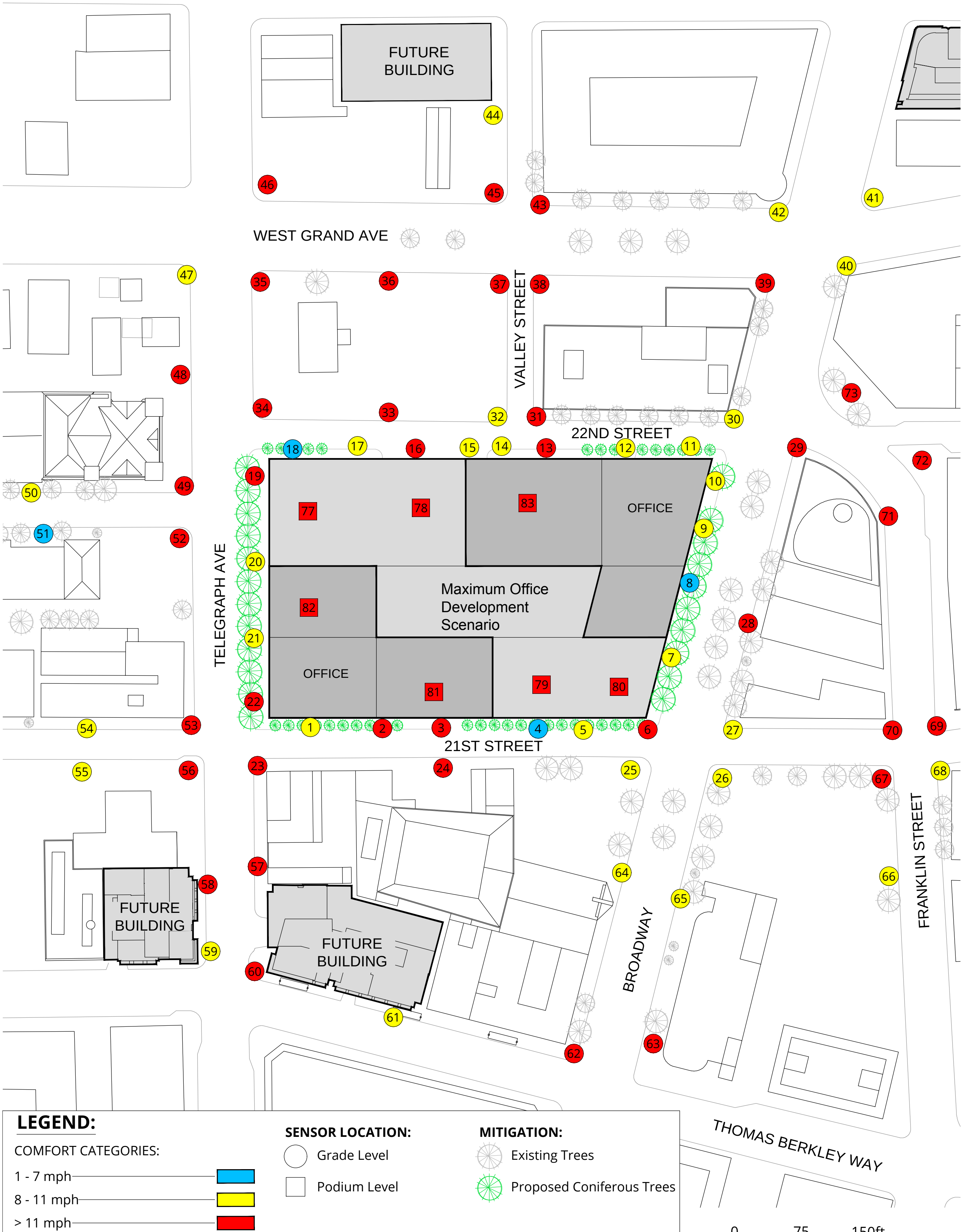
Pedestrian Wind Comfort Conditions
Maximum Residential Development Scenario + Cumulative + Landscaping
Annual (January to December)
2100 Telegraph Avenue - Oakland, CA

True North

Project #1601334

Drawn by: ARM	Figure: 4g
Approx. Scale:	1"=150'
Date Revised:	May 2, 2017

RWDI



Pedestrian Wind Comfort Conditions
Maximum Office Development Scenario + Cumulative + Landscaping
Annual (January to December)

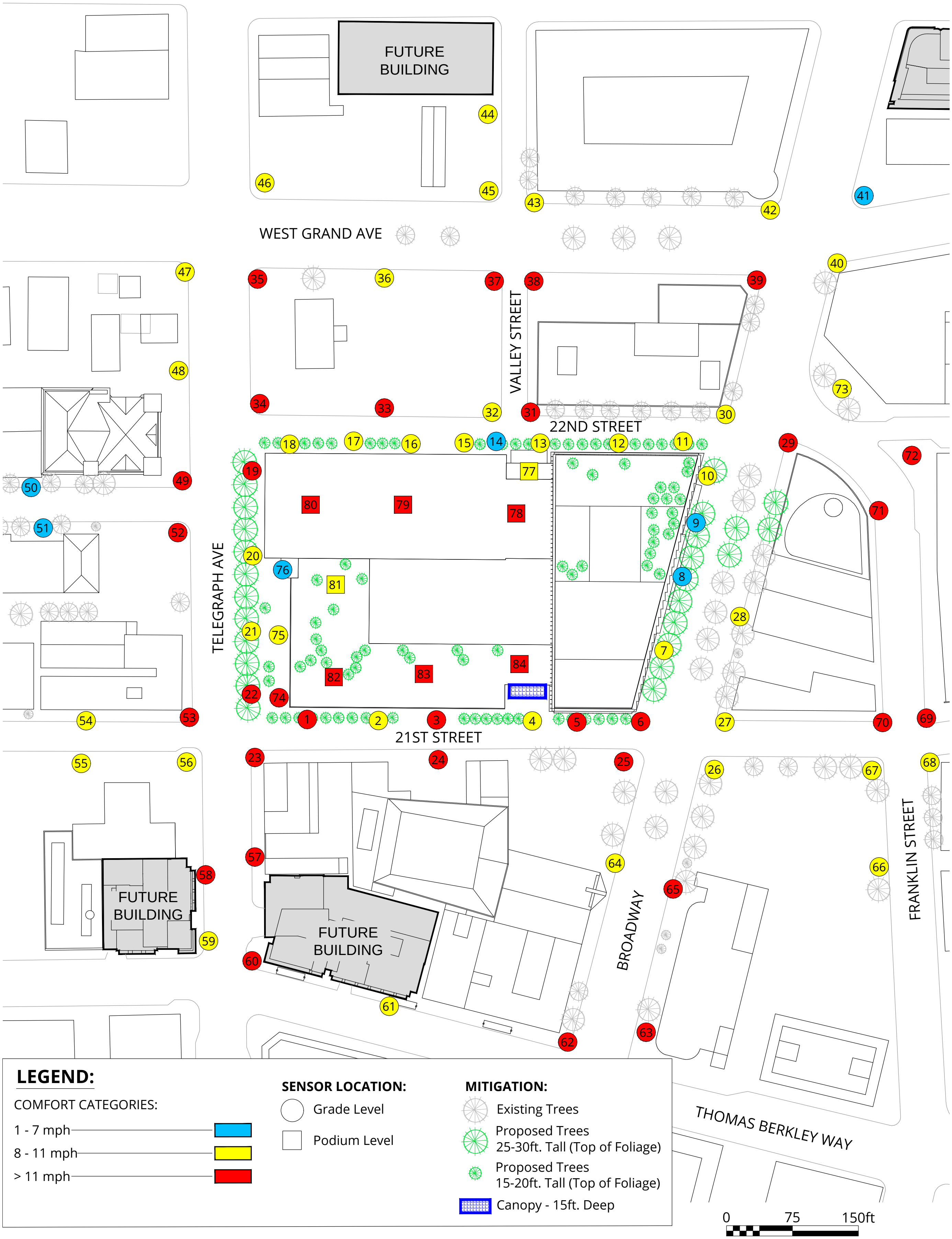
2100 Telegraph Avenue - Oakland, CA

True North

Project #1601334

Drawn by: ARM	Figure: 4h
Approx. Scale:	1"=150'
Date Revised:	May 2, 2017

RWDI



Pedestrian Wind Comfort Conditions
All Office Final Development Plan + Cumulative
Annual (January to December)

2100 Telegraph Avenue - Oakland, CA

True North

Project #1601334

Drawn by: DBB	Figure: 4i
Approx. Scale:	1"=150'
Date Revised:	Nov 9, 2017

RWDI

TABLES

CONSULTING ENGINEERS & SCIENTISTS

Table 1: Wind Hazard Results

Refs	a Existing + Landscaping			b Residential/Office Mix Final Development Plan + Landscaping			c Maximum Residential Development Scenario + Landscaping			d Maximum Office Development Scenario + Landscaping			e All Office Final Development Plan + Landscaping			f Residential/Office Mix Final Development Plan + Cumulative + Landscaping			g Maximum Residential Development Scenario + Cumulative + Landscaping			h Maximum Office Development Scenario + Cumulative Landscaping			i All Office Final Development Plan + Cumulative + Landscaping		
Location Number	Wind Speed Exceeded 1hr/year (mph)	Hours/ Year Wind Speeds Exceed Hazard Criterion	Exceeds	Wind Speed Exceeded 1hr/year (mph)	Hours/ Year Wind Speeds Exceed Hazard Criterion	Exceeds	Wind Speed Exceeded 1hr/year (mph)	Hours/ Year Wind Speeds Exceed Hazard Criterion	Exceeds	Wind Speed Exceeded 1hour/year (mph)	Hours/ Year Wind Speeds Exceed Hazard Criterion	Exceeds	Wind Speed Exceeded 1hour/year (mph)	Hours/ Year Wind Speeds Exceed Hazard Criterion	Exceeds	Wind Speed Exceeded 1hr/year (mph)	Hours/ Year Wind Speeds Exceed Hazard Criterion	Exceeds	Wind Speed Exceeded 1hr/year (mph)	Hours/ Year Wind Speeds Exceed Hazard Criterion	Exceeds	Wind Speed Exceeded 1hr/year (mph)	Hours/ Year Wind Speeds Exceed Hazard Criterion	Exceeds	Wind Speed Exceeded 1hr/year (mph)	Hours/ Year Wind Speeds Exceed Hazard Criterion	Exceeds
1	21	0		35	0		17	0		23	0		28	0		34	0		24	0		25	0		27	0	
2	19	0		22	0		22	0		32	0		23	0		27	0		25	0		33	0		23	0	
3	18	0		21	0		20	0		25	0		27	0		24	0		19	0		28	0		27	0	
4	19	0		23	0		30	0		19	0		28	0		22	0		30	0		21	0		27	0	
5	22	0		24	0		24	0		23	0		32	0		23	0		21	0		24	0		30	0	
6	20	0		26	0		22	0		35	0		33	0		27	0		21	0		33	0		29	0	
7	17	0		23	0		20	0		30	0		22	0		28	0		21	0		28	0		19	0	
8	16	0		22	0		20	0		24	0		20	0		22	0		21	0		22	0		19	0	
9	16	0		25	0		27	0		29	0		20	0		24	0		28	0		33	0		19	0	
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12	19	0		17	0		20	0		23	0		30	0		23	0		22	0		29	0		28	0	
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14	22	0		23	0		27	0		21	0		16	0		20	0		23	0		20	0		16	0	
15	19	0		19	0		25	0		24	0		19	0		18	0		25	0		25	0		18	0	
16	20	0		19	0		22	0		26	0		25	0		18	0		23	0		27	0		24	0	
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24	24	0		26	0		28	0		30	0		28	0		26	0		27	0		30	0		28	0	
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31	29	0		25	0		28	0		32	0		32	0		24	0		28	0		32	0		31	0	

Table 1: Wind Hazard Results

32	20	0		26	0		27	0		28	0		27	0		25	0		26	0		26	0		26	0	
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34	24	0		34	0		35	0		35	0		35	0		34	0		33	0		35	0		35	0	
35	23	0		25	0		28	0		33	0		31	0		25	0		29	0		34	0		29	0	
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70	33	0		33	0		31	0		35	0		34	0		33	0		33	0		35	0		32	0	
71	28	0		29	0		29	0		33	0		31	0		27	0		28	0		33	0		28	0	

Table 1: Wind Hazard Results

72	31	0		28	0		28	0		29	0		31	0		23	0		24	0		28	0		26	0	
73	24	0		26	0		26	0		28	0		23	0		24	0		24	0		26	0		23	0	
74				33	0								30	0		31	0								28	0	
75				22	0								21	0		21	0								21	0	
76	16	0		17	0								23	0											22	0	
Average speed, Total hours, Total	**23 mph**	**0 hrs**	**0 of 74**	**26 mph**	**0 hrs**	**0 of 76**	**26 mph**	**0 hrs**	**0 of 73**	**30 mph**	**27 hrs**	**6 of 73**	**28 mph**	**5 hrs**	**1 of 76**	**25 mph**	**0 hrs**	**0 of 76**	**25 mph**	**2 hrs**	**1 of 73**	**30 mph**	**20 hrs**	**4 of 73**	**27 mph**	**3 hrs**	**1 of 76**
Above Grade																											
77				26	0		34	0		51	21	e	26	0		25	0		34	0		51	20	e	24	0	
78				35	0		35	0		47	22	e	39	2	e	35	0		33	0		47	20	e	38	2	e
79				25	0		35	0		40	3	e	39	2	e	25	0		35	0		39	2	e	38	2	e
80				29	0		38	2	e	43	9	e	39	3	e	28	0		39	2	e	43	6	e	37	2	e
81				38	2	e	42	5	e	44	10	e	30	0		35	0		42	5	e	44	12	e	25	0	
82				32	0		35	0		51	15	e	35	0		32	0		37	1	e	51	16	e	33	0	
83				28	0		30	0		54	55	e	36	0		28	0		33	0		56	63	e	34	0	
84				27	0		35	0								26	0		35	0					28	0	
85				22	0		40	4	e							21	0		39	3	e						
86							34	0											34	0							
87							35	0											35	0							
88							37	1	e										37	1	e						
89							35	0											33	0							
90							35	0											34	0							
91							26	0											24	0							
92							42	6	e										43	7	e						
93							47	20	e										47	27	e						
94							46	10	e										48	12	e						
95							44	11	e										44	11	e						
Average speed, Total hours, Total excee				**30 mph**	**2 hrs**	**1 of 9**	**38 mph**	**37 hrs**	**4 of 19**	**47 mph**	**135 hrs**	**7 of 7**	**34 mph**	**7 hrs**	**3 of 7**	**30 mph**	**0 hrs**	**0 of 9**	**38 mph**	**47 hrs**	**4 of 19**	**47 mph**	**139 hrs**	**7 of 7**	**32 mph**	**6 hrs**	**3 of 7**

CONSULTING ENGINEERS & SCIENTISTS

Table 2: Wind Comfort Results

Refs	a Existing + Landscaping			b Residential/Office Mix Final Development Plan + Landscaping			c Maximum Residential Development Scenario + Landscaping			d Maximum Office Development Scenario + Landscaping			e All Office Final Development Plan + Landscaping			f Residential/Office Mix Final Development Plan + Cumulative + Landscaping			g Maximum Residential Development Scenario + Cumulative + Landscaping			h Maximum Office Development Scenario + Cumulative Landscaping			i All Office Final Development Plan + Cumulative + Landscaping		
Location Number	Wind Speed Exceeded 10% of the Time (mph)	Percent of Time Wind Speed Exceeds 11 mph	Exceeds	Wind Speed Exceeded 10% of the Time (mph)	Percent of Time Wind Speed Exceeds 11 mph	Exceeds	Wind Speed Exceeded 10% of the Time (mph)	Percent of Time Wind Speed Exceeds 11 mph	Exceeds	Wind Speed Exceeded 10% of the Time (mph)	Percent of Time Wind Speed Exceeds 11 mph	Exceeds	Wind Speed Exceeded 10% of the Time (mph)	Percent of Time Wind Speed Exceeds 11 mph	Exceeds	Wind Speed Exceeded 10% of the Time (mph)	Percent of Time Wind Speed Exceeds 11 mph	Exceeds	Wind Speed Exceeded 10% of the Time (mph)	Percent of Time Wind Speed Exceeds 11 mph	Exceeds	Wind Speed Exceeded 10% of the Time (mph)	Percent of Time Wind Speed Exceeds 11 mph	Exceeds	Wind Speed Exceeded 10% of the Time (mph)	Percent of Time Wind Speed Exceeds 11 mph	Exceeds
1	10	5		19	39	e	8	1		9	3		13	18	e	16	32	e	10	8		11	10		13	18	e
2	9	3		10	5		10	8		15	23	e	11	10		12	12	e	11	10		15	24	e	10	8	
3	8	2		10	6		9	3		11	10		12	15	e	11	10		9	4		13	17	e	12	13	e
4	9	2		8	2		10	6		8	1		11	10		7	2		9	5		7	1		10	7	
5	10	6		8	3		10	6		9	3		13	18	e	9	4		9	4		9	4		12	14	e
6	5	1		9	4		10	6		12	14	e	14	26	e	11	10		9	4		13	18	e	13	23	e
7	7	1		7	2		7	1		8	4		8	3		9	4		7	1		9	4		8	1	
8	5	1		7	2		7	1		8	2		7	2		7	2		7	1		7	1		7	1	
9	5	0		8	3		7	2		8	2		7	1		7	2		7	2		8	2		7	1	
10	5	1		8	2		8	2		9	5		10	6		8	2		7	2		9	4		8	3	
11	7	2		11	10		8	2		9	4		11	10		10	7		8	2		10	6		10	8	
12	8	1		6	1		7	1		8	2		8	3		10	7		9	4		10	6		8	3	
13	12	12	e	10	5		13	17	e	13	20	e	11	10		9	4		12	15	e	14	21	e	11	10	
14	8	2		9	3		11	10		11	10		7	1		8	2		10	5		10	6		7	0	
15	7	1		8	2		11	10		11	10		9	3		8	1		11	10		11	10		9	2	
16	8	2		9	2		11	10		12	13	e	12	12	e	8	1		11	10		12	14	e	11	10	
17	9	3		9	4		13	19	e	12	12	e	9	3		8	2		11	10		11	10		9	2	
18	9	3		14	23	e	8	2		8	2		10	6		12	16	e	8	2		7	1		9	4	
19	8	2		14	26	e	13	18	e	15	27	e	13	18	e	14	27	e	13	18	e	15	30	e	12	16	e
20	8	2		12	14	e	8	2		10	5		12	15	e	11	10		9	3		10	6		11	10	
21	11	10		12	17	e	11	10		9	4		11	10		12	17	e	11	10		9	4		10	7	
22	9	4		15	29	e	13	20	e	16	31	e	14	23	e	14	27	e	12	14	e	15	26	e	14	23	e
23	10	5		16	29	e	9	4		13	18	e	13	22	e	13	19	e	10	6		13	20	e	13	17	e
24	10	6		12	14	e	11	10		14	23	e	13	17	e	12	12	e	11	10		14	23	e	13	16	e
25	8	2		10	7		10	7		13	18	e	13	20	e	9	6		10	5		11	10		12	14	e
26	9	4		9	5		11	10		11	10		12	14	e	9	3		10	8		11	10		11	10	
27	6	2		9	4		10	5		12	13	e	10	7		8	2		9	4		10	8		10	6	
28	7	0		9	4		10	8		12	13	e	10	8		8	3		10	7		12	12	e	10	7	
29	9	5		11	10		10	7		13	21	e	12	14	e	11	10		11	10		13	18	e	12	12	e
30	9	4		11	10		9	5		11	10		10	8		11	10		9	5		11	10		10	5	
31	13	17	e	11	10		13	20	e	15	29	e	15	31	e	11	10		13	19	e	15	27	e	15	29	e

Table 2: Wind Comfort Results

32	9	3		10	8		11	10		12	15	e	12	13	e	9	4		10	7		11	10		11	10	
33	9	3		14	21	e	17	31	e	18	35	e	15	26	e	13	16	e	17	31	e	18	33	e	14	24	e
34	10	6		12	15	e	14	24	e	15	32	e	16	36	e	11	10		13	20	e	15	30	e	15	33	e
35	10	5		12	12	e	13	16	e	15	27	e	14	24	e	12	13	e	13	20	e	16	30	e	13	21	e
36	10	5		10	7		11	10		13	20	e	12	13	e	10	8		12	12	e	14	23	e	11	10	
37	9	4		11	10		11	10		14	24	e	13	20	e	10	7		12	12	e	14	25	e	13	18	e
38	12	17	e	14	23	e	14	25	e	16	36	e	15	29	e	13	17	e	13	22	e	16	34	e	14	25	e
39	8	4		11	10		11	10		13	20	e	13	18	e	11	10		12	12	e	13	20	e	12	15	e
40	8	3		9	4		9	5		11	10		10	7		9	4		9	4		10	6		11	10	
41	10	8		10	6		10	8		11	10		3	0		10	6		10	8		11	10		3	0	
42	10	5		9	5		9	4		9	5		9	6		7	3		8	3		8	5		9	5	
43	12	16	e	14	23	e	14	24	e	14	28	e	13	20	e	10	5		10	6		12	12	e	11	10	
44	13	22	e	13	18	e	13	19	e	13	20	e	12	15	e	10	6		10	7		10	7		11	10	
45	13	16	e	14	21	e	14	20	e	14	23	e	13	18	e	9	4		10	6		12	13	e	10	5	
46	11	10		11	10		11	10		12	16	e	11	10		11	10		11	10		13	18	e	10	7	
47	10	5		9	3		9	3		10	6		9	4		11	10		11	10		11	10		9	3	
48	9	5		10	7		10	8		13	20	e	12	12	e	10	7		11	10		13	20	e	11	10	
49	9	3		13	22	e	14	26	e	16	34	e	16	35	e	12	16	e	14	24	e	15	30	e	15	30	e
50	9	2		7	0		7	1		9	4		8	1		6	0		6	0		9	3		7	0	
51	6	0		5	0		5	0		6	1		6	0		5	0		5	0		6	1		5	0	
52	9	3		16	35	e	15	34	e	17	41	e	18	41	e	15	29	e	15	32	e	17	38	e	16	36	e
53	11	10		11	10		11	10		14	24	e	12	13	e	10	8		11	10		14	25	e	12	12	e
54	8	2		8	3		8	2		8	5		8	3		9	5		9	5		9	5		8	3	
55	11	10		10	7		10	7		10	8		10	8		10	7		10	6		10	6		10	6	
56	10	7		11	10		11	10		15	26	e	12	13	e	10	8		11	10		14	26	e	11	10	
57	9	3		9	4		10	6		13	19	e	10	7		12	16	e	12	14	e	13	21	e	12	13	e
58	8	2		8	2		8	2		11	10		9	4		12	13	e	12	13	e	14	23	e	13	18	e
59	10	4		9	4		8	1		8	2		8	1		9	5		9	4		9	3		8	3	
60	13	18	e	12	12	e	12	12	e	12	16	e	12	14	e	11	10		11	10	e	13	17	e	12	13	e
61	11	10		11	10		11	10		13	16	e	11	10		11	10		11	10		11	10		10	7	
62	11	10		11	10		12	13	e	12	15	e	12	14	e	12	16	e	12	16	e	12	17	e	12	16	e
63	10	8		12	13	e	11	10		12	13	e	12	16	e	13	17	e	13	17	e	13	18	e	14	23	e
64	10	5		9	3		9	3		10	8		10	7		9	3		9	3		10	6		10	5	
65	11	10		10	8		11	10		12	15	e	13	17	e	11	10		11	10		11	10		12	16	e
66	9	3		12	12	e	12	12	e	13	16	e	13	19	e	10	7		10	6		11	10		11	10	
67	11	10		12	12	e	11	10		13	18	e	12	15	e	10	8		10	7		12	14	e	11	10	
68	15	30	e	11	10		11	10		12	11	e	11	10		11	10		11	10		11	10		11	10	
69	16	31	e	14	21	e	14	21	e	15	27	e	14	23	e	12	14	e	13	16	e	14	21	e	14	20	e
70	14	24	e	12	14	e	12	13	e	14	21	e	12	14	e	12	14	e	12	13	e	14	20	e	12	16	e
71	11	10		12	16	e	13	17	e	14	23	e	14	22	e	12	14	e	12	14	e	14	21	e	12	14	e

RWDI
CONSULTING ENGINEERS & SCIENTISTS

Table 2: Wind Comfort Results

72	13	21	e	13	20	e	13	19	e	14	24	e	14	27	e	11	10		11	10		12	16	e	13	17	e
73	12	13	e	12	13	e	12	13	e	13	20	e	11	10	e	11	10		12	12	e	13	18	e	11	10	e
74				15	30	e							13	19	e	14	25	e							13	17	e
75				11	10								10	5		10	7								10	4	
76	7	1		7	1								8	2		6	0								7	1	
Average speed, Average % excee	**10 mph**	**7 %**	**12 of 74**	**11 mph**	**11 %**	**27 of 76**	**11 mph**	**10 %**	**22 of 73**	**12 mph**	**15 %**	**45 of 73**	**11 mph**	**10 %**	**41 of 76**	**10 mph**	**9 %**	**21 of 76**	**11 mph**	**9 %**	**22 of 73**	**12 mph**	**14 %**	**38 of 73**	**10 mph**	**9 %**	**31 of 76**
Above Grade																											
77				12	14	e	15	26	e	19	44	e	12	13	e	12	13	e	15	27	e	19	43	e	11	10	
78				16	35	e	16	25	e	20	48	e	19	42	e	16	35	e	14	22	e	20	48	e	18	42	e
79				9	6		17	34	e	18	40	e	15	30	e	9	5		17	35	e	18	40	e	14	26	e
80				13	15	e	15	25	e	19	45	e	18	41	e	12	14	e	14	22	e	19	44	e	17	38	e
81				14	26	e	14	25	e	18	38	e	12	15	e	14	23	e	14	26	e	18	37	e	11	10	
82				15	31	e	17	34	e	15	30	e	12	16	e	15	27	e	17	35	e	15	26	e	12	15	e
83				13	17	e	10	7		23	50	e	16	30	e	12	15	e	10	8		23	51	e	15	26	e
84				13	18	e	15	31	e							26	17	e	16	34	e				13	20	e
85				10	5		19	47	e							21	5		19	45	e						
86							13	15	e										13	16	e						
87							12	14	e										12	13	e						
88							17	40	e										17	39	e						
89							11	10											12	13	e						
90							11	10											11	10							
91							12	12	e										11	10							
92							16	30	e										15	29	e						
93							17	30	e										16	29	e						
94							19	37	e										19	37	e						
95							15	24	e										15	24	e						
Average speed, Average % exceedance				**13 mph**	**20 %**	**7 of 9**	**15 mph**	**25 %**	**15 of 19**	**19 mph**	**42 %**	**7 of 7**	**14 mph**	**26 %**	**7 of 7**	**12 mph**	**17 %**	**7 of 9**	**15 mph**	**25 %**	**16 of 19**	**19 mph**	**41 %**	**7 of 7**	**13 mph**	**23 %**	**7 of 7**

APPENDIX F: EBMUD Water Supply Assessment

EAST BAY MUNICIPAL UTILITY DISTRICT

March 14, 2017

Peterson Vollman, Planner IV
City of Oakland
Bureau of Planning
250 Frank H. Ogawa Plaza, Suite 2114
Oakland, CA 94612-2032

Re: Water Supply Assessment – Eastline Project – 2100 Telegraph

Dear Mr. Vollman:

This letter is in response to your request dated January 5, 2017 for water agency consultation (Enclosure 1) concerning the Water Supply Assessment (WSA) for the Eastline Project – 2100 Telegraph (Project), located in the City of Oakland (City), which is within East Bay Municipal Utility District's (EBMUD's) Ultimate Service Boundary. EBMUD appreciates the opportunity to provide this response.

Pursuant to Sections 10910-10915 of the California Water Code, the Project meets the threshold requirement for an assessment of water supply availability based on the amount of water this Project would require, which is greater than the amount of water required by a 500-dwelling-unit project.

Please note that this WSA addresses the issue of water supply only and is not a guarantee of service, and future water service is subject to the rates and regulations in effect at that time.

Project Demand

The water demand for the Project is accounted for in EBMUD's water demand projections, as published in EBMUD's Urban Water Management Plan (UWMP) 2015 (Enclosure 2). EBMUD's water demand projections account for anticipated future water demands within EBMUD's service boundaries and for variations in demand-attributed changes in development patterns. The historical water use in the Project area is approximately 1,730 gallons per day (gpd). The projected water demand at Project build-out is estimated to be approximately 162,000 gpd for the Mixed-Use Alternative, 265,000 gpd for the Maximum Office Alternative, and 273,000 gpd for the Maximum Residential Alternative.

EBMUD's demand projections indicate both densification and land use changes in a few existing land use classifications, including commercial and residential land use areas. These changes increase EBMUD's overall demand. EBMUD's UWMP 2015 projects water demands over time, accounting for estimated variations in demand usage less conservation and recycled supply sources as noted in the UWMP 2015, Table 4-1, Mid-Cycle Demand Projections (Table 1). Typically, EBMUD prepares a full demand study every ten years; the most recent version, the 2040 Demand Study, was completed in 2009. For planning purposes, water demands are estimated in five-year increments, but it is recognized that actual incremental amounts may occur stepwise in shorter time increments. An increase in usage by one customer in a particular customer class does not require a strict gallon-for-gallon increase in conservation by other customers in that class as, in actuality, the amount of potable demand, conservation and recycled water use EBMUD-wide will vary somewhat. In 2014, EBMUD prepared the Mid-Cycle Demand Assessment (MCDA) in order to assess any significant effects on metered water consumption caused by the 2008-2010 drought and the economic downturn that affected growth in the Bay Area. As part of the MCDA, recently updated city and county general plans were reviewed for significant changes since the 2040 Demand Study was completed, and meetings were also held with representatives from the cities of Alameda, Oakland, Richmond, and San Ramon. The MCDA concluded that, while the cities and counties might reach their build-out goals later than originally anticipated, they would still reach these goals by 2040. Accordingly, the MCDA validated the 2040 Demand Study, as the demands are expected to gradually increase back to 2040 projected demand levels as development and water use return to pre-drought and pre-recession conditions. EBMUD plans to complete another full demand study in 2019 looking out at a long-term horizon of 2050. As part of the demand study, EBMUD will be reaching out to each city and county in the service area to ask about projected development and future land use changes. The study results will be incorporated into the UWMP 2020.

Table 1
Mid-Cycle Demand Projections (UWMP 2015, Table 4-1)

TABLE 4-1 — MID-CYCLE DEMAND PROJECTIONS

AVERAGE ANNUAL DEMAND (MGD)	2015	2020	2025	2030	2035	2040
PROJECTED TOTAL DEMAND	232	267	276	290	304	312
CONSERVATION[1]	-33	-39	-44	-51	-57	-62
NON-POTABLE WATER[1,2]	-9	-11	-14	-17	-18	-20
PLANNING LEVEL OF DEMAND	190	217	218	222	229	230

1 See Chapters 6 and 7 for more discussion of water recycling and conservation, respectively.
2 Non-potable water includes recycled water and raw water projects.

Project Area

The Project area is bounded to the north by 22nd Street, to the east by Broadway, to the west by Telegraph Avenue, and to the south by 21st Street. The Project includes three development alternatives that vary with respect to the proposed components and Project footprint. The City requests that the WSA analyze all three alternatives, a Mixed-Use Alternative, a Maximum Office Alternative, and a Maximum Residential Alternative, which is the alternative that has the greatest projected demand. The Mixed-Use Alternative proposes up to 395 dwelling units, 18,500 square feet of community space, 880,550 square feet of office space, and 85,000 square feet of retail space. The Maximum Office Alternative proposes up to 2,689,000 square feet of office space and 87,000 square feet of retail space. The Maximum Residential Alternative proposes up to 1,556 dwelling units, 99,220 square feet of retail space, and 37,150 square feet of community space.

EBMUD Water Demand Projections

Since the 1970s, water demand within EBMUD's service area has ranged from 200 to 220 million gallons per day (mgd) in non-drought years. Section 4.1 of the UWMP 2015 outlines past and current EBMUD water demand, including Figure 4.1 which shows historic water use (including metered and unmetered demands) within EBMUD's service area along with the number of customer accounts. The 2040 water demand forecast of 312 mgd for EBMUD's service area can be reduced to 230 mgd with the successful implementation of water recycling and conservation programs, as outlined in the UWMP 2015. Current demand is lower than estimated in the MCDA as a result of the recent multi-year drought. This is because the planning level of demand may differ from the actual demand in any given year due to water use reductions that typically occur during droughts. After droughts, a rebound effect is expected wherein demand rises back to projected levels. Thus, the MCDA still reflects a reasonable expectation for growth over the long term for demand in year 2040, as the demands are expected to gradually increase back to 2040 projected demand levels as development and water use return to pre-drought and pre-recession conditions. The proposed Project's future development and operations will not change EBMUD's 2040 demand projection.

EBMUD Water Supply, Water Rights and the UWMP 2015

EBMUD has water right permits and licenses that allow for delivery of up to a maximum of 325 mgd from the Mokelumne River, subject to the availability of Mokelumne River runoff and the senior water rights of other users. EBMUD's position in the hierarchy of Mokelumne River water users is determined by a variety of agreements between Mokelumne River water right holders and the terms of the appropriative water right permits and licenses.

Conditions that could, depending on hydrology, restrict EBMUD's ability to receive its full entitlement include:

- Upstream water use by senior water right holders.
- Downstream water use by riparian and senior appropriators and other downstream obligations, including protection of public trust resources.
- Variability in precipitation and runoff.

During prolonged droughts, the Mokelumne River supply cannot meet EBMUD's projected customer demands. To address this, EBMUD has completed construction of the Freeport Regional Water Facility and the Bayside Groundwater Facility, which are discussed below in the Supplemental Water Supply and Demand Management section of this assessment. EBMUD has obtained and continues to seek supplemental supplies.

The UWMP 2015, adopted on June 28, 2016 by EBMUD's Board of Directors under Resolution No. 34092-16, is a long-range planning document used to assess current and projected water usage, water supply planning, along with conservation and recycling efforts. EBMUD's water supply sources are discussed in Section 1.5.1 of the UWMP 2015. EBMUD's main water supply is the Mokelumne River, and EBMUD has rights to receive up to 325 mgd of water from this source subject to the availability of runoff, senior water rights of other users, and downstream fishery flow requirements. EBMUD also has a Long-Term Renewal Contract (Contract No. 14-06-200-5183A-LTR1) with the U.S. Bureau of Reclamation to receive water from the Central Valley Project (CVP) through the Freeport Regional Water Project in years when EBMUD's water supplies are relatively low (for more details, see Section 3.3.2 of the UWMP 2015). During some dry years, EBMUD may purchase water transfers to help meet customer demands. Section 5.1 of the UWMP 2015 discusses EBMUD's water transfer program.

EBMUD maintains a biennial budget and five-year capital improvement program to optimize investments and maximize drinking water quality, and the reliability, safety, flexibility, and overall efficiency of the water supply system. EBMUD's most recently adopted budget, which includes capital expenditures for the delivery of water supplies to its customers, can be found at http://www.ebmud.com/about-us/investors/budget-and-rates/.

EBMUD complies with applicable local, state, and federal regulations in the operation of its water supply system. Figure 1-4 of the UWMP 2015 illustrates the numerous local, state, and federal agencies that may regulate EBMUD's facilities and operations.

A summary of EBMUD's demand and supply projections, in five-year increments, for a 25-year planning horizon is provided in UWMP 2015, Table 4-5, Preliminary EBMUD Baseline Supply and Demand Analysis (Table 2).

EBMUD's evaluation of water supply availability accounts for the diversions of both upstream and downstream water right holders and fishery releases on the Mokelumne River. Fishery releases are based on the requirements of a 1998 Joint Settlement Agreement (JSA) between EBMUD, United States (U.S.) Fish and Wildlife Service, and the California Department of Fish and Wildlife. The JSA requires EBMUD to make minimum flow releases from its reservoirs to the lower Mokelumne River to protect and enhance the fishery resources and ecosystem of the river. As this water is released downriver, it is, therefore, not available for use by EBMUD's customers.

Table 2
Preliminary EBMUD Baseline Supply and Demand Analysis (UWMP 2015, Table 4-5)

TABLE 4-5 **PRELIMINARY EBMUD BASELINE SUPPLY & DEMAND ANALYSIS**

SUPPLY AND DEMAND COMPARISON - NORMAL YEAR (MGD)		2015	2020	2025	2030	2035	2040
	MOKELUMNE SYSTEM	>190	>217	>218	>222	>229	>230
	DEMAND TOTALS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	DIFFERENCE	0	0	0	0	0	0

DRY YEAR RESULTS FROM EBMUDSIM (MGD)		2015	2020	2025	2030	2035	2040
SINGLE DRY YEAR OR FIRST YEAR OF MULTI-YEAR DROUGHT	MOKELUMNE SYSTEM	145	169	170	173	179	179
	CVP SUPPLIES[2]	36	35	35	35	35	35
	BAYSIDE[3]	0	0	0	0	0	0
	SUPPLY TOTALS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	PLANNING LEVEL DEMAND[1]	190	217	218	222	229	230
	RATIONING[4]	5%	6%	6%	6%	7%	7%
	DEMAND TOTALS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	NEED FOR WATER (TAF)[5]	0	0	0	0	0	0
SECOND YEAR	MOKELUMNE SYSTEM	81	103	103	107	112	113
	CVP SUPPLIES[2]	71	71	71	71	71	71
	BAYSIDE[3]	0	0	0	0	0	0
	SUPPLY TOTALS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	PLANNING LEVEL DEMAND[1]	190	217	218	222	229	230
	RATIONING[4]	20%	20%	20%	20%	20%	20%
	DEMAND TOTALS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	NEED FOR WATER (TAF)[5]	0	0	0	0	0	0
THIRD YEAR	MOKELUMNE SYSTEM	111	132	132	125	120	104
	CVP SUPPLIES[2]	40	40	40	40	40	40
	BAYSIDE[3]	1	1	1	1	1	1
	SUPPLY TOTALS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	PLANNING LEVEL DEMAND[1]	190	217	218	222	229	230
	RATIONING[4]	20%	20%	20%	20%	20%	20%
	DEMAND TOTALS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	NEED FOR WATER (TAF)[5]	0	0	2	13	24	48

1. Planning Level of Demand accounts for projected savings from water recycing and conservation programs as discussed in Chapters 6 and 7 respectively. Customer demand values are based on the Mid Cycle Demand Assessment, October 2014.
2. Projected available CVP supplies are taken according to the Drought Management Program Guidelines discussed in Chapter 3.
3. For the purposes of this modeling effort, it is assumed that the Bayside Groundwater Project would be brought online in the third year of a drought.
4. Rationing reduction goals are determined according to projected system storage levels in the Drought Management Program Guidelines discussed in Chapter 3.
5. Need for Water includes unmet customer demand as well as shortages on the Lower Mokelumne River.

The available supply and demand shown in Table 2 was derived from EBMUD's baseline hydrologic model with the following assumptions:

- Customer demand values are based on the MCDA, and planning level demands account for projected savings from water recycling and conservation programs.
- EBMUD Drought Planning Sequence assumes water years 1976, 1977 and a modified 1978 hydrology.
- Total system storage is depleted by the end of the third year of the drought.
- EBMUD will implement its Drought Management Program (DMP) when necessary.

- The diversions by Amador and Calaveras Counties upstream of Pardee Reservoir will increase over time, eventually reaching the full extent of their senior rights.
- Releases are made to meet the requirements of senior downstream water right holders and fishery releases, as required by the JSA.
- EBMUD allocation of CVP supply is available the first year of a drought and subsequent drought years, according to the U.S. Bureau of Reclamation's Municipal and Industrial Shortage Policy.
- The Bayside Groundwater Project Phase 1 is available and brought online in the third year of a drought.

The UWMP 2015 concludes that EBMUD has, and will have, adequate water supplies to serve existing and projected demand within the Ultimate Service Boundary during normal and wet years but that deficits are projected for multi-year droughts. During multi-year droughts, EBMUD may require significant customer water use reductions and may also need to acquire supplemental supplies to meet customer demand.

As discussed under the DMP Guidelines section in Chapter 3 of the UWMP 2015, EBMUD's system storage generally allows EBMUD to continue serving its customers during dry-year events. EBMUD typically imposes water use restrictions based on the projected storage available at the end of September and, based on recent changes to its DMP Guidelines (summarized below), may also implement water use restrictions in response to a State of California mandate. By imposing water use restrictions in the first dry year of potential drought periods, EBMUD attempts to minimize water use restrictions in subsequent years if a drought persists. Throughout dry periods, EBMUD must continue to meet its current and subsequent-year fishery flow release requirements and obligations to downstream agencies.

The UWMP 2015 includes DMP Guidelines that establish the level of water use restrictions EBMUD may implement under varying conditions. Under the DMP Guidelines, water use restrictions may be determined based upon either projected end-of-September Total System Storage (TSS) or water use restriction mandates from the State Water Resources Control Board. When state-mandated water use restrictions exceed the reductions that would otherwise be called for based upon end-of-September TSS, EBMUD's water use reduction requirements may be guided by the applicable state mandates. Under either scenario, while EBMUD strives to keep water use reductions at or below 15 percent, if the drought is severe, mandatory water use reductions could exceed 15 percent.

Despite water savings from EBMUD's aggressive conservation and recycling programs and water use restrictions called for in the DMP Guidelines, supplemental supplies are still needed in significant, severe, and critical droughts. The proposed Project will be subject to the same drought restrictions that apply to all EBMUD customers. In addition, the proposed Project will be subject to EBMUD's regulations aimed at encouraging efficient water use, such as Sections 29 and 31 of EBMUD's Regulations Governing Water Service. Section 29, "Prohibiting Wasteful Use of Water," promotes efficient water use by EBMUD customers and includes additional restrictions on wasteful uses of potable water. Section 31, "Water Efficiency Requirements," identifies the types of water efficiency requirements (i.e., maximum flow rates for flow control devices) for water service.

Supplemental Water Supply and Demand Management

The goals of meeting projected water needs and increased water reliability rely on supplemental supplies, improving reliability of existing water supply facilities, water conservation and recycled water programs.

By 2011, EBMUD completed construction of the Freeport Regional Water Facility and the Bayside Groundwater Project Phase 1 Facility to augment its water supply during drought periods. However, additional supplemental supplies beyond those provided through these facilities will still be needed, as noted above. Chapter 5 of the UWMP 2015 describes potential supplemental water supply projects that could be implemented to meet projected long-term water demands during multi-year drought periods.

The Freeport Regional Water Facility became operational in February 2011. EBMUD's ability to take delivery of CVP water through the Freeport facility is based on its Long Term Renewal Contract (LTRC) with the U.S. Bureau of Reclamation. The LTRC provides for up to 133,000 acre feet of CVP supply in a single dry year, not to exceed a total of 165,000 acre feet in three consecutive dry years. Under the LTRC, the CVP supply is available to EBMUD only in dry years when EBMUD's total stored water supply is forecast to be below 500,000 total acre feet on September 30 of each year.

EBMUD is developing the Bayside Groundwater Project in phases to provide a source of supplemental supply in dry years. Construction of the first phase was completed in 2010, allowing EBMUD to inject treated potable water into a deep aquifer in the South East Bay Plain Groundwater Basin for later extraction, treatment, and use during severe droughts. A permit from the Department of Public Health is required before the groundwater can be extracted and treated for municipal use. As described in Chapter 4 of the UWMP 2015, EBMUD's drought planning calls for using the Bayside Phase 1 Project during the third year of multi-year droughts to provide up to one mgd of water to meet customer demands. Additional information on the Bayside Project can be found in Section 5.3 and Appendix E of the UWMP 2015.

Chapter 5 of the UWMP 2015 also lists other potential supplemental water projects, including northern California water transfers, Bayside Groundwater Project Expansion, Expansion of Contra Costa Water District's Los Vaqueros Reservoir, and others that could be implemented to meet the projected long-term water supplemental need during multi-year drought periods. The UWMP 2015 identifies a broad mix of projects, with inherent scalability and the ability to adjust implementation schedules for particular components which will allow EBMUD to pursue the necessary supplemental supplies, while minimizing the risks associated with future uncertainties such as project implementation challenges and global climate change. The Environmental Impact Report that EBMUD certified for the Water Supply Management Program 2040 examined the impacts of pursuing these supplemental supply projects at a program level. Separate project-level environmental documentation will be prepared, as appropriate, for specific components as they are developed in further detail and implemented in accordance with EBMUD's water supply needs.

In addition to pursuing supplemental water supply sources, EBMUD also maximizes resources through continuous improvements in the delivery and transmission of available water supplies and investments in ensuring the safety of its existing water supply facilities. These programs, along with emergency interties and planned water recycling and conservation efforts, would ensure a reliable water supply to meet projected demands for current and future EBMUD customers within the current service area.

Water Conservation and Recycled Water Considerations

The proposed Project presents opportunities to incorporate water conservation measures. Conditions of approval for the implementation of the proposed Project should require that the Project comply with the California Model Water Efficient Landscape Ordinance (Division 2, Title 23, California Code of Regulations, Chapter 2.7, Sections 490 through 495). EBMUD staff would appreciate the opportunity to meet with the City to discuss conservation measures. This meeting will explore early opportunities to expand water conservation via EBMUD's conservation programs and best management practices applicable to the Project.

Conservation strategies will be required to achieve water use reduction goals and restrictions, including compliance with Sections 29 and 31, described above, of EBMUD's Regulations Governing Water Service, and the Water Conservation Act of 2009. The Water Conservation Act of 2009 sets an overall goal of reducing per capita urban water use by 20 percent by December 31, 2020.

The Project is not currently a candidate for recycled water. The Project has a minimal irrigation demand, and providing recycled water for toilet flushing in the structures would be prohibitively expensive. The Project area is not located within the vicinity of any existing or future planned EBMUD recycled water supply pipeline. Based on the location of the Project boundaries, EBMUD currently does not anticipate providing recycled water to any of the Project's components; however, the feasibility of providing recycled water to this area may change in the future. EBMUD encourages the City and its developers to continue to coordinate closely with EBMUD during the planning of the Project to further explore the options relating to recycled water.

The Project sponsor should contact Jennifer L. McGregor, Senior Civil Engineer, at (510) 287-1030 for further information.

Sincerely,

David J Rehnstrom

David J. Rehnstrom
Manager of Water Distribution Planning Division

DJR:LAM:dks
sb17_033_EastlineWSA_Ltr to City

Enclosures: 1. Letter of Request for Water Supply Assessment dated January 5, 2017
2. EBMUD Urban Water Management Plan 2015

cc: Board of Directors w/o Enclosure 2

CITY OF OAKLAND

DALZIEL BUILDING • 250 FRANK H. OGAWA PLAZA • SUITE 3315 • OAKLAND, CALIFORNIA 94612

Planning and Building Department (510) 238-3941
Bureau of Planning FAX (510) 238-6538
TDD (510) 238-3254

January 5, 2017

Mr. David Rehnstrom
East Bay Municipal Utility District
Water Distribution Planning Division
375 11th Street
Oakland, CA 94607

Subject: Request for Water Supply Assessment for the proposed Eastline Project – 2100 Telegraph Project, Oakland (ER16-011)

Dear Mr. Rehnstrom:

Per amendments to Section 10912 of the Water Code implemented by Senate Bill 610, the City of Oakland is submitting the request to the East Bay Municipal Utility District (EBMUD) to prepare a water supply assessment. The assessment is required in order to determine whether adequate water supply is available to meet the projected water demand of the proposed Eastline Project – 2100 Telegraph (the project) in the City of Oakland, which is located on an approximately 3.21-acre site in Downtown Oakland, within the block bound by Telegraph Avenue, 22nd Street, Broadway, and 21st Street.

There are currently five buildings on the site that are planned for demolition and redevelopment. The preferred development option is a residential and office mix with up to: 880,550 square feet of office, a 365,000 square-foot residential tower (up to 395 units), 85,000 square feet of ground floor retail, and 18,500 square feet of community space. This option is currently proposed as the Final Development Plan. However, to allow the flexibility for the development to be responsive to market demands and opportunities, a Planned Unit Development/preliminary development plan is proposed to provide a development framework that allows a range of development. Two primary project approvals will be considered in the EIR, as follows:

- **Planned Unit Development/Preliminary Development Plan (PUD/PDP).** A development framework to redevelop the site with an urban mixed-use project including a maximum residential scenario with 1,556 dwelling units and a maximum office scenario allowing a maximum development of up to 2.8 million square feet consistent with the site's maximum floor area ratio (FAR) of 20 and associated on-site public and private parking.
- **Final Development Plan (FDP).** A project-specific approval for the currently preferred mixed-use development option that includes up to: 880,550 square-feet of large floor-plate office,

365,000 square-foot residential tower (up to 395 units), 85,000 square feet of ground floor retail, 18,500 square-feet of community space, and four levels of public as well as private parking.

The City respectfully requests that EBMUD prepare a water supply assessment for the proposed project. The City acknowledges that this request for an assessment is required as part of the environmental documents for the project. We appreciate your prompt response to this request.

Please contact me if you need additional information. I can be reached at (510) 238-6167 or by email at pvollmann@oaklandnet.com.

Sincerely,

Peterson Vollmann
Planner IV
City of Oakland, Bureau of Planning

Attachment: Eastline Project - 2100 Telegraph Water Demand Calculations prepared by applicant, December 15, 2016.

Eastline Project - 2100 Telegraph

Water Demand Calculations

December 15, 2016

Estimates of annual water use for the Planned Unit Development/Preliminary Development Plan (PUD/PDP) and Final Development Plan (FDP) are shown below. These estimates were prepared by Arup on behalf of Gensler (the applicant's architect).

Results Summary

Development Scenario	Occupancy	Estimated total annual water use, gal/yr
1	Office / Res. Mixed use*	34,495,000
2	Max. Office over podium	66,525,000
3	Max. Residential over podium	35,419,000

*Final Development Plan

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