24TH AND WAVERLY PROJECT
CEQA ANALYSIS

Prepared for:

City of Oakland
Bureau of Planning
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General Project Information

Project Title:	24th and Waverly Project
Planning Case File Number:	PLN20082
Lead Agency and Address:	City of Oakland Bureau of Planning 250 Frank H. Ogawa Plaza, Suite 2114 Oakland, California 94612
Contact Person:	Peterson Z. Vollmann, Planner IV (510) 238-6167 pvollmann@oaklandca.gov
Project Location:	Includes eight parcels: 261, 265, and 271 24th Street; 2359 Harrison Street; 2342, 2346, 2350, and 2356 Waverly Street Assessor Parcel Numbers: 008-0670-001-00; -002-00; -003-00; -004-00; -15-00; -016-00; -017-00; and 018-00
Project Applicant and Address:	NASH – Holland 24th & Waverly Investors LLC 1970 Broadway, Suite 300 Oakland, California 94612
Existing General Plan:	Central Business District
Existing Zoning:	Broadway Valdez District Retail Priority Sites Commercial Zone (D-BV-1), Retail Priority Site 5(b)
Requested Permits	Regular Design Review for demolition and new construction Minor Conditional Use Permits to allow residential activities, transfer of development rights from 277 27th Street Project, and for an exception from the minimum retail square footage requirements Vesting Tentative Parcel Map Tree Removal Permit

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1 Introduction/Summary

The project applicant, NASH – Holland 24th & Waverly Investors LLC, is proposing to redevelop a 0.86-acre site in Downtown Oakland with a mixed-use residential development. The project site is composed of eight parcels at 271, 265, 261 24th Street, 2359 Harrison Street, 2342, 2346, 2350 and 2356 Waverly Street (Assessor's Parcel Number (APN) 008-0670-001-00; -002-00; -003-00; -004-00; -018-00; -017-00; -016-00, and -015-00). The project is referred to as the 24th and Waverly Project (proposed project) and would be an approximately 415,792 gross-square-foot, 15- to 16-story building, with a maximum height of 160 feet and 180 feet to the top of the mechanical equipment. The proposed project would include 330 residential units within approximately 234,405 square feet on levels 5 to 16. At the ground floor, 13,192 square feet of commercial uses would have frontage along 24th and Harrison streets. Residential and retail parking would be provided in a four-level podium garage including 215 vehicular parking spaces and 178 long-term and 29 short-term bicycle parking spaces. Approximately 24,738 square feet of open space would be provided through private patios, terraces, indoor amenity areas, and a fitness area, and a separate 7,359-square-foot public plaza would be constructed along 24th street between Harrison and Waverly streets.

The project site is currently developed with a single-family house, a duplex, two multi-family buildings (one 2-unit building and one 10-unit building), a surface parking lot, and a commercial building formerly used for automobile service and repair. There is a total of 15 residential units on the project site. All of the existing buildings, including the commercial building, are vacant. The surface parking lot, at the corner of 24th and Waverly streets, has approximately 59 parking spaces.

This California Environmental Quality Act (CEQA) Analysis evaluates the proposed project. The proposed project is eligible for CEQA streamlining provisions under CEQA Guidelines Section 15182, which provides for streamlined review for certain residential, commercial and mixed-use projects that are consistent with an adopted specific plan. The proposed project is also eligible for CEQA streamlining and/or tiering provisions under CEQA Guidelines Section 15183, which provides for streamlined review when a project is consistent with a Community or General Plan and its development density, and the impacts of project have been analyzed in a certified program EIR. The proposed project is also eligible for CEQA streamlining and/or tiering provisions under CEQA Guidelines Section 15183.3 that are applicable to certain qualified infill projects and limit the topics that are subject to review at the project level, provided the effects of infill development have been addressed in a planning level decision, or by uniformly applying development policies or standards.

This analysis uses CEQA streamlining and/or tiering provisions under CEQA Guidelines Section 15182, 15183 and 15183.3 to tier from the program-level analyses completed in the City of Oakland's (City's) Broadway Valdez District Specific Plan (BVDSP) and its Environmental Impact Report (BVDSP EIR), which analyzed environmental impacts associated with adoption and implementation of the BVDSP. The project is consistent with the reasonably foreseeable maximum development program analyzed by the BVDSP EIR, providing the basis for concluding that the project is within the scope of the program EIR such that no new environmental document would be required per State CEQA Guidelines Section 15162.

As described in this CEQA Analysis, the proposed project would be required to implement the City's Standard Conditions of Approval (SCAs) included herein in Attachment A to avoid or reduce potential impacts.[1]

Based on the information and conclusions set forth in this CEQA Analysis, the proposed project meets the criteria of the Specific Plan Exemption, pursuant to California Resources Code Sections 21155.4 (CEQA Guidelines Section 15182), the CEQA Community Plan Exemption, pursuant to California Resources Code Sections 21083.3 (CEQA Guidelines Section 15183), and the Qualified Infill Exemption, pursuant to California Resources Code Sections 21094.5 (CEQA Guidelines Section 15183.3). In addition, the analysis provided in the BVDSP EIR previously analyzed the potential environmental effects associated with this project and none of the criteria under CEQA Guidelines Section 15162 that would require a subsequent or supplemental EIR are present. Therefore, this CEQA Analysis is the appropriate document to demonstrate compliance with CEQA and no additional environmental documentation or analysis is required.

The BVDSP EIR serves as the previous CEQA document considered in this CEQA Analysis. The document is hereby incorporated by reference and can be obtained from the City of Oakland Bureau of Planning at 250 Frank H. Ogawa Plaza, Suite 2114, Oakland, California, 94612, and on the City of Oakland Broadway Valdez District Specific Plan Documents webpage at https://www.oaklandca.gov/topics/broadway-valdez-district-specific-plan-environmental-impact-report.

[1] These are development standards that are incorporated into projects as SCAs, regardless of a project's environmental determination, pursuant, in part, to CEQA Guidelines Section 15183. As applicable, the SCAs are adopted as requirements of an individual project when it is approved by the City, and are designed to, and will, substantially mitigate environmental effects. In reviewing project applications, the City determines which of the SCAs are applied, based on the zoning district, community plan, and the type(s) of permit(s)/approvals(s) required for the project. Depending on the specific characteristics of the project type and/or project site, the City will determine which SCA applies to each project.

2 Project Description

2.1 Project Location

The 0.86-acre project site is located at the southeastern corner of the intersection of 24th and Waverly streets and occupies the north end of the block between Waverly and Harrison streets in Downtown Oakland as shown on Figure 1. The site consists of eight parcels—APN 008-0670-001-00; -002-00; -003-00; -004-00; -015-00; -016-00; -017-00; and -018-00. The project site is surrounded by retail, offices, and residential buildings. The project site is within the Northgate-Waverly District of Downtown Oakland, which is generally bound by 27th Street to the north, I-980 to the west, Grand Avenue to the south, and Harrison Street to the east.

The project site is accessible from I-580, approximately 0.6 miles to the north, and I-980 and State Route 24 approximately 0.5 miles to the west. Multiple transit routes serve the project site, including Alameda-Contra Costa County Transit District (AC Transit) Routes 6, 51A, 33, 72, 72M, 72R, 851, and the Broadway Shuttle. The entrance to the San Francisco Bay Area Rapid Transit District's (BART) 19th Street Station is approximately 0.6 miles (walking distance) southwest of the site, and the MacArthur BART Station is approximately 1.2 miles northwest of the site. In addition, designated bicycle lanes are available along Harrison Street, 27th Street, Webster Street, and Grand Avenue.

2.2 Existing Conditions

The 0.86-acre (approximately 37,556-square-foot) site is predominantly flat and approximately 7 to 10 feet above mean sea level. The project site is currently developed with residential structures including a single-family house, a duplex, and two multi-family buildings (one 2-unit building and one 10-unit building), a surface parking lot, and a commercial building formerly used for automobile service and repair. There is a total of 15 residential units on the project site and all the buildings, including the commercial building, are vacant. The surface parking lot at the corner of 24th and Waverly streets, has approximately 59 parking spaces.

As shown in Table 2-1, the five existing buildings on the site were constructed between 1907 through 1932. The majority of the site, except for 2359 Harrison Street, is within the Waverly Street Residential District Area of Secondary Importance (ASI), which generally extends from Valdez Street to the middle of the block between Waverly and Harrison streets (the project site boundary) and along Waverly Street to 23rd Street. The five buildings on the site are categorized as Potential Designated Historic Properties (PDHPs) by the Oakland Cultural Heritage Survey (OCHS). Four of the properties are rated C2+, which indicates that the buildings are of Secondary Importance and are contributors ("+") to the ASI or district of local interest ("2"). One parcel is rated Dc3, which indicates that at the time of the survey, the building was considered to be of Minor Importance ("D") with a contingency rating of "C," and not within a historic district ("3"). As described in Section 5.4, Cultural Resources, none of the buildings are designated as a local landmark and none of the buildings are considered historic resources under CEQA.

The land uses in the vicinity are commercial (including retail and office buildings), residential, and institutional. To the north of the project site across 24th Street is the 277 27th Street project, a 419-unit mixed-use 18-story high-rise apartment community currently under construction. Whole Foods Market is to the northeast across Harrison Street. Across Harrison Street to the east is a 7-Eleven store and a Pacific Strength CrossFit gym. South of the project site is a small surface parking lot with six vehicle spaces, a two-story apartment building, two-story single-family residences, and Seventh Church of Christ Scientist at 2501 Harrison Street. To the southwest is the Alta Waverly—a six-story apartment complex located at 2302 Valdez Street. West of the project site along Waverly Street are several one- and two-story residences, commercial buildings and a parking lot.

Table 2-1. Existing Buildings and Uses on the Project Site

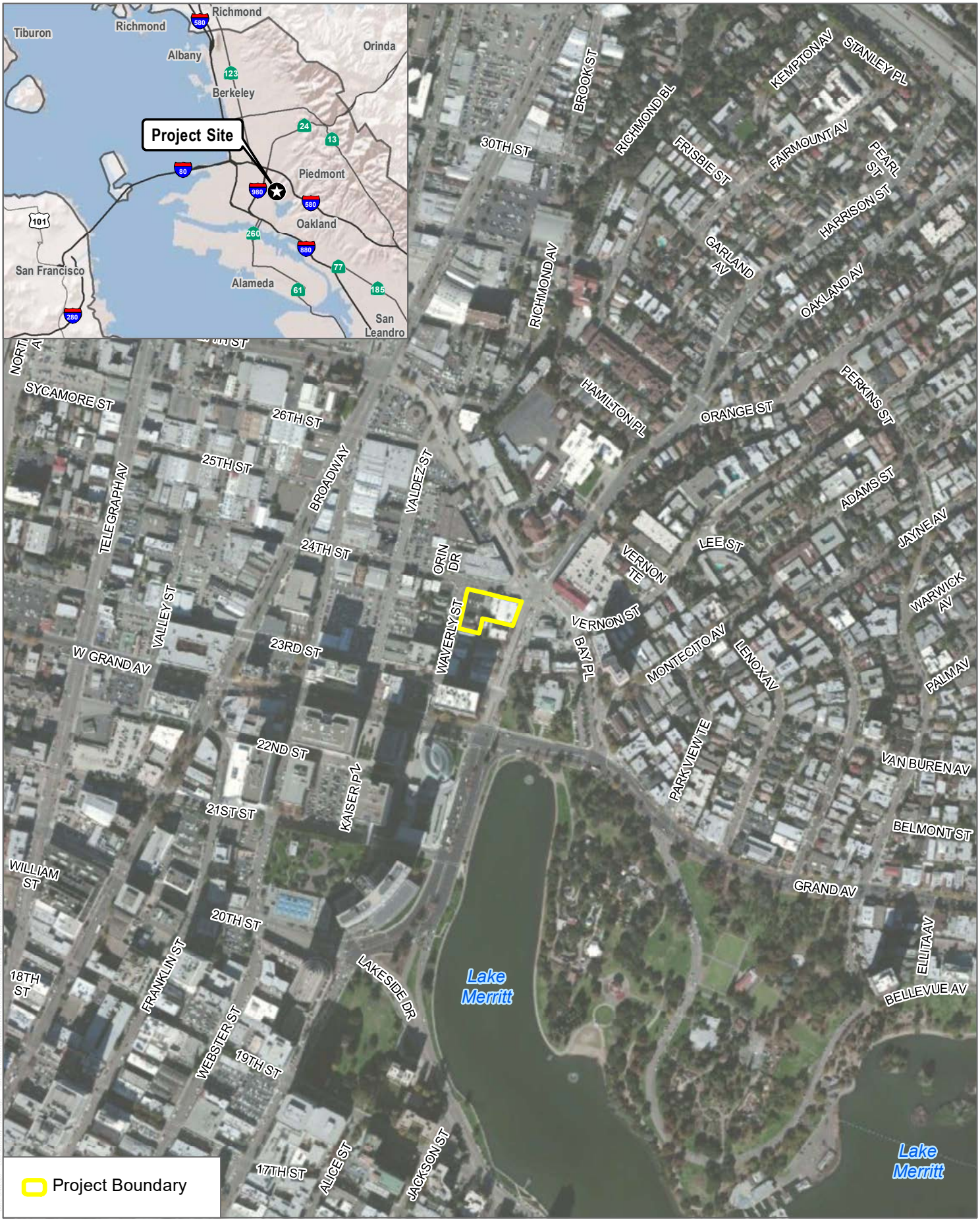
Address	Assessor Parcel Number	Existing Uses/Structures (Year Constructed)	Historic Preservation Designation	Oakland Cultural Heritage Survey Rating
2359 Harrison Street[1]	008 067000400	Commercial building, former automotive service shop (1931-1932)	PDHP	Dc3
261 24th Street	008 067000300	Residential apartment building (1912-1913)	PDHP	C2+
265 24th Street	008 067000200	Residential duplex (1908)	PDHP	C2+
271 24th Street	008 067000100	Surface parking lot	-	-
2350 Waverly Street	008 067001700	Surface parking lot	-[2]	-[2]
2356 Waverly Street	008 067001800	Surface parking lot	-	-
2342 Waverly Street	008 067001500	Single-family residence (1907-1908)	PDHP	C2+
2346 Waverly Street	008 067001600	Residential duplex (1908)	PDHP	C2+

Source: City of Oakland Planning and Zoning Map, 2020. oakgis.maps.arcgis.com.
Notes: PDHP = Potential Designated Historic Properties; - = Not applicable
1 Property not within the Waverly Street Residential District ASI; all other properties within the project site are within the ASI.
2 No building is currently present at the site, yet City notes construction date 1870c., PDHP, C2+.

The project site has three actively used curb cuts along Waverly Street to access the surface parking lot. Additional curb cuts along Waverly Street, 24th Street, and Harrison Street are not currently in use as they lead to the vacant commercial and residential buildings. Street trees along the project site are as follows: one tree along 24th Street, two street trees along Waverly Street, none along Harrison Street.

The project site is designated as Central Business District (CBD) by the General Plan. The CBD land use designation is intended to encourage and enhance Downtown Oakland as a high density mixed-use urban center of regional importance. This land use classification includes a mix of large-scale offices, commercial, urban (high-rise) residential, institutional, entertainment, and other uses.[2] Residential land uses may be appropriate in this district, particularly as part of a mixed-use development. The project site is zoned Broadway Valdez District Retail Priority Sites Commercial Zone (D-BV-1) within the BVDSP and includes 8 of the 10 parcels identified as Retail Priority Site 5(b). The 2 of the 10 parcels not included within the project site are 2338 Waverly Street (APN 008-0670-014) and 2337 Harrison Street (APN 008-0670-005). The site is within Subdistrict 2 of the BVDSP, which was expected to have 236 multi-family residential dwelling units in 2020 and 487 dwelling units in 2035, an overall increase of 251 dwelling units from 2020 to 2035.[3] The project site is within Site 7 of Subdistrict 2, which was expected to contribute 118 units and 127,733 square feet of retail.[4] However, Site 7 of the BVDSP also includes four additional parcels, totaling approximately 0.63 acres, which are not part of the project site.

2 City of Oakland. 1998. Oakland General Plan. Chapter 3: Policies in Action. Available at: http://www2.oaklandnet.com/oakca1/groups/ceda/documents/webcontent/oak035269.pdf
3 City of Oakland. 2013. Broadway Valdez Specific Plan Draft Environmental Impact Report. Prepared by ESA. Available at: http://www2.oaklandnet.com/oakca1/groups/ceda/documents/report/oak043027.pdf
4 City of Oakland. 2014. Public Review Broadway Valdez District Specific Plan. Appendix D. https://cao-94612.s3.amazonaws.com/documents/oak048577.pdf



SOURCE: Esri Clarity Basemap 2020, City of Oakland 2020, Alameda County 2019

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0 300 600 Feet

Figure 1

Project Location

24th and Waverly Project

2.3 Project Characteristics

The proposed project would demolish the existing buildings and surface parking lot on the project site and construct a 15- to 16-story mixed-use residential building of approximately 415,792 gross square feet. The building would form an L shape, with the building massing primarily along 24th Street, extending along Waverly Street. The 11- to 12-story residential tower would rise above the four-story, Type-1, podium with double height ground floor retail space (approximately 20 feet high). The building height would be 160 feet with a maximum height of 180 feet to the top of mechanical equipment.

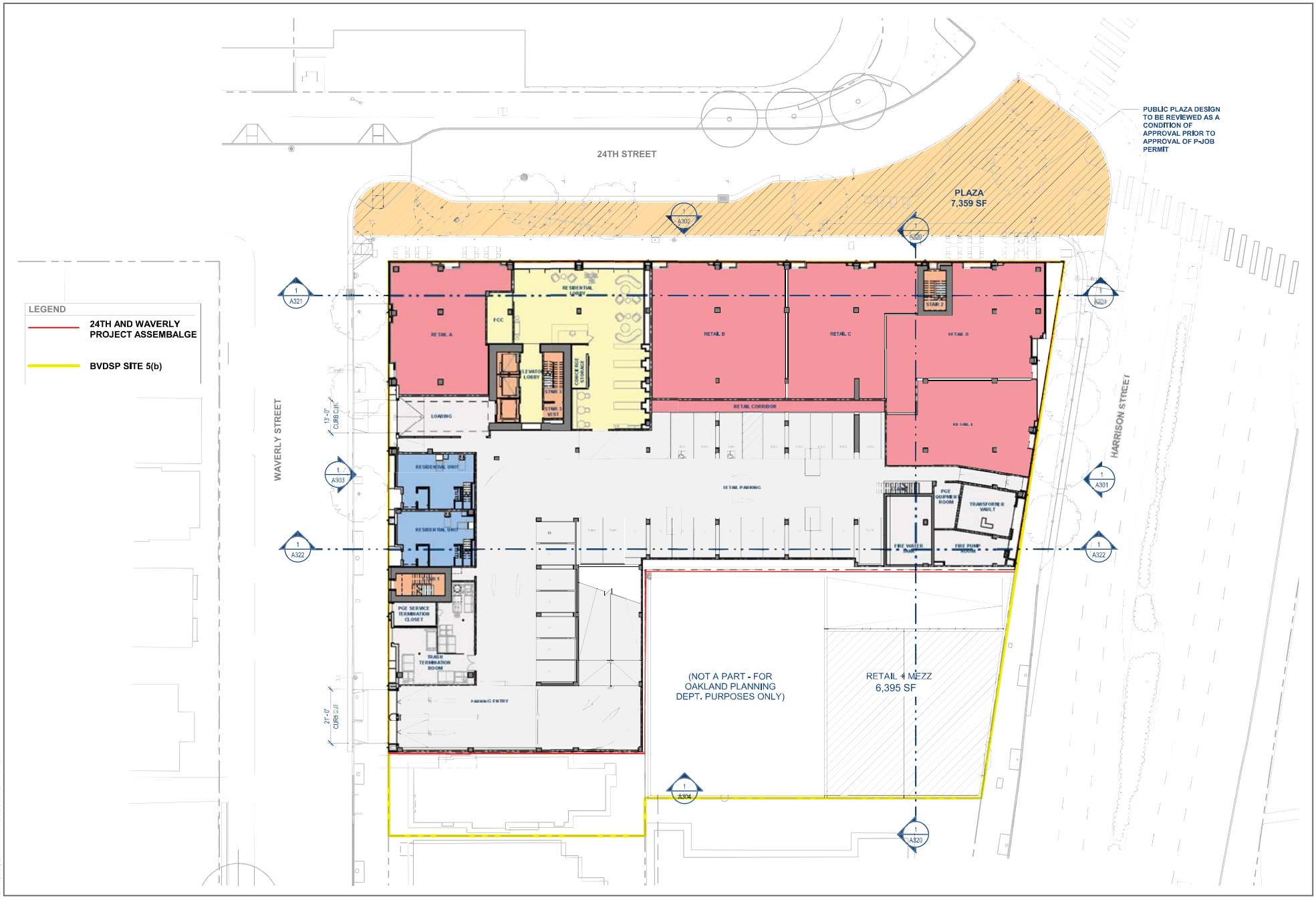
The residential tower would include 330 residential units within approximately 234,405 square feet. At the ground floor, approximately 13,192 square feet of commercial uses would front the project site along 24th and Harrison streets and wrap the corner onto Waverly Street. The residential lobby would also be located along 24th Street between the retail spaces. The proposed project would include a new 7,359 square-foot public plaza, with the largest portion at the northeast corner of the project site at 24th and Harrison Street, extending along 24th Street to Waverly Street in the northwest corner, where a smaller plaza space is formed. The site plan for the proposed project is shown in Figure 2.

In addition to the retail space and residential lobby, the ground level would include two, two-story townhome units along Waverly Street, a parking garage with 28 spaces for retail uses, a mailroom, the fire command center room, a combined residential and retail off-street loading berth, a combined residential and retail trash room, service/utilities, and two secure retail bike storage spaces. Ingress and egress to the retail parking, off-street loading, and residential parking (located on levels two to four) would be from Waverly Street. The retail and residential parking ingress and egress is accessed through the same entrance/exit.

The second level would be a mezzanine level including a residential leasing office, package storage, building equipment rooms including plumbing equipment, main electrical room, building maintenance, and 32 residential parking spaces. The retail is double height and extends up through level two and includes 1,299 square feet of retail mezzanine space. The two townhome units also extend up through level 2. Level three would include a fitness amenity space and 83 residential parking spaces. The emergency generator would be located on level three of the garage in the southeast corner along Harrison Street. Level four would include 73 residential parking spaces and a fitness mezzanine open to the main fitness floor on level three below. It would also include a secure bike storage room with over 168 long-term residential spaces, a dog run, a dog wash space and building storage.

Common space would be on floors 5 and 15, and would include co-working space, amenity lounges, and two terraces. The proposed project would remove four trees including two located along Waverly Street, one in the rear yard of one of the site residences along Waverly Street, and one along 24th Street. The proposed project would plant approximately 14 new trees along Waverly, 24th, and Harrison Streets. Additionally, there would be streetscape plantings along 24th Street and within the proposed public plaza. These plantings would be native or adapted species and would be irrigated in compliance with CalGreen water saving measures.

At the corner of 24th and Harrison streets, the L-shaped form of the residential tower would interface with the lower podium garage levels and would be accented with a metal frame element facing Harrison Street. The residential tower would include a window wall system with two-toned champagne and dark gray metal panels. Window glazing would create a slightly reflective bluish-silver appearance. The podium façade would include a beige stone-like pattern and darker gray portions between piers at the base near garage entry off Waverly Street. Public art would be centered on the north façade above the residential entry at levels 3 and 4, and would screen the parking garage.



Source: Soloman Cordwell Buenz 2020

FIGURE 2

Proposed Site Plan

24th and Waverly Project

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Table 2-2. Project Characteristics

Lot	Dimensions
Size	0.86 acre (37,556 SF)
Proposed Uses	*Area SF*
Residential	234,405
Service and Amenity	80,722 (66,489 Service/BOH + 11,315 Amenity + 2,918 Lobby)
Retail	13,192
Parking	87,473
Total Uses	**415,792 GSF**
Proposed Residential Units	*Amount (Percent)*
Studio	55 (16.7%)
1-bedroom	215 (65.2%)
2-bedroom	59 (17.9%)
3-bedroom	1 (0.3%)
Total Units	**330 (100%)**
Proposed Parking	*Number of Spaces*
Vehicle Parking Spaces (Total)	215
Residential	187
Commercial	28
Bicycle Parking Spaces (Total)	178 long-term/29 short-term
Residential	176 long-term/22 short-term
Commercial	2 long-term/7 short-term
Open Space	*Area (SF)*
Level 3 to 4 Fitness	3,947
Level 5 Terrace	9,585
Level 15 Amenity Lounge	4,360
Level 15 Terrace	6,846
Total Open Space	**24,738 SF**
Public Plaza	*Area (SF)*
Plaza	7,359 SF

Source: SCB, 2020.
Notes: GSF = gross square feet; SF = square feet.
Uses shown in table are approximate.

2.3.1 Residential Uses

Approximately 234,405 square feet of residential uses would be constructed on levels 5 through 16, above the ground-floor commercial space, mezzanine level, and residential parking area. The proposed project would have approximately 330 residential dwelling units composed of approximately 55 studio units, 215 one-bedroom units, 59 two-bedroom units, and one three-bedroom unit. As shown in Table 2-2, the residential dwelling unit mix would consist of approximately 16.7% studios, 65.2% one-bedroom, 17.9% two bedrooms, and 0.3% three bedrooms.

2.3.2 Transfer of Development Rights

Through a Conditional Use Permit, the D-BV-1 zone allows 1 residential unit per 125 square feet of retail provided on the site. As the proposed project would provide 20,551 square feet of retail use, 164 residential units could be built at the project site.[5] In addition, the proposed project would request a Minor Conditional Use Permit (CUP) to transfer residential dwelling units approved under the adjacent 277 27th Street project (which also is also being developed by the project applicant).

The 277 27th Street project included 65,000 square feet of retail, which under the D-BV-1 zoning would have allowed up to 650 residential dwelling units, but it only constructed 419 residential units. Of these remaining approved units, the project applicant has requested to transfer 111 units of the unused density from the 277 27th Street project to the proposed project. These 111 units together with the 164 units would result in a base density of 275 residential units for the proposed project.

2.3.3 State Density Bonus

The project proposes to set aside 5% of the 275 base project units as very-low income units (earning no more than 50% of the area median income). Under the California State Density Bonus Law, a project including this level of affordability is entitled to: (a) a 20% density bonus above the maximum allowable residential density under the City's General Plan and Planning Code standards for the D-BV-1 zone; (b) one concession/incentive; and (c) waivers of development standards that would preclude development of the project with the bonus density.

Under the State Density Bonus Law, an increase of 55 units (20%) on the base project of 275 units is allowed as the project would provide greater than the 5% (15 units, 1 unit greater than the 14 units required) as very-low income units, resulting in the proposed 330 residential units for the project.[6]

2.3.4 Commercial Uses

As described above, the proposed project would provide a total of 13,192 square feet of commercial space; up to 11,893 square feet would be double-height retail space on the ground level and 1,299 square feet would be on the mezzanine level. The retail space would be along 24th and Harrison streets and include an internal corridor/hallway serving the retail uses.

2.3.5 Access, Circulation, and Parking

The residential lobby would be located on the ground level along 24th Street. Vehicular ingress/egress for the residential garage entry, the retail garage entry, and the off-street loading berth would be through curb cuts located on Waverly Street. Approximately 215 vehicle parking spaces would be provided, consisting of 187 residential spaces, located on levels two through four, and 28 commercial spaces located on the ground level. There would be 178 long-term bicycle parking spaces (167 required), 2 of which would be for retail use and the rest for residential use. Short-term bicycle parking would consist of 22 residential spaces and 7 commercial spaces, for a total of 29

[5] Retail square footage may include the public plaza uses per Planning Code Section 17.101C.050.C.2 (a)(iii). Therefore, the proposed project would provide 20,551 square feet of retail space (13,192 square feet of commercial uses and the 7,359-square-foot public plaza.

[6] Although 5% (or 14 units in this case) would be required to be set aside to very-low income households, the proposed project would provide 15 units, providing one more unit than is required under the State Density Bonus Law.

spaces. The 178 long-term residential bicycle parking spaces would be located in a secure bike storage room on the 4th floor parking level accessed primarily from the elevator, or the residential garage entry if necessary. The two long-term commercial spaces would be located on level one of the parking garage and will have the ability to be secured in accordance with the Planning Code. The remaining residential spaces and commercial spaces would be provided outdoors via bike racks located within the public plaza. One off-street loading berth would be accessed from Waverly Street.

24th Street would remain a one-way westbound street and would be narrowed to one lane for one block in the vicinity of the project site to accommodate a public plaza that would be constructed as part of the proposed project, along the frontage of the project site from Harrison to Waverly streets.

2.3.6 Sanitary Sewer Easement

An existing 5-foot wide public sanitary sewer easement and an 8-inch main bisects a portion of the project site and extends from the project site south toward 23rd Street. This line serves the project site and other properties to the south. The easement would be partially vacated after the existing manhole is relocated just south to the adjacent property at 2337 Harrison Street. The sanitary sewer connection from the project site would extend to the north and connect into the sanitary sewer line currently in 24th Street.

2.3.7 Open Space

The proposed project would be required to provide a minimum of 75 square feet of usable open space per dwelling unit, equivalent to a total of 24,750 square feet. The proposed project would exceed the required open space by providing a combination of on-site open space within the project and through the adjacent public plaza. The project proposes approximately 24,738 square feet of on-site open space. As shown in Table 2-2, open space would include fitness amenity space on both levels 3 and 4, private patios and a landscaped terrace at level 5, and a roof terrace and indoor amenity area at level 15. With the 7,359-square-foot public plaza, the project proposes approximately 32,097 square feet of open space or approximately 97 square feet per unit.

2.3.8 Sidewalk Improvements

The proposed project would widen the sidewalks that front the project site as summarized below.

- Harrison Street – widen from existing 9.5 feet (not including the 6-inch curb) to 13.5 feet by pushing out the curb in front of the project site.
- 24th Street– widen from existing 9.5 feet (not including the 6-inch curb) to 10 feet (up to the existing curb line) in addition to the width of the new public plaza that would front the project site along this street.
- Waverly Street – widen from existing 9.5 feet (not including the 6-inch curb) to 13.5 feet by merging the existing sidewalk and planting strip up along the project boundary.

2.3.9 Public Plaza

As part of the 277 27th Street project immediately north across 24th Street from the project site, the project applicant will enter into a Memorandum of Understanding with the City to develop improvements to the sidewalk, roadway, and intersection adjacent to the 277 27th Street project on land owned by the City. As part of these

improvements, the 277 27th Street project is planned to include construction of a temporary plaza by the City of Oakland at the corner of 24th and Harrison Street, adjacent to the project site.

Under the proposed project, the project applicant, which is the same project applicant as the 277 27th Street project, would design a permanent 7,359-square-foot public plaza to be constructed as part of the proposed project. As envisioned in the BVDSP, the plaza on 24th Street would extend along the frontage of the project site from Harrison to Waverly streets. 24th Street would be reduced in width for one block to accommodate the plaza. The plaza would include landscaping, lighting, and seating.

2.4 Activity/Employment

The proposed project would include a mix of residential and retail uses. Based on Alameda County Transportation Commission's generation rate of 2.1 persons per residential unit, the proposed project could generate approximately 693 new residents. In addition, based on the model assumptions of 3 persons per 1,000 square feet for commercial, the project's 13,192 square feet of commercial uses could generate approximately 40 jobs.

2.5 Project Construction

Construction activities would consist of demolition of the existing surface parking lot and vacant buildings, shoring and excavation, construction of the foundation, and construction of the proposed building and finishing interiors. Project construction is expected to occur over approximately 27 months, with construction scheduled to commence in June 2021 with completion in August 2023. Approximately 25,538 square feet of demolished materials would be off hauled from the site. The project site would be excavated to approximately 10 feet below grade. The proposed building would be supported on a mat foundation supported by soil improved by installing drilled displacement columns that would extend into the underlying dense sand approximately 30 to 40 feet below existing grade (approximately 35 feet below the mat foundation). It is anticipated that approximately 14,053 cubic yards of soils would be exported during site preparation and excavation for the foundation. To the extent that excavated soil is geo-technically and environmentally suitable, it may be used as backfill. Construction of the proposed project would not require pile driving.

All off-road diesel equipment would be equipped with the most effective Verified Diesel Emission Control Strategies (VDECS) available for the engine type (such as Tier 4 engines which meet this requirement) as certified by the California Air Resources Board (CARB).[7] The proposed project would meet the requirements of the California Green Building Standards Code, Title 24, Part 11. The project design and construction would incorporate sustainable features associated with energy efficiency, water efficiency and conservation, and material conservation and resource efficiency.

2.6 Project Approvals

A number of permits and approvals would be required before project development could be initiated. As lead agency for the project, the City of Oakland would be responsible for the majority of these approvals, listed below. Other agencies, also listed below, would have authority related to the project and its approvals.

[7] Pers. comm between Christopher Ferris (NASH – Holland 24th & Waverly Investors LLC) and Hannah Young (Dudek), August 10, 2020.

Actions by the City of Oakland include the following:

- Bureau of Planning – Regular Design Review, CEQA determination, Vesting Tentative Parcel Map, and Minor CUPs to allow residential activities, transfer of development rights from the 277 27th Street Project, and for an exception from the minimum retail square footage requirements. Building Services Division – Demolition permit, grading permit, on-site work permits
- Department of Transportation – Approval of off-site work permits (e.g., public right-of-way improvements)
- Oakland Tree Services Division – Pursuant to the City's Protected Trees Ordinance, the project applicant would be required to obtain a Tree Removal Permit prior to removal of (or construction activity near) a "Protected Tree," as defined in Oakland Municipal Code Chapter 12.36. Tree permits would require approval by the Oakland Office of Parks and Recreation.

Actions by other agencies include the following:

- Bay Area Air Quality Management District (BAAQMD) – Issuance of permits for installation and operation of the emergency generator
- Regional Water Quality Control Board – Acceptance of a Notice of Intent to obtain coverage under the General Construction Activity Storm Water Permit and Notice of Termination after construction is complete
- East Bay Municipal Utility District – Grant a Special Discharge Permit to discharge construction dewatering to the sanitary sewer (if needed) and/or approval of new service requests and new water meter installations.
- Alameda County Department of Environmental Health – The applicant has entered into the Voluntary Site Cleanup Program with the Alameda County Department of Environmental Health, which oversees redevelopment of sites under a voluntary remedial action agreement. The purpose of entering into the Voluntary Cleanup Program is to receive a No Further Action letter from a regulatory agency certifying that the project development site is not contaminated and/or the site conditions do not pose a human health and safety risk.

3 BVDSP and EIR

3.1 BVDSP and BVDSP EIR Background

The BVDSP provides a framework for future growth and development in an approximately 95.5-acre area along Oakland's Broadway corridor between Grand Avenue and I-580. Although it does not propose specific private developments, the BVDSP establishes a development program to project the maximum level of feasible development that can reasonably be expected during the 25-year planning period (i.e., approximately 3.7 million square feet, including approximately 695,000 square feet of office space, 1,114,000 square feet of restaurant/retail space, 1,800 residential units, a new 180-room hotel, approximately 6,500 parking spaces, and approximately 4,500 new jobs). The BVDSP Environmental Impact Report (EIR) analyzed the environmental impacts associated with implementation of the BVDSP, and where the level of detail available was adequate for analyzing potential environmental effects, the EIR provided project-level CEQA review for foreseeable and anticipated development.

On September 20, 2013, the City of Oakland released the Draft EIR for the BVDSP for public review. The public review and comment period extended from September 20, 2013 through November 12, 2013. The Landmarks Preservation Advisory Board and the City of Oakland Planning Commission held hearings on the Draft EIR, and comments received during the public review and comment period were addressed in the Final EIR for the BVDSP. Prior to adoption of the Final EIR, additional public hearings were held by both the Landmarks Preservation Advisory Board and the Planning Commission. The Final EIR was certified by the Planning Commission on May 21, 2014 and confirmed by the City Council on June 17, 2014. The Final EIR determined that impacts on the following resources would be less than significant, or would be reduced to a less-than-significant level with implementation of mitigation measures or compliance with City of Oakland SCAs: aesthetics; biology; geology, soils, and geohazards; hazardous materials; hydrology and water quality; land use, plans, and policies; population, housing, and employment; public services and recreational facilities; and utilities and service systems.

The Final EIR determined that implementation of the BVDSP would have significant unavoidable impacts related to the following environmental resources: wind and shadow, air quality, cultural resources, greenhouse gases and climate change, noise, and transportation. Because of the potential for significant unavoidable impacts, a Statement of Overriding Considerations with findings was adopted as part of BVDSP approval on May 21, 2014 and confirmed by the City Council on June 17, 2014. The City Council found that, for the significant and unavoidable impacts listed above, the BVDSP EIR provided the best balance between the City's goals and objectives and the BVDSP's benefits. In addition, the City Council made the following determinations:

- The BVDSP updates the goals and policies of the general plan and provides more detailed guidance for specific areas within the Broadway Valdez District;
- The BVDSP builds upon two retail enhancement studies, the Citywide Retail Enhancement Strategy and the companion Upper Broadway Strategy–A Component of the Oakland Retail Enhancement Strategy, which identified the City's need to reestablish major destination retail in Oakland as being critical to stemming the retail leakage and associated loss of tax revenue that the City suffers from annually. These reports also identified the Broadway Valdez District as the City's best opportunity to reestablish a retail core with the type of comparison shopping that once served Oakland and nearby communities and that the City currently lacks retail;
- The BVDSP provides a policy and regulatory framework to achieve one of the primary objectives: to transform the Plan Area into an attractive regional destination for retailers, shoppers, employers and

visitors that serves, in part, the region's shopping needs and captures sales tax revenue for reinvestment in Oakland;

- The BVDSP could create employment opportunities (both short-term construction jobs as well as permanent jobs), increase revenues (sales, property, and other taxes), and promote spin-off activities (as Plan Area workers spend some of their income on goods in the Plan Area);
- The BVDSP Development Program promotes increased housing densities in proximity to employment-generating land uses that support City and regional objectives for achieving a jobs/housing balance and transit-oriented development;
- The BVDSP design guidelines will ensure that future development contributes to the creation of an attractive pedestrian-oriented district characterized by high-quality design and a distinctive sense of place; and
- The BVDSP identifies a series of needed and desired improvements related to transportation, affordable housing, historic resource preservation and enhancement, streetscape, plaza, parking, and utility infrastructure as well as regulatory tools, policies, and potential funding mechanisms to realize those improvements.

The Notice of Determination (NOD) for the BVDSP EIR was filed with the State Clearinghouse on June 18, 2014 and was not challenged. Therefore, the BVDSP EIR remains valid.

3.2 Project Consistency with BVDSP

Section 15182(a) of the California Environmental Quality Act (CEQA) Guidelines states that "…certain residential, commercial and mixed-use projects that are consistent with a specific plan adopted pursuant to Title 7, Division 1, Chapter 3, Article 8 of the Government Code are exempt from CEQA." In addition, Section 15183(a) of the CEQA Guidelines states that "…projects which are consistent with the development density established by the existing zoning, community plan, or general plan policies for which an EIR was certified shall not require additional environmental review, except as may be necessary to examine whether there are project-specific significant effects which are peculiar to the project or its site." Further, under CEQA Guidelines Section 15168, where a public agency has prepared a program EIR, later activities in the program must be examined in the light of the program EIR to determine whether an additional environmental document must be prepared. If an agency finds that pursuant to CEQA Guidelines Section 15162 no subsequent EIR would be required, the agency can approve the activity as being within the scope of the project covered by the program EIR, and no new environmental document would be required. Whether a later activity is within the scope of a program EIR is a factual question that the lead agency determines based on substantial evidence in the record. Factors that an agency may consider in making that determination include, but are not limited to, consistency of the later activity with the type of allowable land use, overall planned density and building impacts intensity, geographic area analyzed for environmental impacts, and covered infrastructure as described in the program EIR.

The BVDSP EIR analyzed the environmental impacts associated with adoption and implementation of the BVDSP and, where the level of detail available was adequate for analyzing potential environmental effects, provided a project-level CEQA review of reasonably foreseeable development. This allows the use of CEQA streamlining and/or tiering provisions for projects that are developed consistent with the BVDSP. The applicable CEQA streamlining and tiering provisions are described below in Chapter 4, Summary of Findings.

The CEQA Checklist provided below evaluates the potential project-specific environmental impacts of the proposed project and whether such impacts were adequately covered by the BVDSP EIR to allow the above-listed streamlining and/or tiering provisions of CEQA to apply. The analysis conducted incorporates by reference the information contained

in the BVDSP EIR. Mitigation measures and SCAs identified in the BVDSP EIR that would apply to the project are listed at the end of the CEQA Checklist. The project would be legally required to incorporate and/or comply with the applicable requirements of the mitigation measures identified in the BVDSP EIR as well as applicable SCAs (see Attachment A).

The project site is located in the Valdez Triangle subdistrict of the BVDSP Plan Area within Site 7 of Development Subdistrict 2. Site 7 includes 12 parcels—the eight project parcels as well as four additional parcels (APNs 008-0670-005; -014; -013; -012; approximately 0.63 acres). Although the BVDSP envisioned Site 7 would be redeveloped as one project, it did not require the development of all 12 parcels within Site 7. Therefore, the proposed project, which would redevelop 8 of the 12 parcels, would not conflict with the BVDSP.

The proposed project would be consistent with the zoning for the site, as described in Section 5.9, Land Use, Plans, and Policies, and Attachment C, Project Consistency with Community Plan or Zoning, of this document. As determined by the City of Oakland Bureau of Planning, the project is permitted in the zoning district in which it is located and is consistent with the bulk, density, and land uses envisioned in the BVDSP plan area.

As shown in Table 3-1, compared to the development of Site 7 envisioned in the BVDSP per the Illustrative Development Program (Appendix D, Table D.1, of the BVDSP), the proposed project would include a greater number of residential units and less commercial square footage (approximately 330 dwelling units instead of 118 units and approximately 13,192 square feet of retail instead of 127,733 square feet). Although the proposed project would differ from the Illustrative Development Program for Site 7 shown in Appendix D of the BVDSP, this Development Program was intended to be conceptual and illustrate one of many possible development scenarios under the BVDSP; the conceptual plan did not specifically prescribe or assume exact land uses on a site-by-site basis.

Table 3-1. Comparison of BVDSP Illustrative Development Program and Proposed Project

Development Characteristics	Illustrative Development Program for BVDSP Plan Area[a]	Illustrative Development Program for Site 7[b]	Proposed Project
Height	Varied (maximum 200 feet/18 stories)[c]	65 feet[c]	160 feet (15 to 16 stories)
Residential Units	1,800	118	330
Retail Square Footage (net)	695,000 square feet of office space 1,114,000 square feet of restaurant/retail space 181 hotel rooms	127,733	13,192

Sources: City of Oakland. 2014. Broadway Valdez District Specific Plan.
Notes:
[a] Development Program Grand Total, listed in Appendix D, Table D.1: Illustrative Development Plan Program Map by Subdistrict.
[b] Development Program for Project Site 7 in Subdistrict 2, listed in Appendix D, Table D.1: Illustrative Development Plan Program Map by Subdistrict.
[c] Broadway Valdez Development Program Physical Height Model, Figure 3-11 of the BVDSP EIR.

The BVDSP EIR analyzed development impacts at a broader level and the project would not result in inconsistencies or conflicts with the BVDSP or its EIR. As shown in Table 3-2, the amount of residential development in the Plan Area and Subdistrict 2 is currently more than what was assumed under the Development Program buildout in the BVDSP EIR, although retail, office, and hotel uses are less than what was assumed in the BVDSP EIR. These variations in land use types result in varying trip generation, which is analyzed in Section 5.13, Transportation and Circulation, of this CEQA Checklist. As concluded therein, these changes would not result in additional impacts to the environment.

Overall, an examination of the analysis, findings, and conclusions of the BVDSP EIR, as summarized in the CEQA Checklist below, indicates that the BVDSP EIR adequately analyzed and covered the potential environmental impacts associated with the proposed project. The streamlining and/or tiering provisions of CEQA apply to the project. Therefore, no further review or analysis under CEQA is required.

Table 3-2. Development Comparison within BVDSP Plan Area and Subdistrict 2

	Residential (DU)	Retail (KSF)	Office (KSF)	Hotel (Rooms)
Plan Area (Subdistricts 1 through 5)				
Constructed, Under Construction, Approved, and Proposed Development Projects[1]	3,557	133.5	178.8	159
Development Program Buildout [2]	1,797	1,114.1	694.9	180
Percent Completed	198%	12%	26%	88%
Subdistrict 2				
Constructed, Under Construction, Approved, and Proposed Development Projects[1]	1,383	69.1	-22.3	0
Development Program Buildout [2]	487	388.2	0	0
Percent Completed	284%	18%	NA	0

Source: Fehr & Peers, 2020.
Notes: DU = dwelling units, KSF = 1,000 square feet.
1 Information from City of Oakland, June 2020. Accounts for existing active uses that would be eliminated.
2 Based on Table 4.13-7 on page 4.13-37 of BVDSP Draft EIR. Numbers vary slightly from those shown in Table 3-1, due to rounding of the numbers provided in that table.

4 Summary of Findings

An evaluation of the proposed project is provided in the CEQA Checklist below. This evaluation provides substantial evidence that the project qualifies for an exemption/addendum from additional environmental review. The proposed project was found to be consistent with the development density and land use characteristics established by the BVDSP. The BVDSP EIR allows for the distribution of density and development types between categories and sub-areas, and accounts for the construction and operational impacts from the development proposed within the Plan Area. Any potential environmental impacts associated with the project's development were adequately analyzed and covered by the analysis in the BVDSP EIR.

The proposed project would be required to comply with the applicable mitigation measures identified in the BVDSP EIR, as well as any applicable City of Oakland SCAs (see Attachment A, at the end of the CEQA Checklist). With implementation of the applicable mitigation measures and SCAs, the project would not result in a substantial increase in the severity of significant impacts that were previously identified in the BVDSP EIR or any new significant impacts that were not previously identified in the BVDSP EIR. In particular:

(1) Although the proposed project adds project-level details to a site identified in the BVDSP for development and leverages the State Density Bonus Law to allow for increased density, these project changes would not result in new significant environmental effects or a substantial increase in the severity of impacts identified in the BVDSP EIR.

(2) There would be no new significant environmental effect or a substantial increase in the severity of impacts identified in the BVDSP EIR due to changes in circumstances.

(3) There would be no new significant environmental effect or a substantial increase in the severity of impacts identified in the BVDSP EIR due to new information.

In accordance with Public Resources Code Sections 21083.3, 21094.5, 21155.4, and 21166 and CEQA Guidelines Sections 15162, 15164, 15168, 15182, 15183, 15183.3, and as set forth in the CEQA Checklist below, the project qualifies for an exemption/addendum because the following findings can be made:

- The proposed project would not result in significant impacts that (1) would be peculiar to the project or project site; (2) were not previously identified as significant project-level, cumulative, or off-site effects in the BVDSP EIR; or (3) were previously identified as significant but—as a result of substantial new information that was not known at the time the BVDSP EIR was certified—would increase in severity above the level described in the EIR. Therefore, the project is exempt from further environmental review in accordance with Public Resources Code Section 21083.3 and CEQA Guidelines Section 15183.
- The proposed project would not cause any new significant impacts on the environment that were not already analyzed in the BVDSP EIR or result in more significant impacts than those that were previously analyzed in the BVDSP EIR. The effects of the project have been addressed in the BVDSP EIR, and no further environmental documents are required, in accordance with Public Resources Code Section 21094.5 and CEQA Guidelines Section 15183.3.

- The proposed project is an eligible mixed-use residential project within a transit priority area as described in Public Resources Code Section 21099(a)(7), is consistent with the BVDSP and its EIR, and with Plan Bay Area, the applicable sustainable communities strategy. None of the conditions requiring subsequent analysis per CEQA Guidelines Section 15162 apply as noted in the bullets above. Therefore, the project is exempt from further environmental review in accordance with Public Resources Code Section 21155.4 and CEQA Guidelines Section 15182.
- The analyses conducted and the conclusions reached in the BVDSP EIR that was certified by the Planning Commission on May 21, 2014, and confirmed by the City Council on June 17, 2014, remain valid, and no supplemental environmental review is required for the proposed project modifications. The project would not cause new significant impacts that were not previously identified in the EIR or result in a substantial increase in the severity of previously identified significant impacts. No new mitigation measures would be necessary to reduce significant impacts. No changes have occurred with respect to the circumstances surrounding the original project that would cause significant environmental impacts to which the project would contribute considerably, and no new information has been put forward that shows that the project would cause significant environmental impacts. Therefore, no supplemental environmental review is required beyond this addendum, in accordance with Public Resources Code Section 21166 and CEQA Guidelines Section 15164.

Each of the above findings provides a separate and independent basis for CEQA compliance.

Ed Manasse Environmental Review Officer	Date

5 CEQA Checklist

This CEQA Checklist provides a summary of the potential environmental impacts that may result from adoption and implementation of the BVDSP, as evaluated in the BVDSP EIR. Potential environmental impacts of development under the BVDSP were analyzed and covered by the BVDSP EIR, and the EIR identified mitigation measures and SCAs to address these potential environmental impacts.

This CEQA Checklist hereby incorporates by reference the BVDSP EIR discussion and analysis of all potential environmental impact topics; only those environmental topics that could have a potential project-level environmental impact are included. The EIR significance criteria have been consolidated and abbreviated in this CEQA Checklist for administrative purposes; a complete list of the significance criteria can be found in the BVDSP EIR.

This CEQA Checklist provides a determination of whether the proposed project would result in:

- Equal or Less Severity of Impact Previously Identified in BVDSP EIR
- Substantial Increase in Severity of Previously Identified Significant Impact in BVDSP EIR
- New Significant Impact

Where the severity of the impacts of the proposed project would be the same as or less than the severity of the impacts described in the BVDSP EIR, the checkbox for Equal or Less Severity of Impact Previously Identified in BVDSP EIR is checked. The checkboxes for Substantial Increase in Severity of Previously Identified Significant Impact in BVDSP EIR or New Significant Impact are checked if there are significant impacts that are:

- Peculiar to project or project site (per CEQA Guidelines Sections 15183 or 15183.3)
- Not identified in the previous EIR (BVDSP EIR) (per CEQA Guidelines Sections 15183 or 15183.3), including off-site and cumulative impacts (per CEQA Guidelines Section 15183)
- Due to inconsistency with the BVDSP or sustainable communities strategy (per CEQA Guidelines Section 15182)
- Due to substantial changes in the project (per CEQA Guidelines Section 15162 and 15168)
- Due to substantial changes in circumstances under which the project will be undertaken (per CEQA Guidelines Section 15162)
- Due to substantial new information not known at the time the BVDSP EIR was certified (per CEQA Guidelines Sections 15162, 15183, or 15183.3)

The project is required to comply with applicable mitigation measures identified in the BVDSP EIR, and with City of Oakland SCAs. In some instances, exactly how the measures/conditions identified will be achieved awaits completion of future studies, an approach that is legally permissible where measures/conditions are known to be feasible mitigation for the impact identified, where subsequent compliance with identified federal, state or local regulations or requirements apply, where specific performance criteria is specified and required, and where the project commits to developing measures that comply with the requirements and criteria identified.

Attachments

The following attachments are included at the end of this CEQA Checklist:

A. Standard Conditions of Approval and Mitigation Monitoring Reporting Program
B. Criteria for Use of Addendum, Per CEQA Guidelines 15164
C. Project Consistency with Community Plan or Zoning, per CEQA Guidelines Section 15183
D. Infill Performance Standards, per CEQA Guidelines Section 15183.3
E. Project Consistency with the Broadway Valdez Specific Plan, per CEQA Guidelines Section 15182
F. Shadow Diagrams
G. Pedestrian Wind Study
H. Air Quality and Greenhouse Gas Emissions Estimates (Inputs and Outputs for CalEEMod)
I. Noise Model
J. Trip Generation Analysis Memorandum

5.1 Aesthetics, Shadow, and Wind

Would the project:	Equal or Less Severity of Impact Previously Identified in BVDSP EIR	Substantial Increase in Severity of Previously Identified Significant Impact in EIR	New Significant Impact
a. Have a substantial adverse effect on a public scenic vista; substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, located within a state or locally designated scenic highway; substantially degrade the existing visual character or quality of the site and its surroundings; or create a new source of substantial light or glare which would substantially and adversely affect day or nighttime views in the area;	■	□	□
b. 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 through 25986); or 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;	■	□	□
c. Cast shadow that substantially impairs the beneficial use of any public or quasi-public park, lawn, garden, or open space; or, cast shadow on an historical resource, as defined by CEQA Guidelines Section 15064.5(a), such that the shadow would materially impair the resource's historic significance;	■	□	□
d. 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; or	■	□	□

Would the project:	Equal or Less Severity of Impact Previously Identified in BVDSP EIR	Substantial Increase in Severity of Previously Identified Significant Impact in EIR	New Significant Impact
e. Create winds that exceed 36 mph for more than one hour during daylight hours during the year. The wind analysis only needs to be done if the project's height is 100 feet or greater (measured to the roof) and one of the following conditions exist: (a) the project is located adjacent to a substantial water body (i.e., Oakland Estuary, Lake Merritt of San Francisco Bay); or (b) the project is located in Downtown.	■	□	□

Since certification of BVDSP EIR, the CEQA statutes have been amended related to assessment of aesthetics impacts. 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."[8] 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:

a. The project is in a transit priority area[9]

b The project is on an infill site[10]

c The project is residential, mixed-use residential, or an employment center[11]

The proposed project meets all three criteria: (1) it is located approximately 0.2 to 0.5 miles of several frequent bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods and therefore is within a transit priority area; (2) the project site is an infill site within the urban area of the city of Oakland and is currently developed with a surface parking lot and vacant structures, and is surrounded on all sides by urban development; and (3) the project is a mixed-use residential project. Thus, aesthetics is not considered in this document to determine the significance of project impacts under CEQA. Nonetheless, the City of Oakland recognizes that the public and decision makers may be interested in information pertaining to the aesthetic effects of a project and may desire that such information be provided as part of the environmental review process. Because the project meets the criteria described above, analysis of the proposed project's impacts related to aesthetics is provided below solely for informational purposes and is not used to determine the significance of the environmental impacts, pursuant to CEQA.

8 CEQA Section 21099(d)(1).

9 CEQA Section 21099(a)(7) defines a "transit priority area" as an area within 0.5 miles 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 morning and afternoon peak commute periods.

10 CEQA Section 21099(a)(4) defines an "infill site" as a lot located within an urban area that has been previously developed, or a vacant site where at least 75 percent of the perimeter of the site adjoins or is separated only by an improved public right-of-way from, parcels that are developed with qualified urban uses.

11 CEQA Section 21099(a)(1) defines an "employment center" as a project located on property zoned for commercial uses with a FAR of no less than 0.75 and located within a transit priority area.

BVDSP EIR Findings

The BVDSP EIR found that potential impacts to scenic vistas and visual character would be less than significant. Specifically, impacts related to lighting and glare from development under the BVDSP would be less than significant with implementation of an SCA. Shadow was determined result in less-than-significant impacts, except for potential shading on Temple Sinai, which is considered a historical resource. Mitigation Measures AES-4: Shadow Analysis requires projects in the area bounded by Webster Street, 29th Street, Broadway, and 28th Street to evaluate and address potential shading impacts on Temple Sinai. Temple Sinai is located approximately 0.3 miles northwest of the project site. The BVDSP EIR identified potentially significant and unavoidable impacts related to wind hazards. Mitigation Measure AES-5: Wind Analysis requires site specific studies and incorporation of specific design elements to reduce impacts related to wind hazards. Even with implementation of Mitigation Measure AES-5: Wind Analysis, impacts were found to conservatively remain significant and unavoidable. Cumulative impacts related to wind were also identified to be conservatively significant and unavoidable.

Project Analysis

Scenic Vistas, Scenic Resources, Visual Character, and Light and Glare (Criteria 5.1.a and 5.1.d)

Pursuant to the BVDSP Design Guidelines, development within the Plan Area should contribute to the creation of a coherent, well-defined and active public realm that supports pedestrian activity and social interaction, and to the creation of a well-organized and functional private realm that supports the needs of tenant businesses. The proposed project would meet this guideline by designing a public plaza, which would extend along 24th Street between Harrison and Waverly streets.

The project requires design review approval, pursuant to Section 17.101C.020 of the City's Planning Code. As part of the design review process, the project will be reviewed by the City to ensure consistency with the applicable BVDSP Design Guidelines. The design review process will ensure the project would be consistent with the BVDSP standards and guidelines related to aesthetics, compatible with the existing built form and architectural character of the Plan Area as a whole, and compatible with the distinctive visual character of individual areas. In addition, implementation of SCA-AES-1: Lighting (#19), would reduce the project's impact related to light and glare to a less-than-significant level.

Shadow (Criteria 5.1.b and 5.1.c)

The project site is outside of the area identified in the BVDSP EIR as having potential shading impacts on Temple Sinai (the area bounded by Webster Street, 29th Street, Broadway, and 28th Street) and BVDSP EIR Mitigation Measure AES-4: Shadow Analysis would not apply.

The BVDSP Physical Height Model anticipated a building height of 65 feet at the site. As described in Chapter 2, Project Description, the proposed project would be approximately 160 feet in height with mechanical equipment up to 180 feet in height. Therefore, a shadow study was completed for the proposed project to evaluate its potential to shade solar collectors, public or quasi-public parks and open spaces, or historical resources in the immediate vicinity of the project site.

As shown in the shadow study (see Attachment F), the proposed project would cast shadow generally to the west toward Waverly Street and along 24th Street in the mornings, with shadows extending north and northeast along 27th and Harrison streets in the afternoons. There are no solar collector sites within the area potentially shaded by the proposed

project. The only park or open space in the vicinity is the lawn around the Veteran's Memorial Building (200 Grand Avenue). This area is south of the project site and would not be shaded by the project.

Temple Sinai is approximately 0.3 miles northwest of the project site, and due to the intervening buildings and distance from the project site, the project would not cast shadow on this resource.

Five properties in the vicinity of the project site are considered historical resources under CEQA:

- 2346 Valdez Street (Newsom Apartments, within the Waverly Street Residential District ASI)
- 2332 Harrison Street (YWCA Blue Triangle Club/Lake Merritt Lodge)
- 2333 Harrison Street (Seventh Church of Christ Scientist, unoccupied)
- 2501 Harrison Street (First Congregational Church of Oakland)
- 230 Bay Place (Whole Foods Market)

The proposed project would not cast shadow on 2332 or 2333 Harrison Street or 230 Bay Place during the hours of 9 a.m. to 3 p.m., but the project would cast shadows for a short duration on 2346 Valdez Street and 2501 Harrison Street during these hours, as described below.

During the morning hours (around 9 a.m.), the proposed project would cast limited shadows on 2346 Valdez Street (Newsom Apartments) during the spring and fall equinox (March 20 and September 22, respectively) and during the winter. Specifically, it would cast shadows across the building's rooftop approximately between September 15th and November 1st, as well as January 2nd and April 5th. The shadows would shade limited portions of the roof and upper stories for a brief period of time. The character defining features of the Newsom Apartments do not include stained glass windows, historic atriums, or other features sensitive to the effects of shading. Therefore, the net new shadow cast by the project would not materially impair the property's ability to convey its significance.

The proposed project would also cast shadow on the western façade of 2501 Harrison Street (First Congregational Church of Oakland) during winter afternoons. This portion of the building has 14 stained glass windows. Specifically, net new shadow from the proposed project would occur between early November through early February and start at approximately 2:20 p.m. and last for up to a maximum of approximately 30 minutes. While other portions of the building façade would also receive shadow, these areas are not as sensitive to shading as the stained-glass windows. Worship services at the church are regularly scheduled at 10:30 a.m. once a week on Sunday mornings, outside of the timeframe where the proposed project would cast shadow on the building.[12] Overall, given the limited shading of the stained glass during approximately 3 months annually in the late afternoon for a short duration, this shadow would not be anticipated to materially impair the property's ability to convey its significance. Therefore, the proposed project's impact due to shadow cast on this historic resource would not be significant.

Under the cumulative condition, only one of the reasonably foreseeable projects in the vicinity of the project site—300 Lakeside Drive (Kaiser Center)—would also contribute to shading on the historic resource at 2501 Harrison Street.[13] The project at 300 Lakeside Drive would cast shadow on 2501 Harrison Street during similar times as the proposed project and its shadow would partially overlap with shadow cast by the proposed project on some but not all of the stained-glass windows in the late afternoon during winter months. As the cumulative shadow resulting

[12] First Congregational Church of Oakland. 2020. "Love is First." Accessed August 7, 2020. http://www.firstoakland.org/

[13] Reasonably foreseeable projects that could affect the cumulative shadow conditions and therefore have been included in the analysis include 2305 Webster Street, 2424 Webster Street, 88 Grand Avenue, 2 Kaiser Plaza, Kaiser Center (300 Lakeside Drive), and 2100 Telegraph.

from the proposed project in combination with 300 Lakeside Drive would occur for approximately 3 months annually in the late afternoon for a short overall duration and would not substantially increase the amount of shadow or the duration of the shadow on this historic resource compared with the net new shadow of the proposed project, the cumulative shadow impact would not materially impair the historic property's ability to convey its significance. For the reasons described above, the proposed project's shadow impacts would be consistent with the BVDSP EIR.

Wind (Criterion 5.1.e)

The BVDSP EIR found that development in the Plan Area could result in significant and unavoidable impacts due to wind. BVDSP EIR Mitigation Measure AES-5: Wind Analysis was included to minimize wind impacts and requires projects that would be 100 feet tall or taller within the portion of the Plan Area designated Central Business District (CBD) to conduct a wind study to evaluate the project's wind impacts and incorporate design features or other measures to reduce potential impacts. The BVDSP EIR findings recognize that new development in the Plan Area may not be able to reduce wind impacts to below the City's thresholds. If a project would result in winds exceeding 36 mph for more than 1 hour during daylight hours over a 1-year period, the impact is considered significant. As part of the City's approval of the BVDSP EIR, a statement of overriding considerations was adopted related to wind and new development in the Plan Area.

As the proposed project would be within in the CBD and would exceed 100 feet in height, BVDSP EIR Mitigation Measure AES-5: Wind Analysis, would apply. To meet the requirements of Mitigation Measure AES-5 and the City of Oakland CEQA Thresholds of Significance Guidelines (which also require a wind analysis if the project site is located Downtown and the proposed height exceeds 100 feet), a pedestrian wind study was prepared for the project to evaluate its wind effects (see Attachment G). The wind study included all relevant surrounding buildings and topography within an approximately 1,200-foot radius of the project site and assessed the proposed project's effect at 53 at-grade-level locations, primarily along sidewalks and public rights-of-way. The existing conditions, existing conditions with the proposed project, and cumulative conditions with the proposed project were assessed.

Under existing conditions, the wind speed exceeds the City's hazard wind threshold at one location mid-block on 24th Street, along the project site. Wind speeds at this location exceed the threshold for 1 hour annually. With the proposed project, the wind speed would no longer exceed the City's hazard wind threshold at this location or any of the other locations tested.

For the cumulative conditions analysis, the wind study considered cumulative development projects within a 1,200-foot radius of the project site.[14] Wind speeds would not exceed the City's hazard wind threshold for any locations tested under the cumulative conditions with the proposed project.

Therefore, the proposed project would reduce an existing wind hazard and would not result in new or more severe impacts related to wind.

Conclusion

The proposed project would be consistent with the findings of the BVDSP EIR and would not result in any new or more severe significant impacts related to aesthetics, shadow, or wind. The proposed project would be required to implement SCA-AES-1: Lighting (#19). In addition, implementation of the following SCAs would further reduce impacts of the project to aesthetics, shadow, and wind, including: SCA-AES-2: Trash and Blight Removal (#16), SCA-

[14] Reasonably foreseeable projects that could affect the cumulative wind conditions and therefore have been included in the analysis include 2305 Webster Street, 2424 Webster Street, 88 Grand Avenue, and 2 Kaiser Plaza.

AES-3: Graffiti Control (#17), SCA-AES-4: Landscape Plan (#18), and SCA-UTIL-5: Underground Utilities (#82). Attachment A provides the full description of the applicable SCAs.

5.2 Air Quality

Would the project:	Equal or Less Severity of Impact Previously Identified in BVDSP EIR	Substantial Increase in Severity of Previously Identified Significant Impact in EIR	New Significant Impact
a. During project construction result in average daily emissions of 54 pounds per day of ROG [reactive organic gas], NO_X [oxides of nitrogen], or $PM_{2.5}$ [particulate matter with an aerodynamic resistance diameter of 2.5 micrometers or less] or 82 pounds per day of PM_{10} [particulate matter with an aerodynamic resistance diameter of 10 micrometers or less]; 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}; 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}; or	■	□	□
b. For new sources of Toxic Air Contaminants (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 noncancer 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 microgram per cubic meter; or, under cumulative conditions, resulting in (a) a cancer risk level greater than 100-in-1 million, (b) a noncancer risk (chronic or acute) hazard index greater than 10.0, or (c) annual average $PM_{2.5}$ of greater than 0.8 microgram per cubic meter; or expose new sensitive receptors to substantial ambient levels of TACs resulting in (a) a cancer risk level greater than 100-in-1-million, (b) a noncancer risk (chronic or acute) hazard index greater than 10.0, or (c) annual average $PM_{2.5}$ of greater than 0.8 microgram per cubic meter.	■	□	□

BVDSP EIR Findings

The BVDSP EIR found that construction and operation activities associated with development of projects under the BVDSP would have significant air quality impacts due to emissions of reactive organic gases (ROG), oxides of nitrogen (NO_x), particulate matter less than or equal to 10 microns in diameter (PM_{10}), and/or Toxic Air Contaminants (TACs). The BVDSP EIR determined that implementation of Recommended Mitigation Measure AIR-2 and the City's SCAs would reduce construction and operational emissions. Additionally, Mitigation Measure AIR-4 required projects that include backup generators to prepare a health risk reduction plan. The analysis conservatively found that the impacts from emissions of ROG, NO_x, PM_{10}, and TACs would remain significant and unavoidable.

Project Analysis

Criteria Air Pollutants (Criterion 5.2.a)

The proposed project would demolish the existing uses on the project site and construct a new 415,792-gross-square-foot mixed-use building with approximately 330 residential units and 13,192 square feet of commercial uses.[15] Project construction is expected to occur over approximately 27 months, with construction scheduled to commence in June 2021 and end in August 2023. As discussed in Chapter 3, BVDSP and EIR, the project is consistent with the type of development evaluated in the BVDSP EIR, and therefore the construction and operational emissions from the project are accounted for in the plan-level analysis.

Although the BVDSP EIR does not require additional project-level analysis for criteria pollutant emissions from construction and operation of an individual project within the Plan Area, this evaluation was completed for informational purposes as part of the CEQA Analysis and is presented herein. Emissions from construction and operation of the proposed project were estimated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2. Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on project-specific information; CalEEMod default values were used when project specifics were not known. Detailed assumptions associated with project construction are included in Attachment H and summarized below.

Construction Air Emissions Analysis

Average daily construction emissions were computed by dividing the total construction emissions by the number of active construction days, which were then compared to the City's construction thresholds of significance. Table 5.2-1 shows average daily construction emissions of O_3 precursors (ROG and NO_x), PM_{10} exhaust, and $PM_{2.5}$ exhaust during project construction.[16]

[15] The project evaluated in the air quality analysis is larger than the proposed project and therefore provides a very conservative evaluation of the project's impacts. It assumed 343 residential units and 15,000 square feet of commercial uses.

[16] Fuel combustion during construction and operations would also result in the generation of SO_2 and CO. These values are included in Attachment H. However, since the San Francisco Bay Area Air Basin is in attainment of these pollutants, the BAAQMD has not established a quantitative mass-significance threshold for comparison and these are not included in the project-generated emissions tables in this document. Notably, the BAAQMD does have screening criteria for operational localized CO, which are discussed in more detail below.

Table 5.2-1. Average Daily Construction Criteria Air Pollutant Emissions

Year	ROG	NO_x	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
	Pounds per Day			
2021 to 2023	4.8	12.0	0.5	0.5
City of Oakland Construction Thresholds	*54*	*54*	*82*	*54*
Exceed Threshold?	**No**	**No**	**No**	**No**

Source: Dudek, 2020 (see Attachment H).
Notes: ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter
The values shown are average daily emissions based on total overall tons of construction emissions, converted to pounds, and divided by active workdays (582 days).

As shown in Table 5.2-1, construction of the proposed project would not exceed the City's significance thresholds for criteria air pollutants. Additionally, the proposed project would be required to implement SCA-AIR-1: Dust Controls – Construction Related (#20), including the enhanced dust controls required for projects with more than 10,000 cubic yards of soils import and export. The proposed project would also be required to implement SCA-AIR-2: Criteria Air Pollutant Controls – Construction Related (#21). Because construction emissions would not exceed the City's significance thresholds, the enhanced controls described in SCA-AIR-2 would not be required for the proposed project. These SCAs would control fugitive dust and further reduce construction criteria air pollutant emissions below those shown in Table 5.2-1.

In addition, as described in Chapter 2, Project Description, the project applicant has committed to use the most effective Verified Diesel Emission Control Strategies (VDECS) on all off-road diesel construction equipment (e.g., use of Tier 4 engines), which would further reduce criteria air pollutant emissions of NO_x,PM_{10}, and $PM_{2.5}$ below the levels shown in Table 5.2-1.

Therefore, construction of the proposed project would not result in more severe impacts than what was identified in the BVDSP EIR, nor would it result in new significant impacts related to criteria pollutant emissions that were not identified in the BVDSP EIR.

Operational Air Emissions Analysis

Project operation would generate criteria pollutant (including ROG, NO_x, PM_{10}, and $PM_{2.5}$) emissions from area sources (consumer products, architectural coatings, and landscaping equipment), energy sources (natural gas consumption), mobile sources (vehicular traffic), and from the periodic testing of the emergency generator. Table 5.2-2 summarizes the operational emissions of criteria pollutants that would be generated by the proposed project.

As shown in Table 5.2-2, the increase in operational emissions of ROG, NO_x, PM_{10}, and $PM_{2.5}$ resulting from the proposed project would not exceed the City's adopted significance thresholds. Therefore, the project would have a less-than-significant impact on regional operational emissions. As a result, operation of the proposed project would not result in a more severe impact than what was identified in the BVDSP EIR, nor would it result in new significant impact related to criteria pollutant emissions during operations that were not identified in the BVDSP EIR.

Table 5.2-2. Operational Criteria Air Pollutant Emissions

Source	ROG	NO_x	PM_{10}	$PM_{2.5}$	ROG	NO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day[1]				*Tons per Year*			
Area	8.47	0.33	0.16	0.16	1.47	0.03	0.01	0.01
Energy	0.09	0.75	0.06	0.06	0.02	0.14	0.01	0.01
Mobile	1.77	6.77	5.13	1.40	0.24	1.05	0.77	0.21
Emergency Generator	0.22	0.61	0.03	0.03	0.01	0.03	<0.01	<0.01
Total[2]	**10.55**	**8.46**	**5.38**	**1.65**	**1.74**	**1.25**	**0.79**	**0.23**
City of Oakland Operational Thresholds	*54*	*54*	*82*	*54*	*10*	*10*	*15*	*10*
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Source: Dudek, 2020 (see Attachment H).
Notes: ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter
Totals may not sum due to rounding. These values are based on the "mitigated" output although the adjustments made are not mitigation, which reflect compliance with BAAQMD Regulation 8, Rule 3, which limits VOC content of architectural coatings and assumes no wood burning devices.

1 The daily values shown are the maximum summer or winter emissions results from CalEEMod.

2 Emissions do not account for application of SCA #3: DPM Controls (#22) noted below, which would further reduce emissions below levels shown here.

Toxic Air Contaminants (Criterion 5.2.b)

The BVDSP EIR does not require an additional project-level analysis of construction-related health risks and there is no evidence that construction of the project would have peculiar or unusual impacts or impacts that are new or more significant than previously analyzed in the BVDSP EIR. Furthermore, the project is subject to the City of Oakland's SCA-AIR-3: Diesel Particulate Matter (DPM) Controls – Construction Related (#22), because the project would involve construction of more than 100 dwelling units.

SCA-AIR-3 requires a project to either (i) prepare a health risk assessment (HRA) to determine the health risk to sensitive receptors exposed to DPM from project construction emissions, or (ii) equip all off-road diesel equipment with the most effective VDECS. A construction related HRA has been prepared for the proposed project and is described below.

TACs are defined as substances that may cause or contribute to an increase in deaths or in serious illness, or which may pose a present or future hazard to human health. Health effects from carcinogenic air toxics are usually described in terms of cancer risk. In addition, some TACs have non-carcinogenic effects. Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Children, pregnant women, older adults, and people with existing health problems are especially vulnerable to the effects of air pollution. Accordingly, land uses where sensitive-receptor population groups are likely to be located are hospitals, medical clinics, schools, playgrounds, childcare centers, residences, and retirement homes.[17] The closest existing sensitive receptors include multi-family residential uses adjacent to the project site's western and southern boundary. In addition, Westlake Middle School is located approximately 570 feet to the northeast.

17 BAAQMD (Bay Area Air Quality Management District). 2017. *California Environmental Quality Act Air Quality Guidelines.* Updated May 2017. http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

TAC Emissions during Construction

Incremental cancer risk is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period would contract cancer based on the use of standard California Office of Environmental Health Hazard Assessment (OEHHA) risk-assessment methodology.[18] During project construction, diesel particulate matter (DPM) emissions would be the primary TAC of concern, which would be emitted from diesel-fueled construction equipment and heavy-duty trucks. Although not a TAC, localized $PM_{2.5}$ concentrations are also a concern because emissions can have significant health impacts at the local level. Based on the age of the existing buildings (constructed in 1907 to 1932), there is the possibility that asbestos, which is also a TAC, could be encountered during demolition. Emissions of TACs would be temporary, lasting for the duration of proposed project construction. According to the OEHHA, HRAs should be calculated for a 30-year exposure duration based on typical residency period; however, such assessments should be limited to the period/duration of activities associated with the project.

Table 5.2-3 presents cancer and noncancer health risk results for the maximally exposed individual receptor (MEIR) identified near the project site.[19] The MEIR for construction would be the existing residents associated with 2332 Harrison Street, east of the project site. Complete model outputs are provided in Attachment H.

Table 5.2-3. Construction-Related Health Risk Results

Receptor	Cancer Risk (persons per million)[1]	Chronic Hazard Index[1]	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Construction without Use of Tier 4 Engines/SCA-AIR-3: DPM Controls (#22)			
Maximally Exposed Individual Receptor	69.30	0.040	<0.01
BAAQMD Significance Criteria	*10*	*1.0*	*0.3*
Exceed Threshold?	**Yes**	**No**	**No**
Construction with Use of Tier 4 Engines/SCA-AIR-3: DPM Controls (#22)[2]			
Maximally Exposed Individual Receptor	5.31	0.003	<0.01
BAAQMD Significance Criteria	*10*	*1.0*	*0.3*
Exceed Threshold?	**No**	**No**	**No**

Source: Dudek, 2020 (see Attachment H).
Notes: BAAQMD = Bay Area Air Quality Management District
TAC exposure plots at receptors from the diesel emergency generator were modeled with AERMOD, which were then input into HARP2 to generate health risk estimates.

1 The maximally exposed individual receptor for annual cancer, chronic, and $PM_{2.5}$ health risk impacts is located to the east of the proposed project, at 2332 Harrison Street, Oakland, CA 94612.

2 With SCA-AIR-3: DPM Controls (#22) accounts for use of the most effective VDECS on all off-road diesel construction equipment (e.g., use of Tier 4 engines). Furthermore, the project applicant has committed to using VDECS as described in Chapter 2.

During construction, the proposed project would be required to implement SCA-AIR-1: Dust Controls – Construction Related (#20) and SCA-AIR-2: Criteria Air Pollutant Controls – Construction Related (#21), as described above. In addition, this analysis presents the findings of a construction-related HRA for the proposed project per SCA-AIR-3: Diesel Particulate Matter Controls – Construction Related (#22). As shown in Table 5.2-3, construction emissions would exceed the cancer risk threshold without the use of Tier 4 equipment or application of SCA-AIR-3. However, as described in Chapter 2, Project Description, the project applicant has committed to the use of the most effective

18 OEHHA (Office of Environmental Health Hazard Assessment). 2015. *Air Toxics Hot Spots Program, Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments*. February 2015.

19 SCAQMD (South Coast Air Quality Management District). 2017. Risk Tool, Version 1.1. September 2017. http://www.aqmd.gov/home/permits/risk-assessment.

VDECS on all off-road diesel construction equipment (e.g., use of Tier 4 engines), which would reduce the construction-related health risk below the thresholds of significance, as shown in Table 5.2-3. The proposed project would be also required to implement SCA-AIR-4: Asbestos in Structures (#26). SCA-AIR-4 requires compliance with all applicable laws and regulations regarding demolition of asbestos containing materials.

Implementation of SCA-AIR-1, SCA-AIR-2, SCA-AIR-3, and SCA-AIR-4 would ensure that potential exposure to TACs, $PM_{2.5}$, and asbestos containing materials during construction would be minimized, with resultant exposure below the City's applicable significance thresholds for cancer and non-cancer risk, as well as $PM_{2.5}$ concentrations. Therefore, health risk impacts from project construction would not be more severe than what was identified in the BVDSP EIR.

TAC Emissions during Operations

The proposed project would include an emergency diesel generator during project operation. Testing and maintenance of the emergency generator could generate DPM and $PM_{2.5}$ emissions. This could pose health risks to nearby sensitive receptors. Since adoption of the BVDSP EIR, Mitigation Measure AIR-4 has been replaced with SCA Stationary Sources of Air Pollution (#24), which requires the project to either prepare an HRA to demonstrate that the health risks are at or below acceptable levels, or to implement health risk reduction measures on the proposed stationary source(s), including the selection of non-diesel generators or the use of diesel generators with an EPA-certified Tier 4 engine. Per this SCA, an HRA was conducted for existing sensitive receptors near the project and is discussed below; this analysis satisfies the requirements of SCA Exposure to Air Pollution – Toxic Air Contaminants (#23).

A dispersion modeling analysis was conducted for DPM emitted from the diesel emergency generator.[20] Table 5.2-4 presents cancer and noncancer health risk results for the MEIR identified near the project site.[21] The MEIR for operations would be future residents associated with the 277 27th Street project, north of the project site across 24th Street. Complete model outputs are provided in Attachment H.

As depicted in Table 5.2-4, the proposed project's stationary source potential cancer health risk, noncancer chronic, and $PM_{2.5}$ concentration would not exceed the BAAQMD thresholds. Therefore, the proposed project would result in less-than-significant health risk on nearby sensitive residential receptors.

Table 5.2-4. Diesel Emergency Generator - Operational Health Risk Results

Receptor	Cancer Risk (persons per million)[1]	Chronic Hazard Index[1]	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Maximally Exposed Individual Receptor	2.59	0.0006	<0.01
BAAQMD Significance Criteria	*10*	*1.0*	*0.3*
Exceed Threshold?	**No**	**No**	**No**

Source: Dudek, 2020 (see Attachment H).
Notes: BAAQMD = Bay Area Air Quality Management District
TAC exposure plots at receptors from the diesel emergency generator were modeled with AERMOD, which were then input into HARP2 to generate health risk estimates.

1 The maximally exposed individual receptor for annual cancer, chronic, and $PM_{2.5}$ health risk impacts would be to the north of the proposed project at 277 27th Street, Oakland, CA 94612.

20 SJVAPCD (San Joaquin Valley Air Pollution Control District). 2006. Guidance for Air Dispersion Modeling. August 2006. Accessed April 2019. http://www.valleyair.org/busind/pto/Tox_Resources/Modeling%20Guidance.pdf.

21 SCAQMD (South Coast Air Quality Management District). 2017. Risk Tool, Version 1.1. September 2017. http://www.aqmd.gov/home/permits/risk-assessment.

Cumulative TAC Emissions

In addition to a project's individual TAC emissions during operation, the BAAQMD recommends evaluating the potential cumulative health risks to sensitive receptors from existing and reasonably foreseeable future sources of TACs. The BAAQMD's online screening tools were used to provide conservative estimates of existing and foreseeable future TAC sources contribution to cancer risk, hazard index (HI), and $PM_{2.5}$ concentrations at the MEIR (future residents associated with the 277 27th Street project). The individual health risks associated with each source are summed to find the cumulative impact at the MEIR.

The potential health risk to nearby sensitive receptors from the proposed project in combination with existing and reasonably foreseeable future sources of TACs was evaluated and is summarized in Table 5.2-5. In compliance with BAAQMD methodology for cumulative health risk analysis, cumulative health risk included operational emissions of the project[22] and emissions from permitted sources,[23] such as railroads and major streets within 1,000 feet of the project site.[24] Eleven stationary sources, listed in Table 5.2-5, were identified within 1,000 feet of the MEIR. Risk associated with these stationary sources was provided by BAAQMD.

The BAAQMD recommends estimating health risk screening values for major roadways with an average annual daily traffic (AADT) volume greater than 10,000 vehicles per day. Broadway, Grand Avenue, and Harrison Street are the major roadways within 1,000 feet of the MEIR. The potential health risk of major roadway operations was provided by the BAAQMD, incorporating the annual average daily traffic for major highways using Emission Factor (EMFAC) 2014 data for the fleet mix and using OEHHA's risk-assessment methodology.[25]

In addition to the existing stationary and mobile sources within 1,000 feet of the project site, the cumulative analysis considered reasonably foreseeable future projects based on the best available information including development applications. There are six proposed developments within 1,000 feet of the project site, all of which are residential and/or commercial land uses.[26] The available information for each of these cumulative projects was reviewed to identify if any stationary sources of TACs are proposed. Based on the City's SCAs and California Building Code, emergency and standby power shall be provided in high-rise and Institutional Group I-2 buildings having occupied floors located more than 70 feet above the lowest level of fire department vehicle access. Per these criteria, each of the proposed developments within 1,000 feet of the project site may be required to include a backup emergency generator.

These future stationary sources would be subject to BAAQMD permit requirements, which would ensure that stationary sources do not exceed a cancer risk greater than 10-in-1-million or a chronic hazard index greater than 1.0 at the source of emissions. The BAAQMD Health Risk Calculator Beta Version 4.0 was used to estimate the corresponding screening-level health risk values for chronic HI and annual average $PM_{2.5}$ concentrations. As with the existing stationary sources, the health risk screening values from future potential stationary sources were refined based on the approximate distance to MEIR. In addition, reductions in TAC emissions from existing and future regulated stationary sources would be expected due to implementation of Regulation 11, Rule 18, Reduction of Risk from Air Toxic Emissions at Existing Facilities.[27]

22 The proposed project would entail the operation of a diesel emergency generator as previously discussed.
23 BAAQMD. 2020. "BAAQMD Raster Files - Cancer Risk and Diesel Particulate Matter for all Highways, Freeways, Roadways, and Railways."
24 The 1,000-foot radius from the project site is used because TACs produced at further distant locations from a particular project site do not readily combine to create concentrations that result in health risks at or near that site.
25 BAAQMD. 2020. "BAAQMD Raster Files - Cancer Risk and Diesel Particulate Matter for all Highways, Freeways, Roadways, and Railways."
26 Cumulative projects within 1,000 feet of the project site include the following: 277 27th Street (Residential), 2302 Valdez Street (Residential), 2401 Broadway (Commercial), 2424 Webster Street (Office and Retail), and 88 Grand (Residential and Retail).
27 BAAQMD. 2017. "Regulation 11, Rule 18: Reduction of Risk from Air Toxic Emissions at Existing Facilities." https://www.baaqmd.gov/rules-and-compliance/rules/regulation-11-rule-18-reduction-of-risk-from-air-toxic-emissions-at-existing-facilities.

As shown in Table 5.2-5, the cumulative cancer risk from all sources within 1,000 feet of the MEIR would be approximately 31.71 in 1 million, which would be below the City's cumulative threshold of 100 in 1 million. The cumulative hazard index from all such sources would be approximately 1.002, which is well below the significance threshold of 10.0. The cumulative $PM_{2.5}$ concentration would be approximately 0.35 micrograms per cubic meter ($\mu g/m^3$), which would be below the significance threshold of 0.8 $\mu g/m^3$. Therefore, the cumulative impact to nearby sensitive receptors from TAC emissions during operation of the project would be less than significant.

Table 5.2-5. Cumulative Health Impacts at the MEIR

Source	Distance from the MEIR (feet)	Cancer Risk (persons per million)	Chronic Impact	$PM_{2.5}$ Concentration ($\mu g/m^3$)
Proposed Project – Stationary Source				
Emergency Generator	200	2.59	0.0006	<0.01
Existing Stationary Sources[1]				
Saint Pauls Tower	835	0.02	0.00	0.00
Mach II 180 Grand LLC	771	0.62	0.001	0.001
Whole Foods Market California	516	0.00	0.00	0.00
West Lake Christian Terrace	670	0.07	0.00	0.00
VIP Auto Collision Repair	55	0.00	0.00	0.00
Mpower Communications / Telepacific	772	0.15	0.00	0.00
Verizon Wireless (Broadway & 29th)	1,000	0.00	0.00	0.00
Royal Coffee Company	700	0.01	0.00	0.01
325 27th Street/2640 Broadway	455	1.4	<0.01	<0.01
2400/2450 Valdez Street	115	6.4	<0.01	<0.01
2302 Valdez Street	368	1.8	<0.01	<0.01
Existing Mobile Source				
Broadway/Grand Avenue/Harrison Street[2]	520/700/105	6.95	0.00	0.04
Future Stationary Sources				
277 27th Street	0	10.0	1.0	0.3
2305 Webster Street	490	1.2	<0.01	<0.01
2401 Broadway	810	0.6	<0.01	<0.01
2424 Webster Street	410	1.5	<0.01	<0.01
88 Grand	970	0.4	<0.01	<0.01
Total		**31.71**	**1.002**	**0.35**
City of Oakland Cumulative Thresholds		*100*	*10.0*	*0.8*
Exceed Threshold?		**No**	**No**	**No**

Source: BAAQMD 2020. Permitted Sources Risk and Hazards Map. https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65

Notes: MEIR = maximally exposed individual receptor; DPM = diesel particulate matter; N/A = Not Applicable; $PM_{2.5}$ = fine particulate matter; $\mu g/m^3$ = micrograms per cubic meter

1 BAAQMD, 2020.

2 Provided by the BAAQMD and incorporates the annual average daily traffic for major highways using Emission Factor (EMFAC) 2014 data for the fleet mix and uses OEHHA's risk-assessment methodology

TAC Emissions Impact on Future Project Residents

Future residents of the proposed project would also be exposed to existing sources of TAC emissions within the vicinity of the proposed project. While CEQA does not require analysis of the potential health risks associated with existing environmental conditions on a project's future users or residents to be analyzed, a separate cumulative cancer risk assessment for the proposed project's future residents was performed, which would meet the requirements of SCA Exposure to Air Pollution—Toxic Air Contaminants (#23). Similar to the cumulative health risk assessment on the MEIR, existing and future sources (stationary sources and mobile) within 1,000 feet of the project site were estimated using the BAAQMD's online screening tools. Fourteen stationary sources, listed in Table 5.2-6, were identified within 1,000 feet of the project site while there are six proposed developments within 1,000 feet of the project site which may be required to include a backup emergency generator. The risk associated with the existing stationary sources was provided by BAAQMD. The six stationary sources from future development were estimated using the BAAQMD Health Risk Calculator Beta Version 4.0. In addition, the potential health risk of major roadways within proximity of the project site including Broadway, Grand Avenue, and Harrison Street, were also provided by the BAAQMD. The potential health risk to the proposed project's future residents resulting from the project stationary source (emergency generator) in combination with existing and reasonably foreseeable future sources of TACs was evaluated and is summarized in Table 5.2-6.

As shown in Table 5.2-6, the cumulative cancer risk to future project's residents from all sources within 1,000 feet of the project site would be approximately 38.52 in 1 million, which would be below the City's cumulative threshold of 100 in 1 million. The cumulative hazard index from all such sources would be approximately 1.016, which is well below the significance threshold of 10.0. The cumulative $PM_{2.5}$ concentration would be approximately 0.41 µg/m^3, which would be below the significance threshold of 0.8 µg/m^3. Therefore, cumulative health risk impacts to future project's residents would be less than significant.

Table 5.2-6. Cumulative Health Impacts at the Project Site

Source	Distance from Project Site (feet)	Cancer Risk (persons per million)	Chronic Impact	$PM_{2.5}$ Concentration (µg/m^3)
Proposed Project – Stationary Source				
Emergency Generator	N/A	0.72	0.0002	<0.01
Existing Stationary Sources[1]				
Saint Paul's Tower	505	0.04	0.00	0.00
State of California Department of Transportation	750	3.17	0.004	0.004
Mach II 180 Grand LLC	310	2.59	0.005	0.005
Whole Foods Market California	220	0.00	0.00	0.00
West Lake Christian Terrace	990	0.04	0.00	0.00
VIP Auto Collision Repair	390	0.00	0.00	0.00
Lake Merritt Management, LLC	575	2.95	0.006	0.012
Mpower Communications / Telepacific	290	0.62	0.00	0.00
Verizon Wireless (Broadway & 29th)	1,000	0.00	0.00	0.00
Royal Coffee Company	915	0.02	0.00	0.027
CIM Group/Company	832	0.52	0.001	0.02
325 27th Street/2640 Broadway	740	0.7	<0.01	<0.01

Table 5.2-6. Cumulative Health Impacts at the Project Site

Source	Distance from Project Site (feet)	Cancer Risk (persons per million)	Chronic Impact	$PM_{2.5}$ Concentration ($\mu g/m^3$)
2400/2450 Valdez Street	230	3.1	<0.01	<0.01
2302 Valdez Street	230	3.1	<0.01	<0.01
Existing Mobile Source				
Broadway/Grand Avenue/ Harrison Street[2]	820/440/10	6.95	0.00	0.04
Future Stationary Sources				
277 27th Street	65	10	1.0	0.3
2305 Webster Street	370	1.8	<0.01	<0.01
2401 Broadway	890	0.5	<0.01	<0.01
2424 Webster Street	565	1.0	<0.01	<0.01
88 Grand	725	0.7	<0.01	<0.01
Total		**38.52**	**1.016**	**0.41**
City of Oakland Cumulative Thresholds		*100*	*10.0*	*0.8*
Exceed Threshold?		**No**	**No**	**No**

Source: BAAQMD 2020. Permitted Sources Risk and Hazards Map. https://baaqmd.maps.arcgis.com/apps/webappviewer/index.html?id=2387ae674013413f987b1071715daa65

Notes: DPM = diesel particulate matter; N/A = Not Applicable; $PM_{2.5}$ = fine particulate matter; $\mu g/m^3$ = micrograms per cubic meter

1 BAAQMD, 2020.

2 Provided by the BAAQMD and incorporates the annual average daily traffic for major highways using Emission Factor (EMFAC) 2014 data for the fleet mix and uses OEHHA's risk-assessment methodology

Conclusion

The proposed project would be consistent with the findings of the BVDSP EIR and would not result in any new or more severe significant impacts related to air quality. The project would be required to implement SCA-AIR-1: Dust Controls – Construction Related (#20), SCA-AIR-2: Criteria Air Pollutant Controls – Construction Related (#21), SCA-AIR-3: DPM Controls – Construction Related (#22), and SCA-AIR-4: Asbestos in Structures (#26). Attachment A provides the full description of the applicable SCAs.

5.3 Biological Resources

Would the project:	Equal or Less Severity of Impact Previously Identified in BVDSP EIR	Substantial Increase in Severity of Previously Identified Significant Impact in EIR	New Significant Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service; Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service; Have a substantial adverse effect on federally protected wetlands or state protected wetlands, (as defined by Section 404 of the Clean Water Act) through direct removal, filling, hydrological interruption, or other means; Substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;	■	□	□
b. Fundamentally conflict with the City of Oakland Tree Protection Ordinance (Oakland Municipal Code [OMC] Chapter 12.36) by removal of protected trees under certain circumstances; or Fundamentally conflict with the City of Oakland Creek Protection Ordinance (OMC Chapter 13.16) intended to protect biological resources.	■	□	□

BVDSP EIR Findings

The BVDSP EIR identified all impacts to biological resources, including cumulative impacts, as less than significant with implementation of City SCAs.

Project Analysis

Special-Status Species, Wildlife Corridors, Riparian and Sensitive Habitat, Wetlands, Tree and Creek Protection (Criteria 5.3.a and 5.3.b)

The project site is located within a developed area in an urban setting and is fully developed with residential buildings, a commercial building, and a paved surface parking lot. As part of an Arborist Report prepared by Hort Science and Bartlett Consulting, a total of seven trees were assessed on the project site and in the vicinity. This includes five street trees near the project as follows: three trees on Waverly Street; one tree on 24th Street; and one tree on Harrison Street.[28] In addition, two off-site trees located approximately 30 feet from the project site were also assessed: a mature coast redwood (Sequoia sempervirens) located in the rear yard of the 2337 Harrison Street property (immediately south of the project site) and a London plane (Platanus x hispanica) located on Harrison Street approximately 40 feet southeast of the project site. All of these trees are considered protected trees under the City of Oakland Tree Preservation Ordinance.

The proposed project would remove four of the five trees within and near the project site: two African fern pine (Afrocarpus falcatus) street trees located along Waverly Street; one plum tree (Prunus domestica) in the rear yard of one of the residences within the project site along Waverly Street; and one bottle brush (Melaleuca citrina) street tree along 24th Street. These trees are not connected to other nearby natural habitats and would not constitute a wildlife corridor. In addition, there are no natural sensitive communities in the area. All four of these trees are planned for removal because they are within the proposed development or would impact utilities. The proposed project would plant 14 new trees along Waverly, 24th, and Harrison streets. Additionally, there would be streetscape plantings along 24th Street and within the proposed public plaza. These plantings would be native or adapted species and would be irrigated in compliance with CalGreen water saving measures. The proposed project would be required to implement SCA-BIO-1: Tree Removal during Bird Breeding Season (#29) and SCA-BIO-2: Tree Permit (#30). Additionally, SCA-BIO-3: Bird Collision Reduction Measure (#28) would be implemented due to the project's proximity to Glen Echo Creek, which is contiguous with Lake Merritt. Implementation of these SCAs would reduce potential project's impact to biological resources to a less-than-significant level.

Conclusion

The proposed project would be consistent with the findings of the BVDSP EIR and would not result in any new or more severe significant impacts related to special-status species, wildlife corridors, riparian and sensitive habitat, wetlands, and tree and creek protection than those identified in the BVDSP EIR. The BVDSP EIR did not identify any mitigation measures related to biological resources, and none would be needed for the implementation of the project. The project would be required to implement SCA-BIO-1: Tree Removal during Bird Breeding Season (#29), SCA-BIO-2: Tree Permit (#30), and SCA-BIO-3: Bird Collision Reduction Measures (#28). Please see Attachment A for a full description of the applicable SCAs.

[28] Hort Science and Bartlett Consulting. 2020. *Arborist Report*. May 14, 2020.

5.4 Cultural Resources

Would the project:	Equal or Less Severity of Impact Previously Identified in BVDSP EIR	Substantial Increase in Severity of Previously Identified Significant Impact in EIR	New Significant Impact
a. Cause a substantial adverse change in the significance of an historical resource as defined in CEQA Guidelines Section 15064.5. Specifically, a substantial adverse change includes 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 an 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 on, or eligibility for inclusion on an historical resource list (including the California Register of Historical Resources, the National Register of Historic Places, Local Register, or historical resources survey form (DPR Form 523) with a rating of 1-5).	■	□	□
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5;	■	□	□
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or	■	□	□
d. Disturb any human remains, including those interred outside of formal cemeteries.	■	□	□

BVDSP EIR Findings

The BVDSP EIR found that development under the BVDSP could result in the physical demolition, destruction, relocation, or alteration of historical resources that are listed in or may be eligible for listing in the federal, state, or local registers of historical resources, which would be considered a significant impact. The BVDSP EIR determined that if demolition or substantial alteration of historically significant resources is identified by the City as the only feasible option for development in the Plan area, impacts would be significant and unavoidable. Further, the BVDSP EIR determined that significant cumulative impacts on historical resources could result from development under Specific Plan.

No known archeological or paleontological resources were identified in the BVDSP EIR. The EIR found that implementation of the City's SCAs pertaining to archeological resources, paleontological resources, and human remains would minimize the risk of impacts to a less-than-significant level.

Project Analysis

Historical Resources (Criterion 5.4.a)

The proposed project is located in the Waverly Street Residential District ASI as identified by the OCHS, which generally extends from Valdez Street to the middle of the block between Waverly and Harrison streets (the project site boundary) and along Waverly Street to 23rd Street. As described in the BVDSP Final Historic Resources Inventory Report, the Waverly Street Residential District ASI is a turn-of-the-century residential district of approximately 19 buildings on 21 assessor's parcels, predominantly consisting of Colonial Revival and Craftsman-style residential buildings. Buildings within this district date from the 1880s to the 1920s, with the majority of the buildings constructed between 1900 and 1910.[29] The Waverly Street Residential District ASI is not considered historic under CEQA.

As shown in Table 5.4-1 below, the project site is comprised of eight parcels, three of which are a surface parking lot. The remaining five parcels contain buildings that are 45 years old or older and have been evaluated under the OCHS criteria. None of the buildings have been designated as an individual local landmark or have received a rating that qualifies it to be a CEQA historical resource. Because none of the existing buildings or structures within the project site are considered CEQA historical resources individually or as part of a historic district, the proposed project would not directly impact historic resources. Although the properties on the project site are not considered historic resources under CEQA, they are PDHPs and SCA-CUL-3: Property Relocation (#35), which requires the project applicant to make a good faith effort to make the PDHP buildings available for relocation to a site acceptable to the City, would apply to the proposed project.

In addition, there are several properties in the vicinity of the project site that are PDHPs, including two immediately adjacent to the south, 2338 Waverly Street and 2337 Harrison Street (see Table 5.4-1); these properties are not considered historic resources.

Also as shown in Table 5.4-1 below, there are several properties considered historic resources within the vicinity of the project, although none are immediately adjacent to the project site:

- 2501 Harrison Street (First Congregational Church of Oakland), north along 27th Street
- 2333 Harrison Street (Seventh Church of Christ Scientist), south on Harrison Street
- 2332 Harrison Street (YWCA Blue Triangle Club/Lake Merritt Lodge), south across Harrison Street
- 230 Bay Place (Whole Foods Market), northeast across Bay Place
- 2346 Valdez Street (Newsom Apartments), west along 24th Street

The building at 2333 Harrison Street is the only CEQA historic resource identified on the same block as the project site and the building is not directly adjacent to the project site (it is separated by one parcel, 2337 Harrison Street). This building listed in the Local Register of Historic Resources and is a low-lying, single story wood frame Arts and Crafts bungalow church constructed in 1915. The building is significant for its Arts and Crafts style architecture and for its association with a locally significant architect, William Arthur Newman.[30]

[29] City of Oakland. 2009. *Broadway Valdez District Specific Plan Final Historic Resources Inventory Report*. Prepared by ESA.
[30] City of Oakland. 2009. *Broadway Valdez District Specific Plan Final Historic Resources Inventory Report.* Prepared by ESA.

Table 5.4-1. OCHS Ratings for Project Site and Adjacent/Surrounding Buildings

Address	Assessor Parcel Number	Approximate Lot Area (sf)	Existing Uses/ Structures (Year Constructed)	Historic Preservation Designation	Oakland Cultural Heritage Survey Rating	Historical Resource Under CEQA?
Project Site						
2359 Harrison Street	008 067000400	11,151	Commercial (former automotive service shop) building (1931-1932)	PDHP	Dc3	No
261 24th Street[1]	008 067000300	3,900	Residential apartment building (1912-1913)	PDHP	C2+	No
265 24th Street[1]	008 067000200	4,410	Residential Duplex (1908)	PDHP	C2+	No
271 24th Street[1]	008 067000100	3,700	Surface parking lot	-	-	No
2350 Waverly Street[1]	008 067001700	4,500	Surface parking lot	-[2]	-[2]	No
2356 Waverly Street[1]	008 067001800	3,600	Surface parking lot	-	-	No
2342 Waverly Street[1]	008 067001500	3,000	Single-family residence (1907-1908)	PDHP	C2+	No
2346 Waverly Street[1]	008 067001600	3,700	Residential duplex (1908)	PDHP	C2+	No
Adjacent and Surrounding Properties						
2338 Waverly (immediately adjacent)[1]	008 067001400	3,250	Residential Duplex (1908)	PDHP	C2+	No
2337 Harrison Street (immediately adjacent)	008 067000500	12,326	Residential apartment building (1917)	PDHP	C3	No
2501 Harrison Street (First Congregational Church of Oakland)	**010 079800203**	**80,586**	**Church (1925)**	**Local Register of Historic Resources**	**A3**	**Yes**
2333 Harrison Street (Seventh Church of Christ Scientist)	**008 067000600**	**12,375**	**Office Building (1915-1918)**	**Local Register of Historic Resources**	**A3**	**Yes**

Table 5.4-1. OCHS Ratings for Project Site and Adjacent/Surrounding Buildings

Address	Assessor Parcel Number	Approximate Lot Area (sf)	Existing Uses/ Structures (Year Constructed)	Historic Preservation Designation	Oakland Cultural Heritage Survey Rating	Historical Resource Under CEQA?
2332 Harrison Street (YWCA Blue Triangle Club/Lake Merritt Lodge)	**010 076800500**	**13,300**	**Fraternities and sororities (1925-1926)**	**Local Register of Historic Resources**	**A3**	**Yes**
2338 Harrison Street	008 067001400	3,250	Residential Duplex (1908)	PDHP	C2+	No
2350 Harrison Street	010 076800100	6,786	One-story Commercial Store	-	F3	No
230 Bay Place (Whole Foods Market)	**010 079502701**	**94,961**	**Supermarket (1925)**	**Local Register of Historic Resources**	**B+3**	**Yes**
2346 Valdez Street (Newsom Apartments)[1]	**008 066900100**	**5,950**	**Multi-residential (1909-1910)**	**Local Register of Historic Resources**	**B+2+**	**Yes**
315 24th Street[1]	008 066900403	5,000	Residential Property of 4 Units (1925)	PDHP	C2+	No
2353 Waverly Street[1]	008 066900500	3,000	Single Family Residential Home (1907)	PDHP	C2+	No
2349 Waverly Street[1]	008 066900600	3,000	Single Family Residential Home (1890)	PDHP	C2+	No
2345 Waverly Street[1]	008 066900700	6,250	Office Building (1908-1909)	PDHP	C2+	No
2343 Waverly Street[1]	008 066900800	6,250	Fourplex or Triplex (1905-1906)	PDHP	C2+	No

Source: City of Oakland Planning and Zoning Map, 2020. oakgis.maps.arcgis.com.
Notes: **Bold** = CEQA historic resource; - = Not applicable
1 Within the Waverly Street Residential District ASI.
2 No building remains on the site yet City notes construction date 1870c., PDHP, C2+.
A: Highest Importance: Outstanding architectural example or extreme historical importance.
B: Major Importance: Especially fine architectural example, major historical importance.
C: Secondary Importance: Superior or visually important example, or very early (pre-1906). Cs warrant limited recognition.
D: Minor Importance: Representative example.
Contingency Ratings (lower-case letter, as in "Dc" or "Fb"): potential rating under some condition, such as "if restored" or "when older" or "with more information."
2: In an Area of Secondary Importance (ASI) or district of local interest.
3: Not in a historic district.
For properties in districts, + indicates contributors.

As described in Section 5.10, Noise, given the distance of the buildings at 2332 and 2333 Harrison Street and 2346 Valdez to the project site, vibration during construction activities is not anticipated to exceed the criteria established by the Federal Transit Administration (FTA) and would not damage these structures or substantially

interfere with activities at these historic resources. However, the proposed project would still be required to implement SCA-NOI-7: Vibration Impacts on Adjacent Historic Structures or Vibration-Sensitive Activities (#69) to address potential vibration impacts to adjacent sensitive structures (2338 Waverly Street and 2337 Harrison Street).

The proposed project would not directly or indirectly affect any of the historic resources in the project vicinity. As described in Section 5.1, Aesthetics, Shadow, and Wind, the proposed project would not create shadows that would materially impair these resources. For the reasons described above, the proposed project would not significantly impact any historic resources.

Archaeological and Paleontological Resources and Human Remains (Criteria 5.4.b, 5.4.c, and 5.4.d)

The proposed project would entail excavation to a depth of approximately 10 feet below grade. The proposed building may be supported on a mat foundation on soil improved by installing drilled displacement columns that would extend into the underlying dense sand to depths of about 30 to 40 feet below existing grade (up to approximately 35 feet below the mat foundation). The project site appears to be underlain by 2 to 6 feet of heterogeneous fill that consists of alternating layers of loose to medium dense sand and medium stiff to very stiff clay. Below this fill, marsh deposits were encountered at about 20 to 24 feet below ground. The project site is mapped in a zone of historic artificial fill.[31] Soils generally below the fill layer may have potential for unknown archaeological or paleontological resources. The City's SCAs related to archaeological and paleontological resources and human remains would apply to the project and reduce any potential impacts to a less-than-significant level. The project would be required to implement the following SCAs: SCA-CUL-1: Archaeological and Paleontological Resources – Discovery During Construction (#32) and SCA-CUL-2: Human Remains – Discovery During Construction (#34). Implementing these SCAs would minimize potential adverse effects that could result from implementation of the project. Therefore, together with the impacts of previous and future development in the vicinity (which would also be subject to the City's SCAs), the project would have a less-than-significant impact to unknown archaeological or paleontological resources.

Conclusion

The proposed project would be consistent with the findings of BVDSP EIR and would not result in any new or more severe significant impacts related to historical resources or archaeological and paleontological resources than those identified in the BVDSP EIR. The proposed project would be required to implement the City's SCAs related to archaeological and paleontological resources and human remains, which are SCA-CUL-1: Archaeological and Paleontological Resources – Discovery During Construction (#32) and SCA-CUL-2: Human Remains – Discovery During Construction (#34). In addition, proposed project would be required to implement the SCA-CUL-3: Property Relocation (#35), related to making a good faith effort to relocate PDHP properties to a site acceptable to the City. Attachment A provides the full description of the applicable SCAs.

[31] Rockridge Geotechnical. 2019. *Preliminary Geotechnical Report 24th & Masri*.

5.5 Geology, Soils, and Geohazards

Would the project:	Equal or Less Severity of Impact Previously Identified in BVDSP EIR	Substantial Increase in Severity of Previously Identified Significant Impact in EIR	New Significant Impact
a. 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; • Strong seismic ground shaking; • Seismic-related ground failure, including liquefaction, lateral spreading, subsidence, collapse; or • Landslides;	■	□	□
b. Be located on expansive soil, as defined in Section 1802.3.2 of the California Building Code (2007, as it may be revised), creating substantial risks to life or property; result in substantial soil erosion or loss of topsoil, creating substantial risks to life, property, or creeks/waterways.	■	□	□

BVDSP EIR Findings

The BVDSP EIR found that all impacts, including cumulative impacts, related to geology, soils, and geohazards resulting from development under the BVDSP would be mitigated to a less-than-significant level through compliance with local and state regulations governing design and construction practices, such as the Seismic Hazards Mapping Act (in liquefaction hazard zones), the California Building Code (CBC), and implementation of SCAs that require the preparation of soils and geotechnical reports specifying generally accepted and appropriate engineering techniques. The BVDSP EIR identified no impacts related to substantial soil erosion or loss of topsoil, because the Plan Area is in a developed urban area that is paved or landscaped and served by a storm drain system. Additionally, implementation of City SCAs and compliance with the regulations of the NPDES would minimize erosion and sedimentation.

Project Analysis

Exposure to Risk of Loss, Injury, or Death Involving Fault Rupture, Seismic-Related Shaking, Liquefaction, Lateral Spreading, Subsidence, or Collapse, or Landslides (Criterion 5.5.a)

The project site is not located within or adjacent to an Alquist-Priolo Earthquake Fault Zone.[32] Therefore, the project would not result in significant impacts with respect to rupture of a known earthquake fault. However, the project site is in a seismically active region, and the nearest active fault is the Hayward Fault, which is located approximately 3 miles northeast of the project site.[33] The project site has a 10% chance of experiencing violent shaking (Modified Mercalli Intensity 9) over the next 50 years.[34] The Modified Mercalli Intensity scale measures the intensity of the effect of an earthquake based on effects actually experienced, including structural damage. The proposed project would be required to conform with, or exceed, current best standards for earthquake resistant construction in accordance with the 2019 CBC and with the generally accepted standards of geotechnical practice for seismic design in Northern California. The risk of ground shaking impacts would be reduced through adherence to the design and materials standards set forth in the 2019 CBC.

The project site is not within a liquefaction hazard zone or earthquake-induced landslides hazard zone, as designated on a map prepared by the California Geological Survey.[35] The preliminary geotechnical evaluation prepared for the project concludes that there are potentially liquefiable soil layers underlying the site, primarily within the loose to medium dense sands within the fill/upper marsh deposits, and zones of medium dense sand layer at a depth of about 30 feet below ground surface (bgs).[36] Because of this potentially liquefiable soil, there is potential for lurch cracking and/or development of sand boils.[37, 38] Based on the relatively flat topography of the project site and surrounding area, landslides would not pose a risk to the project.

Consistent with the recommendations of the preliminary geotechnical evaluation, the proposed building would be constructed on a mat foundation supported by soil improved by installing drilled displacement columns into the underlying dense sand approximately 30 to 40 feet below existing grade (approximately 35 feet below the mat foundation).

Prior to approval of construction-related permits, the proposed project would be required to comply with SCA-GEO-1: Construction-Related Permit(s) (#36), which would require compliance with all standards, requirements and conditions contained in construction–related codes, including but not limited to the Oakland Buildings and Construction Code (Title 15) and the Oakland Grading Regulations, to ensure structural integrity and safe construction. The project would also be required to comply with SCA-GEO-2: Soils Report (#37), which would require the proposed project to implement the recommendations of a soils report prepared by a registered geotechnical engineer. The soils report must contain, at a minimum, field test results and observations regarding the nature, distribution and strength of existing soils, and recommendations for appropriate grading practices and project design. Compliance with the 2019 CBC and applicable SCAs would reduce the impact related to seismic-related shaking, liquefaction, settlement, lateral spreading, subsidence, or collapse to a less-than-significant level.

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32 CGS (California Geological Survey). 1982. "Earthquake Fault Zones, Oakland West Quadrangle." Released January 1.
33 CGS. 2010. "Fault Activity Map of California (2010)." Accessed May 21, 2020. http://maps.conservation.ca.gov/cgs/fam/.
34 MTC (Metropolitan Transportation Commission). 2018. "Probabilistic Seismic Hazard Assessment Map." Accessed May 21, 2020. https://mtc.maps.arcgis.com/home/item.html?id=c3a21989363b484ca6f9c0730e14d9f6.
35 California Geological Survey (CGS). 2003. "Seismic Hazard Zones, Oakland West Quadrangle Official Map." February 14, 2003.
36 Rockridge Geotechnical. 2019. *Preliminary Geotechnical Report 24th & Masri.*
37 Lurch is sudden or uncontrolled movement or series or movements.
38 A sand boil is sand and water that come out onto the ground surface during an earthquake as a result of liquefaction at shallow depth.

Expansive Soil, Erosion or Loss of Topsoil, Creating Substantial Risks to Life, Property, or Creeks/Waterways. (Criterion 5.5.b)

According to the Natural Resources Conservation Service (NRCS), the project site soil is entirely Urban land-Danville complex, which has a moderate shrink-swell potential. Based on the preliminary geotechnical investigations, the project site is embedded within 2 to 6 feet of heterogeneous fill with interbedded layers of loose to medium dense sand and medium stiff to very stiff clay and variable amounts of sand and gravel.[39] Marsh deposits are present at depths between about 21 and 27 feet bgs consisting of very soft to medium stiff clay and sandy clay with thin layers of loose sand and varying organic content. Temescal formation is present under the marsh deposits and at depths of 32 to 46 feet bgs. The formation consists of medium dense to dense sands and gravels with varying fines content interbedded with medium stiff to stiff clay with varying sand content. The Temescal formation is underlain by the San Antonio formation, which extends to depths of approximately 92 and 82 feet bgs. This unit consists of very stiff to hard clays with varying sand content and a layer of dense to very dense sand up to 20 feet thick. The San Antonio formation is underlain by the Alameda formation to the maximum depth of 100 feet bgs explored during the preliminary site investigations. This unit generally consists of very stiff to hard clays with varying sand content and hard silt.

The proposed project would comply with the SCA-GEO-2, which would require a site-specific design-level geotechnical investigation to evaluate soil expansiveness and a geohazard report that provides recommendations on foundation type and design criteria. If the soil report (as required by SCA-GEO-2) identifies expansive soils beneath the project site, implementation of the recommendations in the soil report would ensure that potential hazards associated with expansive soils would be reduced to a less-than-significant level through appropriate foundation design.

The proposed project would require excavation of approximately 14,053 cubic yards of soils for the foundation. Projects within the City that propose to excavate more than 500 cubic yards of soil are required to obtain a grading permit. Because the proposed project would require a grading permit, it would be required to comply with SCA-HYD-1: Erosion and Sedimentation Control Plan for Construction (#48), which includes implementation of an Erosion and Sedimentation Control Plan to minimize erosion and loss of top soil during construction. Following the completion of construction, there would be no exposed soil on the project site which could be subject to erosion. Therefore, the proposed project would not result in significant impacts with respect to substantial soil erosion or loss of topsoil.

Conclusion

The proposed project would be consistent with the findings of BVDSP EIR and would not result in any new or more severe significant impacts related to geology, soils, and geohazards than those identified in the BVDSP EIR. Implementation of SCA-GEO-1: Construction-Related Permit(s) (#36), SCA-GEO-2: Soils Report (#37), and SCA-HYD-1: Erosion and Sedimentation Control Plan for Construction (#48) would ensure impacts associated with geology, soils, and geohazards would be less than significant. Attachment A provides the full description of the applicable SCAs.

[39] Rockridge Geotechnical. 2019. *Preliminary Geotechnical Report 24th & Masri*.

5.6 Greenhouse Gas and Climate Change

Would the project:	Equal or Less Severity of Impact Previously Identified in BVDSP EIR	Substantial Increase in Severity of Previously Identified Significant Impact in EIR	New Significant Impact
a. Generate greenhouse gas 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_2 equivalent (MT CO_2e) annually. 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. 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 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.	■	□	□
b. Fundamentally conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing greenhouse gas emissions.	■	□	□

BVDSP EIR Findings

The BVDSP EIR evaluated impacts related to greenhouse gas (GHG) emissions associated with the construction and operation of development anticipated to occur under the BVDSP. The loss of vegetation, construction activities, and the use of motor vehicle, water, gas, and electricity were identified as sources contributing to the generation of GHG emissions in the Plan Area. Future projects and development implemented under the BVDSP are required to be consistent with the City of Oakland's Energy and Climate Action Plan (ECAP), and with the City's SCAs that would reduce GHG emissions during construction and operation of projects. Even with implementation of SCAs, the BVDSP EIR determined that impacts related to GHG emissions would conservatively remain significant and unavoidable.

The BVDSP EIR also determined that development under the BVDSP would not conflict with any applicable plan, policy or regulation adopted with the intent to reduce GHG emissions. Therefore, the BVDSP EIR determined that the impact related to consistency with applicable plans, policies or regulations to reduce GHG emissions would be less than significant.

Updated Regulatory Setting and Significance Criteria

The BVDSP EIR used applicable City of Oakland thresholds of significance criteria based on thresholds provided by the BAAQMD. BAAQMD has adopted and incorporated GHG thresholds of significance into their CEQA Guidelines to assist lead agencies in evaluating and mitigating air quality impacts under CEQA. The BAAQMD's GHG thresholds were developed to evaluate stationary sources and whether land-use sector projects would comply with the statewide 2020 GHG reduction goal under Assembly Bill (AB) 32 to reduce GHG emissions to 1990 levels. The scientific soundness of the thresholds is supported by substantial evidence presented in the BAAQMD's Revised Draft Options and Justification Report. In September 2016, Senate Bill (SB) 32 was signed into law to expand upon AB 32 to require the State to reduce GHG emissions to at least 40 percent below 1990 levels by 2030. The BVDSP EIR included an analysis of GHG emissions using the BAAQMD then-current May 2011 CEQA Guidelines. While BAAQMD has since updated its CEQA Guidelines – the latest was issued in May 2017 – there have been no changes to the BAAQMD thresholds applicable to the project.

The City ECAP was adopted on December 4, 2012, as an environmental policy to address the issues of climate change and energy consumption. The ECAP outlined a 10-year action plan to enable Oakland to achieve a 36% reduction in GHG emissions from 2005 levels. The BVDSP EIR found that adoption and development under the BVDSP would not conflict with the ECAP. The ECAP, now the Equitable Climate Action Plan, was updated to reflect the City's updated reduction target of 56% under 2005 levels by 2030 and was adopted on July 28, 2020, and the City has subsequently adopted a new qualitative GHG threshold evaluating a project's consistency with the new ECAP. This threshold will replace the City's quantitative GHG threshold. Since GHG issues were known or could have been known when the BVDSP EIR was being prepared, revised thresholds or guidelines are not legally "new information" as specifically defined under CEQA. Therefore, consistent with requirements for analysis of a project in an addendum under CEQA, the impact discussion below is focused on whether the impact to the environment – being the resultant amount of GHG emissions – would be greater than from the project in the BVDSP EIR.

Project Analysis

Greenhouse Gas Emissions Generation (Criteria 5.6.a)

As noted in the BVDSP EIR, project construction and operation of development consistent with the BVDSP would generate GHG emissions. Although the BVDSP EIR found that impacts related to GHG emissions resulting from full buildout under the plan would be above the City's thresholds, the proposed project would be below the efficiency threshold applicable at the time: 4.6 metric tons of CO_2e per service population. Therefore, the GHG impacts from the project would be of less severity than those identified in the BVDSP EIR. The BAAQMD recommends using the most current version of CalEEMod (version 2016.3.2) to estimate construction and operation emissions for a land use project. CalEEMod uses widely accepted models for emission 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., emission factors) are supported by substantial evidence provided by regulatory agencies and a combination of statewide and regional surveys of existing land uses and resources. CalEEMod input parameters and assumptions discussed in Section 5.2, Air Quality, are used to quantify criteria air pollutants during construction and are similar to those used to assess GHG emissions. Additional project-specific information used to calculate GHG emissions in CalEEMod, including changes to default data, is detailed in Attachment H.

GHG Emissions Analysis

GHG emissions of the proposed project during construction would be primarily associated with use of off-road construction equipment, vendor and haul trucks, and worker vehicles. In accordance with the City of Oakland'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. The estimated project generated GHG emissions from construction activities are shown in Table 5.6-1.[40]

As shown in Table 5.6-1, the estimated total GHG emissions during construction would be approximately 669 MT CO_2e over the 27-month construction period. Estimated project-generated construction emissions amortized over 40 years would be approximately 17 metric tons (MT) CO_2e per year.

Table 5.6-1. Estimated Annual Construction Greenhouse Gas Emissions

Construction Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2021	155.65	0.03	0.00	156.41
2022	316.35	0.05	0.00	317.52
2023	194.11	0.03	0.00	194.79
			Total	**668.72**
			Amortized construction emissions	*16.72*

Source: Dudek, 2020 (see Attachment H).
Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.
CO_2e emissions were amortized based on 40-year development life assumed for the project. Total emissions may not sum due to rounding.

Operation of the proposed project would generate GHG emissions through mobile sources; landscape maintenance equipment operation; energy use (natural gas and generation of electricity consumed by the project); solid waste disposal; generation of electricity associated with water supply, treatment and distribution, wastewater treatment, and testing of the emergency generator for maintenance.[41]

SB 375 amended CEQA to add Chapter 4.2 (Section 21155) Implementation of the Sustainable Communities Strategy, which allows a CEQA exemption for sustainable community projects, as well as streamlined CEQA analyses for Transit Priority Projects and certain residential or mixed-use projects. If a project meets the requirements of a transit priority project, its automobile and light duty truck source emissions are not required to be included in the assessment of GHG impacts.[42]

[40] The project evaluated in this analysis is larger than the proposed project and therefore provides a very conservative evaluation of the project's impacts. This GHG analysis assumed 343 residential units and 15,000 square feet of commercial uses.

[41] The project evaluated in this analysis was assumed to include natural gas plumbing for heating and cooking purposes, and therefore, provides a conservative evaluation of the project's greenhouse gas impacts. On December 15, 2020, the Oakland City Council adopted an ordinance that added to the Oakland Municipal Code Chapter 15.37, "All-Electric Construction In Newly Constructed Buildings." These new regulations require all newly constructed buildings to meet the definition of an All-Electric Building, as defined therein. As a result, the proposed project will be required to be designed to use a permanent supply of electricity as the source of energy for all space heating, water heating, cooking appliances, and clothes drying appliances, and will be prohibited from having natural gas or propane plumbing installed in the building. Designing the building to use a permanent supply of electricity will reduce the estimated annual operational greenhouse gas emissions from energy emission sources of the project.

[42] A Transit Priority Project is eligible for four types of CEQA relief: (1) sustainable community project CEQA exemption; or (2) sustainable communities environmental assessment, or (3) a streamlined EIR, or (4) traffic mitigation measures. Different types of CEQA relief are associated with different criteria that are to be met.

The proposed project meets the requirements of Transit Priority Projects as it is over 56% residential based on area, contains 384 dwelling units per acre, and is within 0.5 miles of several bus routes, including AC Transit's trunk lines 6, 51A, and 72/72M/72R, as well as local buses, night buses, Transbay buses, and the "Free B" (Oakland's free downtown circulator shuttle). As such, the project meets the definition of a mixed-use residential project per Public Resources Code Section 21159.28(d). Therefore, the GHG emissions presented in Table 5.6-2 excludes light duty mobile source emissions.

The estimated operational project generated GHG emissions are shown in Table 5.6-2. The average annual CO_2e emissions per service population was determined based on the forecasted population of residents and employees.

Table 5.6-2. Estimated Annual Operational Greenhouse Gas Emissions

Emission Source	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Area	4.17	<0.01[a]	0.00	4.27
Energy	358.85	0.01	<0.01[a]	360.59
Mobile[b]	126.95	<0.01[a]	0.00	127.07
Solid Waste	17.61	1.04	0.00	43.63
Water Supply and Wastewater	19.99	0.02	0.01	24.92
Total Operational GHGs				**560.48**
Amortized Construction GHGs (see Table 5-6.1)				16.72
Operation and Amortized Construction Total				***577.20***
BAAQMD GHG Threshold				*1,100*
Exceeds Threshold?				**No**
Proposed Project GHG Efficiency (Service Population[c] Divided by Total GHG Emissions)				0.8
BAAQMD per Service Population GHG Threshold				*4.6*
Exceeds Threshold?				**No**

Source: Dudek, 2020 (see Attachment H).
Notes: GHG = greenhouse gas; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.
The project evaluated in this analysis is larger than the proposed project and therefore provides a very conservative evaluation of the project's impacts. Therefore, the employees and residents described below are correspondingly greater than those that would be associated with the proposed project. In addition, it is unlikely that the proposed project would consume natural gas (as noted in the footnote above, the City's recent municipal code update restricts the use of natural gas); however, the analysis here is more conservative as it assumes use of natural gas. These emissions reflect an operational year of 2024 for the proposed project.

[a] <0.01 = value less than reported 0.01 metric tons per year

[b] In accordance with SB 375 CEQA streamlining provisions, GHG emissions during operation exclude vehicle trips from cars and light-duty trucks.

[c] 45 employees + 720 residents = 765 persons; 577.20 MT CO_2e ÷ 765 persons = 0.8 MT CO_2e per service population

Amortized construction and operational emissions are estimated to be 577 MT CO_2e per year, which would be below the BAAQMD GHG threshold of 1,100 MT CO_2e per year. In addition, these estimated annual GHG emissions divided by the service population would be 0.8 MT CO_2e per service population per year. As such, annual operational GHG

To qualify as a Transit Priority Project, a project must be consistent with the general use designation, density, building intensity and applicable policies in a sustainable communities strategy accepted by CARB. The Transit Priority Project must also meet the following criteria:

- Be at least 50 percent residential use based on area;
- Contain at least 20 dwelling units per acre;
- Have a floor area ratio for the commercial portion of the project at 0.75 if the project contains between 26 percent and 50 percent nonresidential uses; and
- Be within 0.5 mile of a major transit stop or high-quality transit corridor included in the Regional Transportation Plan.

emissions with amortized construction emissions would not exceed the BAAQMD service population threshold of 4.6 MT CO_2e per service population per year.

The proposed project would include an emergency generator. It was assumed the diesel generator would be 268-horsepower and would be used for non-emergency operation up to 50 hours per year (for routine testing and maintenance). The emergency generator would result in approximately 5.12 MT CO_2e which would be below the City's threshold of 10,000 MT CO_2e per year for stationary sources. Therefore, the proposed project's GHG contribution would not be cumulatively considerable. As such, project's impact associated with GHG emissions would be less than significant.

Overall, operation of the proposed project would not substantially increase the severity of significant impacts identified in the previous BVDSP EIR, nor would it result in new significant impact related to GHG emissions that was not identified in the previous BVDSP EIR.

Greenhouse Gas Reduction Plan Consistency (Criteria 5.6.b)

The City's GHG quantitative thresholds were designed to ensure compliance with the State's AB 32 GHG reduction goals, as set forth in the California Air Resources Board's Climate Change Scoping Plan. Since the GHG emissions from the project would be below the City's thresholds of significance (Table V.F-3 and V.F-4), it can be assumed that the project is consistent, and not in fundamental conflict, with the AB 32 Scoping Plan. Moreover, because the project will be constructed with land uses at a density and intensity that meets or exceeds Plan Bay Area recommendations, the project furthers, and is not in conflict with, Plan Bay Area's GHG reduction targets.

In December 2012, the City adopted the ECAP. The purpose of the ECAP is to identify and prioritize actions the City can take to reduce its energy consumption and GHG emissions. The ECAP outlines a 10-year plan including more than 150 actions that will enable the City to achieve a 36% reduction in GHG emissions below the 2005 level by 2020.[43] These measures support implementation of the green planning policies in the City of Oakland's General Plan by promoting energy efficiency and minimizing vehicle emissions. The ECAP, now the Equitable Climate Action Plan, was updated to reflect the City's updated reduction target of 56% under 2005 levels by 2030 and was adopted on July 28, 2020.Consistent with existing ECAP measures, the proposed project would be required to comply with the City's Green Building Ordinance and SCAs (described further below), which support the goals, policies, and actions of the ECAP and General Plan. Therefore, the proposed project would not hinder, the GHG reduction goals set forth in the ECAP and the green planning policies of the General Plan.

The proposed project is required to determine if a GHG Reduction Plan is required in accordance with the City's SCA GHG Reduction Plan (#41). The proposed project would not exceed the BAAQMD significance threshold of 4.6 MT CO_2e per service population per year and the City's threshold of 10,000 MT CO_2e per year for stationary sources, and is not considered a "Very Large Project." Therefore, the proposed project would not be required to implement a GHG Reduction Plan.

Conclusion

The proposed project would be consistent with the findings of BVDSP EIR and would not result in any new or more severe significant impacts related GHG emissions or consistency with GHG emissions policies than those identified in the BVDSP EIR. Implementation of SCA-UTIL-4: Construction and Demolition Waste Reduction and Recycling (#81), SCA-UTIL-6: Green Building Requirements (#84), SCA-TRANS-4: Transportation and Parking Demand

[43] City of Oakland. 2018. *City of Oakland Energy and Climate Action Plan*. Updated March 2018. https://cao-94612.s3.amazonaws.com/documents/oak069942.pdf.

Management (#77), and SCA-TRANS-6: Plug-in Electric Vehicle (PEV) Charging Infrastructure (#80) would ensure impacts to GHG and climate change would be less than significant. Attachment A provides the full description of the applicable SCAs.

5.7 Hazards and Hazardous Materials

Would the project:	Equal or Less Severity of Impact Previously Identified in BVDSP EIR	Substantial Increase in Severity of Previously Identified Significant Impact in EIR	New Significant Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; 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; Create a significant hazard to the public through the storage or use of acutely hazardous materials near sensitive receptors; Be located on a site which 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, would create a significant hazard to the public or the environment;	■	□	□
b. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼-mile of an existing or proposed school;	■	□	□
c. 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; or Fundamentally impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	■	□	□

BVDSP EIR Findings

The BVDSP EIR found that impacts, including cumulative impacts, related to hazardous material usage, exposure to hazardous materials, hazardous materials near schools, and emergency access routes would be less than significant with implementation of applicable City SCAs and compliance with applicable regulations.

Project Analysis

Hazardous Materials Use, Storage and Disposal and Hazardous Building Materials (Criterion 5.7.a)

Construction of the proposed project would involve demolition of the vacant residential and commercial structures and the surface parking lot on the project site; these structures may contain hazardous building materials including lead-based paint, asbestos-containing materials (ACMs), and polychlorinated biphenyls (PCBs) containing materials and equipment. If not appropriately removed and disposed of, these hazardous materials could be released into the environment, which may adversely affect construction workers, the public, and/or the environment.

The proposed project would be required to comply with SCA-HAZ-1: Hazardous Building Materials and Site Contamination (#43), which would require the preparation of a Hazardous Building Materials Assessment to identify potential hazardous materials in the existing buildings, including any lead-based paint, ACMs, lead-based paint, PCBs containing light ballasts, and mercury containing fluorescent lights. The assessment would be submitted to the City for review. If hazardous materials are identified in the existing buildings, the project applicant would be required to submit specifications 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. SCA-HAZ-1 would require the project applicant to 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.

In addition, the proposed project would be required to comply with SCA-AIR-4: Asbestos in Structures (#26), which would require the project applicant to comply with all applicable laws and regulations regarding demolition and renovation of ACMs, 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 BAAQMD Regulation 11, Rule 2, as may be amended. SCA-AIR-4 requires evidence of compliance to be submitted to the City upon request. Furthermore, consistent with the BVDSP EIR, during demolition, the proposed 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.

Construction of the proposed project would involve the use and transport of hazardous materials. These materials could include fuels, oils, paints and other chemicals used during construction activities. Handling and transportation of hazardous materials could result in accidental releases or spills and associated health risks to workers, the public, and environment. The proposed project would be required to comply with SCA-HAZ-2: Hazardous Materials Related to Construction (#42). Implementation of SCA-HAZ-2 would require implementation of Best Management Practices (BMPs) by the contractor during construction to minimize potential negative effects on groundwater, soils, and human health which could occur as a result of hazardous materials handling and storage.

Operation of the proposed project would not involve the use, storage, or disposal of substantial quantities of hazardous materials. The proposed residential uses, retail, and open space uses would involve the use of limited

quantities of commercially available hazardous materials (e.g., paint, cleaning supplies, and pesticides) and would not require a hazards materials business plan.

Compliance with SCA-HAZ-1, SCA-HAZ-2, and SCA-AIR-4 would minimize the potential for accidental releases of hazardous materials used during construction and ensure that potential impacts of the project associated with routine transport, use, disposal of hazardous materials, or hazardous building materials would be less than significant.

Exposure to Hazardous Materials in the Subsurface (Criterion 5.7.a)

A Phase I Environmental Site Assessment (ESA) prepared for the project site indicated that 2359 Harrison Street (the commercial building on the site) was used as a gasoline service station and/or automobile repair facility from 1920 to 2014.[44] This parcel is reported to be listed on the HAZNET[45] and FINDS[46] databases. None of the database listings for this parcel are associated with documented hazardous materials release. Previous subsurface investigation documented the presence of petroleum hydrocarbons and volatile organic compounds (VOCs) in soil, soil vapor, and groundwater related to the possible presence of two former underground storage tanks (UST) previously located along the east side of the parcel. The Phase I ESA indicated that residual petroleum-hydrocarbon related contaminants present in soil, soil vapor, and groundwater at a 7-11 convenience store located across Harrison Street to the east of the site could potentially impact soil vapor quality beneath the project site. The location of the 7-11 convenience store was previously a Shell gas station and auto repair facility where three USTs were removed. The Alameda County Environmental Health Care Services (ACEH) issued a closure for this site on July 12, 2012, that indicated completion of site investigation and no risk to human health and nearby residents from the former fuel release.[47] In addition, petroleum hydrocarbons identified in groundwater at a former automobile dealership property located to the north across 24th Street and from an unknown source area beneath 24th Street northwest of the site could potentially have migrated beneath the project site.

The Phase I ESA recommended that soil, groundwater, and soil vapor testing be performed to evaluate potential presence of subsurface contamination related to the prior automobile service and repair operations at the site, the presence of potentially impacted shallow fill soil, and potential impacts from adjacent off-site properties.

The Phase I ESA indicated that an abandoned underground storm drain culvert beneath the eastern portion of the project site, installed in the early 20th century, channelized a section of Glen Echo Creek (also known as Cemetery Creek), which is reported historically to have run from north to southeast through 24th Street. Chemical test information from investigation at the former Acura property located across 24th Street to the north of the project site indicated that sediments in this abandoned culvert contain elevated levels of lead that would require disposal as a hazardous waste. The Phase I ESA noted that sediment in the portion of the culvert beneath the project site likely has a similar composition. In addition, the Phase I ESA indicated that elevated level of lead may be present at the project site based on the findings of environmental investigations at properties that have similar surficial fill soils located adjacent to the site to the north across 24th Street and across Waverly Street to the west.

44 Northgate Environmental Management. 2019. *Phase I Environmental Assessment. 24th and Waverly, Oakland California*. November 4, 2019.

45 A California Department of Toxic Substances Control database that records annual hazardous waste shipments, as required by the Resource Conservation and Recovery Act. All businesses that use and dispose of hazardous materials are entered into the database.

46 FINDS is a central and common inventory of facilities monitored or regulated by the Environmental Protection Agency.

47 ACEH, 2012. Notification of Potential Case Closure. Shell. Site Location: 2350 Harrison Street, Oakland, CA 947612. July 12.

Soil, groundwater and vapor analysis were conducted during the Phase II ESA.[48] Analysis of soil samples identified the presence of lead above the hazardous waste threshold in the western and southern portions of the site. Soil samples collected near the eastern border of the project site and close to the reported location of a former UST at a depth of 7 feet bgs indicated the presence of diesel above its Water Board Tier 1 Environmental Screening Levels (ESLs) for residential land use.[49] Other materials identified in the soil samples included motor oil detected above its Water Board Tier 1 ESL; polycyclic aromatic hydrocarbons (PAHs) detected above Water Board ESLs for residential land use at a depth between 1 feet to 6 feet bgs along the southern borders of the parking lot; and pesticides detected above Water Board Tier 1 ESLs within the parking lot at a depth of 1 foot bgs.

Soil vapor analysis identified the presence of PCE at the southern border of the parcel site at 2359 Harrison Street above its Water Board ESL for residential land use, but below its Water Board ESL for commercial land use. Chloroform was detected in soil vapor above its Water Board ESLs for residential and commercial land and above its Water Board ESL for residential land use along the southern borders of the parking lot.

Groundwater analysis identified the presence of Cis-1,2-dichloroethene and vinyl chloride in the southeast (downgradient) corner of the site at levels exceeding the Water Board ESL for residential and commercial land uses. Petroleum hydrocarbons were identified in groundwater samples collected throughout the site, estimated to potentially originate from off-site sources of petroleum hydrocarbons release.

The Phase II ESA concluded that subsurface features potentially associated with a UST, clarifier, or associated piping may exist beneath the eastern portion of the 2359 Harrison Street building. However, the possible two former UST locations identified in previous investigation reports were not confirmed by the ground-penetrating radar or field observations. Investigation performed under the Phase II ESA for the presence of the abandoned underground storm drain culvert beneath the eastern portion of the project site was not conclusive. Investigation was performed by GPR and through concrete coring to locate the culvert in its suspected location; however, no evidence of the culvert was identified. The Phase II ESA recommended additional investigation to be performed through further coring of the concrete floor or with a camera, if accessible from a manhole located on 24th Street. Supplemental investigation of the culvert performed via concrete coring identified lead leachate in the sediment sample at a concentration of 7.39 milligram per liter (mg/L), above the Soluble Threshold Limit Concentration of 5.0mg/L.[50, 51] Therefore, lead leachate in the culvert was classified as California hazardous waste for disposal purposes. The Toxicity Characteristic Leaching Procedure[52] test result was below the threshold of 5.0 mg/L at less than 0.20 mg/L. Therefore, the lead leachate was determined not to be classified as Resource Conservation and Recovery Act hazardous waste. The supplemental investigation reported an estimated presence between 100 and 400 tons of saturated sediment from the culvert that would be classified as non-hazardous. Analysis of liquid sample from the culvert identified the presence of lead at 14 mg/L, above the threshold of 5.0 mg/L for hazardous waste. However, the Toxicity Characteristic Leaching Procedure

48 Northgate Environmental Management. 2019. *Phase II Environmental Site Assessment. 24th and Waverly, Oakland, California*. November 22, 2019.

49 The presence of a chemical at concentrations in excess of an ESL does not necessarily indicate that adverse impacts to human health or the environment are occurring; this simply indicates that a potential for adverse risk may exist and that additional evaluation is warranted (Alameda County Water District, 2020. Environmental Screening Levels. Available at: www.acwd.org/230/Environmental-Screening-Levels. Accessed July 17).

50 The limit concentration for toxic materials in a sample that has been subjected to the California Waste Extraction Test (WET), a state test for the toxicity characteristic that is designed to subject a waste sample to simulated conditions of a municipal waste landfill.

51 Northgate Environmental Management. 2020. *Addendum to Phase II ESA Report: Supplemental Culvert Investigation. Masri 5B 24th and Waverly, Oakland, California*. January 14, 2020.

52 The Toxicity Characteristic Leaching Procedure is designed to determine the mobility of both organic and inorganic analytes present in liquid, solid and multi-phase wastes.

result of the water sample (0.02 mg/L) was found to be below the threshold of 5.0 mg/L for the Resource Conservation and Recovery Act hazardous waste.

The applicant has entered into the Voluntary Site Cleanup Program with the Alameda County Department of Environmental Health, which oversees redevelopment of sites under a voluntary remedial action agreement. The purpose of entering into the Voluntary Cleanup Program is to receive a No Further Action letter from a regulatory agency certifying that the project development site is not contaminated and/or the site conditions do not pose a human health and safety risk.

The proposed project would be required to comply with SCA-HAZ-1: Hazardous Building Materials and Site Contamination (#43), which would require implementation of an approved plan to protect project construction workers from risks associated with hazardous materials. In addition, the project applicant would be required to ensure that BMPs are implemented by the contractor during construction to minimize potential hazards related to contaminated soil and groundwater. Implementation of SCA-HAZ-1 and compliance with applicable local, state, and federal regulations would reduce potential impacts associated with the contamination at the project site to a less-than-significant level.

Hazardous Materials within 0.5-Mile of a School (Criterion 5.7.b)

The closest school to the project site is Westlake Middle School, approximately 570 feet northeast of the project site along Harrison Street.[53] The proposed project would not involve the handling of acutely hazardous materials. Compliance with SCAs described above (SCA-HAZ-1, SCA-HAZ-2, and SCA-AIR-4) that address potential emissions of hazardous materials during construction would reduce potential impacts from the project related to hazardous emissions or the handling of hazardous materials, substances, or waste within 0.5 miles of a school to a less-than-significant level.

Emergency Access Routes (Criteria 5.7.c)

24th Street would be narrowed to one-lane for one block in the vicinity of the project site to accommodate a public plaza that would be constructed as part of the proposed project, along the frontage of the project site from Harrison to Waverly streets. However, overall, the proposed project would not change the surrounding streets or roadways, and this modification would not limit emergency access or conflict with plans. Any temporary roadway closures required during construction of the project would be subject to City of Oakland review and approval to ensure consistency with City of Oakland requirements. Therefore, the project would have a less-than-significant impact related to emergency access and evacuation.

Conclusion

The proposed project would be consistent with the findings of BVDSP EIR and would not result in any new or more severe significant impacts related to hazardous materials, exposure, or emergency access routes than those identified in the BVDSP EIR. Implementation of SCA-HAZ-1: Hazardous Building Materials and Site Contamination (#43), SCA-HAZ-2: Hazardous Materials Related to Construction (#42), and SCA-AIR-4: Asbestos in Structures (#26), would ensure project impacts to hazards and hazardous materials would be less than significant. Attachment A provides the full description of the applicable SCAs.

53 USGS (U.S. Geological Survey). 2018. "The National Map Advance Viewer." Accessed June 24, 2020. https://viewer.nationalmap.gov/advanced-viewer/.

5.8 Hydrology and Water Quality

Would the project:	Equal or Less Severity of Impact Previously Identified in BVDSP EIR	Substantial Increase in Severity of Previously Identified Significant Impact in EIR	New Significant Impact
a. Violate any water quality standards or waste discharge requirements; Result in substantial erosion or siltation on or off site that would affect the quality of receiving waters; Create or contribute substantial runoff which would be an additional source of polluted runoff; Otherwise substantially degrade water quality; Fundamentally conflict with the City of Oakland Creek Protection Ordinance (OMC Chapter 13.16) intended to protect hydrologic resources.	■	□	□
b. 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 pre-existing nearby wells would drop to a level which would not support existing land uses or proposed uses for which permits have been granted);	■	□	□
c. Create or contribute substantial runoff which would exceed the capacity of existing or planned stormwater drainage systems; 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, both on or off site.	■	□	□
d. Result in substantial flooding on or off site; Place housing 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; Place within a 100-year flood hazard area structures which would impede or redirect flood flows; or Expose people or structures to a substantial risk of loss, injury, or death involving flooding.	■	□	□

BVDSP EIR Findings

The BVDSP EIR found that the impacts, including cumulative impacts, related to water quality, groundwater, stormwater drainage, and flooding would be less than significant with implementation of applicable City SCAs and compliance with applicable regulations.

Project Analysis

Water Quality and Creek Protection (Criterion 5.8.a)

The project site is located within a highly urbanized environment. Lake Merritt, which is the nearest surface water body, is approximately 600 feet to the south. Stormwater runoff from the project site is conveyed to Lake Merritt via underground culverts and storm drains.

The proposed project would include demolition, grading, and construction, all of which could result in degradation of the quality of stormwater runoff, erosion and/or sedimentation, and adverse effects on downstream receiving waters. Additionally, if not properly managed, potential discharge of contaminated dewatering effluent during construction could result in impacts to the environment from the discharge of sediment and chemical compounds to receiving waters. As discussed under Section 5.7, Hazards and Hazardous Materials, the project would be required to comply with SCA-HAZ-1: Hazardous Building Materials and Site Contamination (#43) and SCA-HAZ-2: Hazardous Materials Related to Construction (#42), which require BMPs to be implemented during construction that address the handling of construction-related hazardous materials and contaminated soil and groundwater, and would minimize potential negative effects on groundwater and receiving waters.

In compliance with the City Grading Ordinance, the proposed project would be required to obtain a grading permit, and therefore it would be required to comply with SCA-HYD-1: Erosion and Sedimentation Control Plan for Construction (#48), which requires preparation and implementation of an Erosion and Sedimentation Control Plan to manage stormwater runoff and minimize erosion and sedimentation through measures such as barriers and devices to trap, store, and filter runoff.[54]

Any groundwater dewatering would be subject to permits from East Bay Municipal Utility District (EBMUD) or the Regional Water Quality Control Board, depending if discharges would be made to the sanitary sewer or stormwater system respectively. If the water is not suitable for discharge to the storm drain, 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 achieve compliance with the wastewater discharge limits. Discharges to EBMUD's facilities must occur under a Special Discharge Permit. In addition, per the EBMUD Wastewater Ordinance, "all dischargers, other than residential, whose wastewater requires special regulation or contains industrial wastes requiring source control shall secure a wastewater discharge permit" (Title IV, Section 1).

EBMUD also operates its wastewater treatment facilities in accordance with Waste Discharge Requirements issued by the Regional Water Quality Control Board, which require rigorous monitoring of effluent to ensure discharges do not adversely impact receiving water quality.

[54] The Grading Ordinance (Oakland Municipal Code Section 15.04.3.2240) requires a permit for grading activities on private or public property for projects that exceed certain criteria, including for excavation of amounts that exceed 500 cubic yards on a parcel or contiguous parcels. The estimated amount of excavation anticipated for the proposed project is approximately 14,053 cubic yards of soil. Therefore, the project applicant would be required to apply for the grading permit.

The proposed project would replace approximately 37,556 square feet (over 10,000 square feet) of impervious surfaces.[55] Therefore, the proposed project would be require to comply with Provision C.3 of the NPDES Municipal Regional Stormwater Permit (MRP).[56] Regulated projects are required to incorporate post-construction stormwater management measures to reduce stormwater pollution from all new and replaced impervious surfaces. The proposed project is a Category "B" Special Project, which is qualified for 100% Low Impact Development treatment reduction credits.[57, 58] Therefore, up to 100% of the amount of runoff for the project's drainage area may be treated with vault-based high flowrate media filters. The proposed project would replace over 5,000 square feet of impervious surface area. Therefore, it would be required to comply with SCA-HYD-2: NPDES C.3 Stormwater Requirements for Regulated Projects (#53), which requires compliance with provision C.3 of the MRP, and the preparation and implementation of a Post-Construction Stormwater Management Plan, which would include and identify stormwater control and treatment systems. Compliance with SCA-HYD-2 also requires the project applicant to enter into a maintenance agreement with the City, to ensure adequate installation/construction, operation, maintenance, inspection, and reporting of any on-site stormwater treatment measures.

With implementation of SCA-HYD-1 and SCA-HYD-2 as well as SCA-HAZ-1 and SCA-HAZ-2, the proposed project would result in a less-than-significant impact to water quality.

Groundwater Recharge (Criterion 5.8.b)

Based on the preliminary geotechnical evaluation prepared for this project, groundwater is present at a depth of 4 to 5 feet bgs.[59] Excavation work for the proposed project would extend to depths of about 30 to 40 feet below existing grade. Based on the presence of shallow groundwater, it is likely that construction-period dewatering would be required. However, dewatering during construction would be temporary and have only a localized and short-term effect on groundwater levels. Therefore, depletion of groundwater resources associated with construction-period dewatering would be less than significant. Operation of the project would not involve dewatering or the use of groundwater, as potable water is supplied to the project site by EBMUD.

Stormwater Drainage and Drainage Patterns (Criterion 5.8.c)

The project site is currently entirely covered with impervious surfaces, totaling approximately 37,556 square feet. No new impervious surface would be created after the implementation of the project. Stormwater would be filtered on-site through a storm filter steel catch basin. As described above, stormwater runoff from the project site is currently conveyed to Lake Merritt via underground culverts and storm drains and would continue to be conveyed through these same culverts and storm drains as the project does not propose any change to the existing culverts and storm drains. Therefore, the project would not increase runoff that could exceed the capacity of existing storm water drainage systems and would not substantially alter the existing drainage pattern of the site or increase the risk of flooding, erosion, or sedimentation.

55 BKF Engineers. 2020. *Minor CUP and Design Review*. May 15, 2020.

56 RWQCB (San Francisco Bay Regional Water Quality Control Board). 2015. *San Francisco Bay Region Municipal Regional Stormwater NPDES Permit*. Order No. R2-2015-0049. NPDES Permit No. CAS612008. November 19, 2015.

57 BKF Engineers. 2020. *Minor CUP and Design Review*. May 15, 2020.

58 The proposed project is qualified for Low Impact Development because it is located in the Central Business District; it would replace 0.86 acres of impervious surface (more than 0.5 acres); it would not include any surface parking; it would be 100% covered by permanent surfaces (more than 85%); and it would have 325 dwelling units (more than the required minimum of 50 dwelling units per acre).

59 Rockridge Geotechnical. 2019. *Preliminary Geotechnical Report 24th & Masri.*

Flooding and Substantial Risks from Flooding (Criteria 5.8.d)

Current floodplain mapping prepared by the Federal Emergency Management Agency indicates that the northeastern portion of the project site (eastern portion of the site parcel at 2359 Harrison Street) is within an area of 0.2% Annual Chance Flood Hazard, which is defined as Areas of 1% Annual Chance Flood with average depth less than 1 foot or with drainage areas of less than 1 square mile.[60] The remaining portion of the project site is within an area of Minimal Flood Hazard and no portion of the project site is depicted within a 100-year flood area. Therefore, development of the project would not be subject to significant impacts with respect to storm-related flooding.

Conclusion

The proposed project would be consistent with the findings of BVDSP EIR and would not result in any new or more severe significant impacts related to water quality and creek protection, use of groundwater, stormwater drainage, or flooding than those identified in the BVDSP EIR. Implementation of SCA-HYD-1: Erosion and Sedimentation Control Plan for Construction (#48), SCA-HYD-2: NPDES C.3 Stormwater Requirements for Regulated Projects (#53), SCA-HAZ-1: Hazardous Building Materials and Site Contamination (#43), and SCA-HAZ-2: Hazardous Materials Related to Construction (#42), would ensure impacts to hydrology and water quality would be less than significant. Attachment A provides the full description of the applicable SCAs.

5.9 Land Use, Plans, and Policies

Would the project:	Equal or Less Severity of Impact Previously Identified in BVDSP EIR	Substantial Increase in Severity of Previously Identified Significant Impact in EIR	New Significant Impact
a. Physically divide an established community;	■	□	□
b. Result in a fundamental conflict between adjacent or nearby land uses; or	■	□	□
c. 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 actually result in a physical change in the environment.	■	□	□

[60] FEMA (Federal Emergency Management Agency). 2020. Flood Insurance Rate Map, Alameda County, California and Incorporated Areas, Maps Number 06001C0059G and 06001C0067H, August 3 and December 21.

BVDSP EIR Findings

The BVDSP EIR determined that adoption and implementation of the BVDSP would have less-than-significant land use impacts, including cumulative impacts, related to the division of an established community, potential conflicts with nearby land uses, or applicable land use plans, policies, and regulations.

Project Analysis

Division of Existing Community, Conflict with Land Uses, or Land Use Plans (Criteria 5.9.a through 5.9.c)

The General Plan designates the project site as Central Business District (CBD), which is intended 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. The project site is zoned as Broadway Valdez District – Retail Priority Sites Commercial Zone (D-BV-1). The intent of the D-BV-1 zone is to encourage large retail facilities in the Retail Priority Sites of the BVDSP in order to provide a core of comparison goods retail with a combination of major, mid, and junior size anchor stores. The project site is within Retail Priority Site 5(b).

The proposed project would be consistent with both the General Plan and zoning as it would develop a high-rise mixed-use residential tower with an active ground floor retail component that would help the City further establish the area as a high-density, mixed-use urban center of regional importance.

To allow for an increased density on the site, the proposed project would request a Minor CUP for an exception from the minimum retail square footage requirements established in Planning Code 17.101C.050.C.6. The proposed project would also undergo regular Design Review and would request minor CUPs to allow for residential activities and the transfer of development rights from the 277 27th Street project. By meeting the required findings, the proposed project would be consistent with the underlying BVDSP zoning.

Based on the amount of retail provided (55%), the proposed project can achieve 164 base units.[61] The proposed project would also request a Minor CUP to transfer unused density from the adjacent 277 27th Street project to the site, as that project is also proposed by the same applicant. With the transfer of the unused density of 111 units from the 277 27th Street project, the base density of the proposed project would be 275 residential units. The proposed project would provide on-site affordable units per the State Density Bonus Law by providing 5% of the units (14 units) to Very-Low income households (earning no more than 50% of the Area Median Income).[62] Therefore, the proposed project would achieve a 20% density bonus equal to 55 units. In total, the proposed project would have 330 residential units. With authorization of increased density and transfer of unused density under Minor CUPs, the proposed project would be consistent with the BVDSP zoning.

Conclusion

The proposed project would be consistent with the findings of BVDSP EIR and would not result in any new or more severe significant impacts related to land use, plans, or policies than those identified in the BVDSP EIR. The BVDSP EIR did not identify any applicable mitigation measures related to land use, and no City SCAs have been identified for the implementation of the project.

[61] The D-BV-1 zone allows 1 unit per 125 square feet of retail. As the proposed project provides 20,551 square feet of retail use, 164 residential units could be built at the project site.

[62] Although 5% (or 14 units in this case) would be required to be set aside to very-low income households, the proposed project would provide 15 units, providing one more unit than is required under the State Density Bonus Law.

5.10 Noise

Would the project:	Equal or Less Severity of Impact Previously Identified in BVDSP EIR	Substantial Increase in Severity of Previously Identified Significant Impact in EIR	New Significant Impact
a. Generate noise in violation of the City of Oakland Noise Ordinance (Oakland Planning Code Section 17.120.050) regarding construction noise, except if an acoustical analysis is performed that identifies recommend measures to reduce potential impacts. 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; Generate noise in violation of the City of Oakland nuisance standards (Oakland Municipal Code Section 8.18.020) regarding persistent construction-related noise;	■	□	□
b. Generate noise in violation of the City of Oakland Noise Ordinance (Oakland Planning Code Section 17.120.050) regarding operational noise;	■	□	□
c. 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);	■	□	□
d. Expose persons to interior Ldn or CNEL greater than 45 dBA for multi-family dwellings, hotels, motels, dormitories and long-term care facilities (and may be extended by local legislative action to include single-family dwellings) per California Noise Insulation Standards (CCR Part 2, Title 24); Expose the project to community noise in conflict with the land use compatibility guidelines of the Oakland General Plan after incorporation of all	■	□	□

Would the project:	Equal or Less Severity of Impact Previously Identified in BVDSP EIR	Substantial Increase in Severity of Previously Identified Significant Impact in EIR	New Significant Impact
applicable Standard Conditions of Approval (see Figure 1); 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 [OSHA]); or			
e. During either project construction or project operation expose persons to or generate ground-borne vibration that exceeds the criteria established by the Federal Transit Administration (FTA).	■	□	□

BVDSP EIR Findings

The BVDSP EIR found that impacts related to project construction and operation noise, and vibration and exposure of receptors to noise, would all remain less than significant with implementation of applicable City SCAs and compliance with applicable regulations. Impacts related to permanent noise and cumulative noise associated with traffic-generated noise were found to be significant and unavoidable due to increased noise levels adjacent to nearby roads at all studied roadway segments, with the exception of 24th Street east of Broadway and 26th Street east of Broadway. In addition, the cumulative increases in traffic-generated noise could combine with stationary noise sources, such as rooftop mechanical equipment and back-up generators, to result in significant cumulative impacts. The BVDSP EIR determined that no feasible mitigation measures are available to reduce such impacts and that these impacts would be significant and unavoidable.

Project Analysis

Temporary Construction Noise and Cumulative Construction Noise (Criterion 5.10.a)

An acoustical analysis was performed to evaluate potential noise impacts during construction of the proposed project and determine whether the potential noise impacts generated by the project would be consistent with the BVDSP EIR findings. The findings of the acoustical analysis are summarized below, and details are included in Attachment I. Construction is expected to occur over a period of approximately 27 months and would occur in phases, consisting of demolition, shoring, grading/ground improvement, building construction, and paving. These activities would result in temporary increases in 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 initial 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.

Pile driving, which can generate extreme level of noise, is often used to provide foundation support for buildings or other structures. However, pile driving is not proposed as part of this project. Based upon information provided by the project applicant, a matt slab foundation supported on drilled columns is anticipated to be used for the proposed project.

Equipment that would be in operation during demolition would include backhoes, excavators, cranes, loaders, forklifts, pavers and generator sets. The typical maximum noise levels for various pieces of construction equipment at a distance of 50 feet are presented in Table 5.10-1, Construction Equipment Maximum Noise Levels. However, construction equipment typically operates in alternating cycles of full power and low power, producing average noise levels less than the maximum noise level. The average sound levels for demolition activity also depend on the amount of time that the equipment operates and the intensity of demolition activities during that time.

Table 5.10-1. Construction Equipment Maximum Noise Levels

Equipment Type	Equipment Noise Level at 50 Feet (dBA)
Air compressor[1]	81
Backhoe[1]	80
Crane, Derrick[1]	88
Crane, Mobile[1]	83
Dozer[1]	85
Front-End Loader[2]	80
Generator[1]	81
Grader[1]	85
Loader[1]	85
Pneumatic Tools[1]	85
Pump[1]	76
Saw[1]	76
Shovel[1]	82
Tractor[2]	84

Sources:
1 FTA 2018.
2 FHWA 2008.
Notes: dBA = A-weighted decibel.

The maximum noise levels at 50 feet for typical construction equipment would range up to 85 A-weighted decibels (dBA) for the type of equipment normally used for this type of construction project, although the hourly noise levels would vary. Construction (or demolition) noise in a well-defined area typically attenuates at approximately 6 dBA per doubling of distance. Because of the size of the project, construction activities would take place over a range of distances from nearby existing noise-sensitive uses. For example, construction activities along the southern edge of the project site would take place within approximately 10 feet of an existing noise-sensitive receptor, but construction near the northern side of the project would be approximately 200 feet from noise-sensitive receptors. Typically, the majority of construction noise would occur at distances of approximately 45 feet or more from existing noise-sensitive uses.

The nearest sensitive receptor to the project site is a single-family residential building located immediately south of the project site.[63] In addition, other noise-sensitive land uses include residential uses to the west, southwest and further south of the project site. Construction of the proposed project would result in temporary localized increases in noise levels from on-site construction equipment, as well as from off-site trucks hauling construction materials. Noise from the construction phase of the proposed project was estimated using the Federal Highway Administration Roadway Construction Noise Model.

Construction noise levels were assessed at two sensitive receptors with varying distances of equipment on the site for each construction phase, as shown in Table 5.10-2. The closest sensitive receptors are the residences immediately to the south of the project site (2337 Harrison Street and 2338 Waverly Street) and the next-nearest sensitive receptor is south of the nearest sensitive receptor (2334 Waverly Street). The first distance in the table represents the anticipated construction noise that may be experienced at the receptor when construction takes place immediately adjacent to that receptor. The second distance represents anticipated construction noise that may be experienced during the more frequent periods when construction would take place at multiple locations on the project site. The detailed Roadway Construction Noise Model input and output is provided in Attachment I.

Table 5.10-2. Construction Noise Model Results Summary

Construction Phase	Construction Noise at Nearest Receiver Distances (L_{eq} [dBA])			
	Residences Immediately to the South (2337 Harrison & 2338 Waverly Street)		*Residence Farther to the South (2334 Waverly Street)*	
	Nearest Source/ Receiver Distance (Approximately 10 feet)	*Typical Source/ Receiver Distance (Approximately 45 feet)[1]*	*Nearest Source/ Receiver Distance (Approximately 40 feet)*	*Typical Source/ Receiver Distance (Approximately 100 feet)[1]*
Demolition	94	85	85	79
Shoring	86	73	74	66
Grading and Ground Improvement	91	83	82	76
Building Construction	87	81	79	74
Paving	91	82	81	75

Source: Attachment I.
Notes:
Closest sensitive receptors are the residences immediately to the south of the project site (2337 Harrison Street and 2338 Waverly Street). The next-nearest sensitive receptor is south of the nearest sensitive receptor at 2334 Waverly Street.
1 Approximate geometric center of the project site.

As shown in Table 5.10-2, exterior noise levels from construction activities are estimated to be as high as 94 dBA L_{eq} at the nearest existing residences during the relatively brief period of time when demolition would take place along the southern project boundary. At more typical distances, construction noise would range from approximately 73 to 85 dBA L_{eq}. At the next-nearest residence (the second residence to the south), construction noise levels are estimated to range from approximately 74 to 85 dBA L_{eq} during the relatively brief period of time when construction activities would be focused along the southern project boundary; more typical construction noise levels would range from approximately 66 to 79 dBA L_{eq}. Residences to the west of the project site across Waverly Street are slightly

[63] Legal residences, schools and childcare facilities, health care or nursing home, public open space, or similarly sensitive land uses are considered sensitive receptors.

further away (approximately 50 feet) but would experience similar levels of noise. The commercial/office land use at 2333 Harrison Street would experience construction noise levels similar to those that would be experienced by the second-nearest residence, 2334 Waverly Street, shown in Table 5.10-2 above (i.e., up to 85 dBA L_{eq} when construction activities are nearest, but typically ranging from approximately 66 to 79 dBA L_{eq}). These noise levels would be comparable to or slightly less than the estimated construction noise levels identified in the BVDSP EIR. The BVDSP EIR determined that noise-sensitive areas near pile driving could experience noise levels of up to 105 dBA, for projects in which pile driving is determined to be necessary. For the proposed project, pile driving would not take place; in other respects, construction noise would be similar to the levels identified in the BVDSP EIR.

Also, it should be noted that the types and locations of heavy construction equipment would vary between the construction phases. Therefore, the duration and frequency that heavy construction equipment would operate at the closest location to an adjacent receptor would be limited on any given day and would not be expected to last more than a few days at a time. In addition, once the structure has been erected, the noisiest phases of construction would be complete and noise from heavy construction equipment inside of the structure would be attenuated by the structure itself.

As described above, short-term construction noise levels at the nearest receptors would exceed 90 dBA. Additionally, exterior noise levels would exceed the 65-dBA long-term residential construction noise standard as well as the 70-dBA long-term commercial construction noise standard at the receptors to the south, west, and at nearby commercial buildings to the southeast.

Without the implementation of the City of Oakland's SCAs, construction-generated noise could temporarily result in the exposure of the nearby receptors to noise levels in excess of the City's Noise Ordinance standards. However, with the implementation of the SCAs, the impacts of construction period noise would be reduced to less-than-significant levels.

- SCA-NOI-1: Construction Days/Hours (#61) provides limits on the days and hours of construction to avoid generating noise when it would be most objectionable to neighboring residences and commercial operations. These limitations, which specify that construction activities would be limited to between 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 close to 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 (#62) requires all construction projects to implement basic noise reduction measures during construction.
- SCA-NOI-3: Extreme Construction Noise (#63) requires 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 any anticipated extreme noise generating activities (i.e., activities generating noise levels greater than 90 dBA). Since the construction of the proposed project could generate noise levels greater than 90 dBA at the adjacent residential building to the south, this measure would apply to the proposed project. The types of measures that would effectively reduce construction noise to less-than-significant levels that may be included in the Construction Noise Management Plan include the following:
    - Temporary Noise Barriers. The noise barriers may be constructed from plywood and installed on top of a portable concrete K-Rail system to be able to move and/or adjust the wall location during construction activities. A sound blanket system hung on scaffolding, or other noise reduction materials that result in an equivalent or greater noise reduction than plywood, may also be used. The composition, location, height,

and width of the barriers during different phases of construction will be determined by a qualified acoustical consultant and incorporated into the Construction Noise Management Plan for the project.

  - Best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) will be used for project equipment and trucks during construction wherever feasible. For example, exhaust mufflers on pneumatic tools can lower noise levels by up to about 10 dBA and external jackets can lower noise levels by up to about 5 dBA.
  - Noise control blankets will be utilized on the building structure as the building is erected to reduce noise emission from the site. The use of noise control blankets will particularly be targeted to cover the levels of the building that have line of sight with the windows of nearby receptors;
  - Construction equipment will be positioned as far away from noise-sensitive receptors as possible. The project site is surrounded by hard surfaces, and therefore for every doubling of the distance between a given receptor and construction equipment, noise will be reduced by approximately 6 dBA.
  - Monitoring the effectiveness of noise attenuation measures by taking noise measurements.
  - Notify property owners and occupants located within 300 feet of the construction activities prior to commencing extreme noise generating activities.
- SCA-NOI-4: Construction Noise Complaints (#65) 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.

With implementation of SCA-NOI-3, noise levels would be reduced substantially. Table 5.10-3 provides the estimated construction noise levels with implementation of SCA-NOI-3 (i.e. the types of measures listed above). The proximity of the project site to sensitive receptors and the types of construction equipment that would be used as part of the proposed project are slightly less than or similar to other projects as assessed in Section 4.10.3 of the BVDSP, as well as in downtown Oakland generally and other urban areas. The BVDSP construction noise analysis determined that maximum noise levels of up to 105 dBA could be experienced, whereas the current project would not include pile driving; additionally, with mitigation measures, the highest estimated noise level would be approximately 82 dBA at the nearest noise-sensitive uses.

Furthermore, interior noise levels at the nearest noise-sensitive receivers would comply with City of Oakland construction noise standards for long-term operation (more than 10 days) of 65 dBA on weekdays. A typical building façade with windows closed reduces noise by 25 dBA and a typical exterior wall with one layer of gypsum board on the interior and wood siding or stucco on the exterior reduces noise by about 40 dBA.[64] Therefore, interior noise levels at nearby receptors would be approximately 57 dBA L_{eq} or less during construction, even during the loudest phase of the work (demolition).

[64] Charles M. Salter Associates Inc., 1998. Acoustics – Architecture, Engineering, the Environment.

Table 5.10-3. Construction Noise Model Results with SCA-NOI-3

Construction Phase	Construction Noise at Nearest Receiver Distances (L_{eq} [dBA])			
	Residences Immediately to the South (2337 Harrison & 2338 Waverly Street)		*Residence Farther to the South*	
	Nearest Source/ Receiver Distance (Approximately 10 feet)	*Typical Source/ Receiver Distance (Approximately 45 feet)*[2]	*Nearest Source/ Receiver Distance (Approximately 40 feet)*	*Typical Source/ Receiver Distance (Approximately 100 feet)*[2]
Demolition	82	72	72	66
Shoring	74	60	61	53
Grading and Ground Improvement	79	71	70	64
Building Construction	77	71	69	64
Paving	79	69	68	62

Source: Attachment I.
Notes:
Closest sensitive receptors are the residences immediately to the south of the project site (2337 Harrison Street and 2338 Waverly Street). The next-nearest sensitive receptor is south of the nearest sensitive receptor at 2334 Waverly Street.
1 Calculated noise reduction from measures such as temporary construction noise barriers at the project boundary for ground-level work and noise control blankets attached to the open sides of the proposed building during construction.
2 Approximate geometric center of the project site.

Because the project site and its vicinity are part of an established, urbanized area, periodic exposure to construction-related noise and vibration are part of the existing conditions. Implementation of the City of Oakland's SCAs will lessen the impacts of noise generated by construction to receptors in the vicinity of the project site. Therefore, with the implementation of the required SCAs, the impact of construction-generated noise on nearby receptors would be reduced to a less-than-significant level and would not exceed the levels identified in the BVDSP EIR.

Cumulative Construction Noise

The project site is located within several blocks of planned future projects. Immediately to the north across 24th Street, the construction of the 277 27th Street project is anticipated to be nearing completion at the time that construction would start for the proposed project. It is unlikely that construction noise and vibration from the proposed project would combine with construction of this project due to the anticipated construction schedule. Other construction projects located further away from the project site but within 1,000 feet include 88 Grand, 2401 Broadway, 2305 Webster Street, and 2424 Webster Street. These projects have either filed for building permits or have received planning approvals. Construction activities for the proposed project and these other projects could occur simultaneously. However, as discussed in Impact NOI-6 of the BVDSP EIR, construction impacts resulting from cumulative development would remain less than significant because cumulative development projects in vicinity would incorporate SCAs during construction. Since the project is consistent with planned development considered for this area in the BVDSP EIR, the project would not be anticipated to substantially increase the level of significance of the construction noise impact identified in the BVDSP EIR or result in new significant construction noise impacts because of the relatively large distances between them.

Permanent Noise and Cumulative Operational Noise (Criteria 5.10.b and 5.10.c)

During operation of the project, noise from mechanical equipment and increased traffic from additional trips from the residential and retail components, including truck deliveries, would be generated. The project would be located along 24th Street east of Broadway, and therefore would contribute to the significant and unavoidable impact identified in the BVDSP EIR on this street related to traffic noise. However, based on the City of Oakland's CEQA Thresholds, a project would be considered to generate a significant impact if it resulted in a 5 dBA permanent increase in ambient noise levels in the project vicinity above existing levels. This would correspond to an increase in traffic or other operational activity of over 300%. In other words, the project would cause an increase of 5 dBA only if project-related vehicle trips contributed to an increase in traffic of more than three times existing vehicle volumes, all other things being equal. The analysis presented in Section 5.13, Transportation and Circulation, and Appendix J, Trip Generation Analysis Memorandum, shows the project would not increase traffic by more than three times the existing volume; thus, the project would not cause a permanent increase above ambient noise levels of 5 dBA or more. Therefore, the proposed project would not cause additional noise impacts beyond those analyzed in the BVDSP EIR, nor would it increase the magnitude of the impacts identified in the BVDSP EIR.

Further, the proposed project would be required to implement SCA-NOI-5: Operational Noise (#67), which would require 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. Therefore, with the implementation of SCA-NOI-5, the project would not violate the City of Oakland operational noise standards and the noise generated by the mechanical equipment and increased traffic from the project would be less than significant and consistent with the finding in the BVDSP EIR.

Project Exposure to Noise (Criterion 5.10.d)

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.[65, 66] This noise environment is regarded as "conditionally acceptable" community noise exposure levels for residential and office buildings. Therefore, SCA-NOI-6: Exposure to Community Noise (#66) would apply to the project and would require a noise reduction plan prepared by a qualified acoustical engineer 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.

Vibration (Criterion 10.e)

The project site is approximately 100 feet north and 130 feet northwest of the 2332 and 2333 Harrison Street buildings, respectively, which are considered historic resources under CEQA, as described in Section 5.4, Cultural Resources. Additionally, the project is located approximately 240 feet east of the 2346 Valdez Street building (also a historic resource). However, given the distance of these buildings to the site, vibration from the construction activity is not anticipated to exceed the criteria established by the FTA and would not damage the structures or substantially interfere with activities located at these historic resources.[67]

The two immediately adjacent properties to the south, 2338 Waverly Street and 2337 Harrison Street, are older buildings constructed in 1908 and 1917, respectively. Although these properties are not considered historic resources, they would

65 L_{dn} = day/night noise level. The average A-weighted noise level during a 24-hour day, obtained after addition of 10 decibels to levels measured during the night between 10:00 PM and 7:00 AM.

66 City of Oakland. 2005. *City of Oakland General Plan, Noise Element*. March 2005.

67 A significant impact would result if groundborne noise or vibration levels exceeded the FTA guidance that suggests 0.2 in/sec PPV as a threshold level for architectural damage to non-engineered timber and masonry structures.
FTA (Federal Transit Authority). 2018. *Transit Noise and Vibration Impact Assessment*. FTA Report No.0123. September 2018.

be sensitive to vibration during earthwork activities. SCA-NOI-7: Vibration Impacts on Adjacent Historic Structures or Vibration-Sensitive Activities (#69) would apply to the proposed project and would require preparation of a vibration analysis to establish pre-construction baseline conditions and threshold levels of vibration, and identify design means and methods of construction that shall be utilized in order to not exceed the thresholds. The analysis will specifically address the protection of the immediately adjacent structures at 2338 Waverly Street and 2337 Harrison Street.

Design considerations may include operating heavy-construction equipment as far away from vibration-sensitive sites as possible, using smaller, lighter pieces of construction equipment near the eastern project boundary, and not performing demolition, earth-moving, and other ground-impacting operations simultaneously. Implementation of SCA-NOI-7 would reduce the potential of construction-generated vibration to cause damage to adjacent buildings to a less-than-significant level.

During operations, the proposed project would not include any sources (such as large rotating machinery or impact-type devices) that would generate vibration that would be perceptible to people during the operational period. There is nothing peculiar or unusual about the proposed project and it would not generate vibration during operations that would result in new significant or more severe vibration impacts beyond those described in the BVDSP EIR.

Conclusion

The proposed project would be consistent with the findings of BVDSP EIR and would not result in any new or more severe significant impacts related to noise and vibration. The project would be required to implement SCA-NOI-1: Construction Days/Hours (#61), SCA-NOI-2: Construction Noise (#62), SCA-NOI-3: Extreme Construction Noise (#63), SCA-NOI-4: Construction Noise Complaints (#65), SCA-NOI-5: Operational Noise (#67), SCA-NOI-6: Exposure to Community Noise (#66), and SCA-NOI-7: Vibration Impacts on Adjacent Structures or Vibration-Sensitive Activities (#69). Attachment A provides the full description of the applicable SCAs.

5.11 Population and Housing

Would the project:	Equal or Less Severity of Impact Previously Identified in BVDSP EIR	Substantial Increase in Severity of Previously Identified Significant Impact in EIR	New Significant Impact
a. Induce substantial population growth in a manner not contemplated in the General Plan, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extensions of roads or other infrastructure), such that additional infrastructure is required but the impacts of such were not previously considered or analyzed;	■	□	□
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere in excess of that contained in the City's Housing Element; or Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere in excess of that contained in the City's Housing Element.	■	□	□

BVDSP EIR Findings

The BVDSP EIR determined that impacts related to population growth and displacement of housing and people would be less than significant. Development under the BVDSP would add up to 1,800 dwelling units and 3,230 residents to the Plan Area.

Project Analysis

Population Growth and Displacement of Housing and People (Criteria 5.11.a and 5.11.b)

The proposed project would demolish the existing surface parking lot, residential structures (15 residential units), and commercial structure on the project site, and construct a new mixed-use building with approximately 330 residential units and approximately 13,192 square feet of retail space. The proposed project would accommodate approximately 683 new residents and 40 employees.[68] While the project, in combination with other proposed projects in the Plan Area, could result in more than 1,800 dwelling units, the BVDSP allows for flexibility with respect to the quantity and type of future development as long as such development conforms to the general traffic generation parameters established by the BVDSP EIR (discussed in Section 5.13). As such, the project is within the envelope of the Development Program analyzed in the BVDSP EIR.

[68] Based on the Alameda County Transportation Commission generation rate of 2.1 persons per residential unit and 3 persons per 1,000 square feet for commercial. The BVDSP EIR assumed an average of 1.87 person per household; however, a higher estimate was used to provide a more conservative "worst-case" scenario.

The existing residential and commercial buildings are vacant, and therefore, the proposed project would not displace existing residents. The proposed project will provide 15 units for very-low income households, providing one more unit than is required under the State Density Bonus Law (5%, or 14 units in this case). These 15 very-low income units replace the existing 15 vacant units resulting in no net loss of housing. By providing on-site affordable units the project complies with the City's requirement regarding affordable housing under Oakland Affordable Housing Impact Fee Ordinance

Conclusion

The proposed project would be consistent with the findings of BVDSP EIR and would not result in any new or more severe significant impacts related to population growth or displacement than those identified in the BVDSP EIR. The BVDSP EIR did not identify any mitigation measures related to population and housing, and no SCAs have been identified for the implementation of the project. The incorporation of very-low income units would exempt the project from the Oakland Affordable Housing Impact Fee Ordinance.

5.12 Public Services, Parks, and Recreation Facilities

Would the project:	Equal or Less Severity of Impact Previously Identified in BVDSP EIR	Substantial Increase in Severity of Previously Identified Significant Impact in EIR	New Significant Impact
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, 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; or • Other public facilities.	■	□	□
b. 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 Include recreational facilities or require the construction or expansion of recreational facilities which might have a substantial adverse physical effect on the environment.	■	□	□

BVDSP EIR Findings

The BVDSP EIR determined that impacts, including cumulative impacts, related to fire and police protection, schools, and other public facilities, and parks or recreational facilities would be less than significant, and no mitigation measures or City SCAs were required.

Project Analysis

Public Services and Parks and Recreation (Criteria 5.12.a and 5.12.b)

The project would construct approximately 330 residential units and 13,192 square feet of retail space. The project would include more residential units, less retail, and no hotel rooms compared to what was anticipated in the Illustrative Development Program for Site 7; however, the BVDSP did not prescribe or assume exact land uses on a site-by-site basis and instead established a maximum density based on trip generation and traffic capacity. Therefore, the increase in residential units in the Plan Area, including the 330 residential units proposed for the project, and the project's associated increase in demand for public services, are within the scope of the BVDSP EIR analysis. The proposed project would be subject to SCA-PS-1: Capital Improvement Impact Fee (#72), which require

compliance with the requirements of the City of Oakland Capital Improvements Fee Ordinance (Chapter 15.74 of the Oakland Municipal Code).

In addition, the project would provide approximately 24,738 square feet of open space for the building residents and approximately 7,359 square feet of public plaza. This open space would be consistent with the requirements of the BVDSP Appendix C: Design Guidelines as it would provide accessible terraces and open spaces on roof tops. The open space would also be consistent with the Oakland Planning Code 17.101C.050 standards, and thus it would meet recreational demands associated with the project.

The proposed project would be anticipated to increase student enrollment at local schools. Pursuant to SB 50, the project applicant would be required to pay school impact fees, which are established to offset potential impacts from new development on school facilities. Payment of this fee is deemed full and complete mitigation by the state. The project would also cause an incremental increase in demand for police and fire protection services; however, as described in the BVDSP EIR, adherence to General Plan policies N.12.1, N.12.2, N.12.5, FI-1, and FI-2 would reduce the potential for police and fire service deficiencies and would thus lessen the need for new or physically altered police or fire facilities. Therefore, the proposed project would not result in substantial adverse physical impacts related to public services.

Conclusion

The proposed project would be consistent with the findings of BVDSP EIR and would not result in any significant impacts related to public services, parks, and recreation. Further, based on an examination of the BVDSP EIR, implementation of the project would not substantially increase the severity of impacts previously identified in the BVDSP EIR, nor would it result in new significant impacts related to public services, parks, and recreation that were not previously identified in the BVDSP EIR. The proposed project would be required to implement SCA-PS-1: Capital Improvement Impact Fee (#72). Attachment A provides the full description of the applicable SCAs.

5.13 Transportation and Circulation

Would the project:	Equal or Less Severity of Impact Previously Identified in BVDSP EIR	Substantial Increase in Severity of Previously Identified Significant Impact in EIR	New Significant Impact
a. Conflict with a plan, ordinance, or policy addressing the safety or performance of the circulation system, including transit, roadways, bicycle and pedestrian facilities (except for automobile level of service or other measures of vehicle delay); or	■	□	□
b. Cause substantial additional vehicle miles traveled (per capita, per service population, or other appropriate efficiency measure); or	■	□	□
c. Substantially induce additional automobile travel by increasing physical roadway capacity in congested areas or by adding new roadways to the network.	■	□	□

BVDSP EIR Findings

The BVDSP EIR analyzed transportation and circulation conditions in and around the Plan Area under six different scenarios, which represent three time periods (existing conditions, Year 2020, and Year 2035) with and without the BVDSP Development Program and associated transportation improvements. For the purposes of this analysis, these scenarios are referred to as: 1) existing conditions; 2) existing conditions plus full Development Program (full buildout of the Development Program); 3) Year 2020 no project; 4) Year 2020 plus Phase 1 of Development Program (partial buildout of the Development Program); 5) Year 2035 no project; and 6) Year 2035 plus full Development Program (full buildout of the Development Program).

The BVDSP EIR determined that no significant impacts to transit, pedestrian, bicycle, and other related topics would occur under any of the scenarios; therefore, these topics are not further discussed herein.

The EIR identified 28 significant impacts on level of service (LOS) at intersections serving the Plan Area. For each impact and associated mitigation measure(s), the EIR identified specific triggers based on the level of development in the entire Plan Area or specific subdistrict(s). Several of these impacts and mitigation measures would be triggered by the project combined with other planned developments. These impacts and mitigation measures are further described below.

The BVDSP EIR identified SCAs that require city review and approval of all improvements in the public right-of-way, reduction of vehicle traffic and parking demand generated by development projects, and construction traffic and parking management, which will also address transportation and circulation impacts.

Project Analysis

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 SB 743 to modify local environmental review processes by removing automobile delay, as described solely by LOS or similar measures of vehicular capacity or traffic congestion, as a significant impact on the environment pursuant to CEQA.[69] The recommendation 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 emissions, the development of multimodal transportation networks, and a diversity of land uses. Thus, this section evaluates the impacts of the project with respect to vehicle miles traveled (VMT). In addition, consistent with previous developments proposed under the BVDSP, this section also evaluates the consistency of the project with the approved BVDSP EIR and identifies the BVDSP EIR mitigation measures that the project would trigger.

Consistency with Plan, Ordinances, or Policies addressing the Safety, or Performance of the Circulation System (Criteria 5.13.a and 5.13.b)

While the City now relies on VMT as its CEQA Thresholds of Significance, the threshold for determining consistency with the BVDSP EIR is based on conformity with transportation and circulation assumptions. For this reason, this section of the CEQA Checklist summarizes the findings of the transportation analysis completed for the project. The analysis is provided in two parts below, as follows: the first part describes the VMT analysis for the project and the second part compares the project's impacts to those analyzed in the BVDSP EIR and determines the consistency of the project combined with other planned developments with the BVDSP EIR.

[69] Senate Bill 743. Steinberg, 2013.

VMT Analysis

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.

Considering these travel behavior factors, most of Oakland has a lower VMT per capita and VMT per employee ratios than the nine-county San Francisco Bay Area region. In addition, some neighborhoods of the City have lower VMT ratios than other areas of the City.

Estimating VMT

Neighborhoods within Oakland are expressed geographically in transportation analysis zones (TAZs). The Metropolitan Transportation Commission (MTC) Travel Model includes 116 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 is a model that assigns all predicted trips within, across, or 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; and,
- 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 resident is 15.0 under 2020 conditions and 13.8 under 2040 conditions.

Thresholds of Significance

According to the *City of Oakland Transportation Impact Review Guidelines* (TIRG) dated April 14, 2017, the following are thresholds of significance related to substantial additional VMT:

- For residential projects, a project would cause substantial additional VMT if it exceeds existing regional household VMT per capita minus 15%.
- For office projects, a project would cause substantial additional VMT if it exceeds the existing regional VMT per employee minus 15%.
- For retail projects, a project would cause substantial additional VMT if it exceeds the existing regional VMT per employee minus 15%.

VMT impacts would be less than significant for a project if any of the identified screening criteria are met:

- **Criterion Number 1: Small Projects:** The project generates fewer than 100 vehicle trips per day;
- **Criterion Number 2: Low-VMT Areas:** The project meets map-based screening criteria by being located in an area that exhibits below threshold VMT, or 15% or more below the regional average; or
- **Criterion Number 3: Near Transit Stations:** The project is located in a Transit Priority Area or within 0.5 miles of a Major Transit Corridor or Stop and satisfies the following:[70]
  - Has a Floor Area Ratio (FAR) of more than 0.75;
  - Includes less 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); and
  - Is consistent with the applicable sustainable communities strategy (as determined by the lead agency, with input from the MTC).

VMT Screening Analysis

The project does not satisfy criterion 1 or 3 but satisfies criterion 2 (Low-VMT Area), as detailed below.

Criterion Number 1: Small Projects. The project would generate more than 100 trips per day and therefore does not meet criterion number 1.

Criterion Number 2: Low-VMT Area. Table 5.13-1 shows the 2020 and 2040 VMT for TAZ 972, the TAZ in which the project is located, as well as applicable VMT thresholds of 15% below the regional average. Considering that the project would provide less than 50,000 square feet of retail space, and consistent with the City of Oakland TIRG and OPR Guidelines, the retail is considered to be local serving and is presumed to not generate substantial additional VMT.

The 2020 and 2040 average daily VMT per capita in the project TAZ is significantly less than, and more than 15% below, the regional averages. Therefore, it is presumed that the project would not result in substantial additional VMT, and project impacts on VMT would be less-than-significant.

[70] 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 morning and afternoon peak commute periods.

Table 5.13-1. Daily Vehicle Miles Traveled Summary

Land Use	Bay Area				TAZ 972	
	2020		*2040*			
	Regional Average	*Regional Average minus 15%*	*Regional Average*	*Regional Average minus 15%*	*2020*	*2040*
Residential (VMT per Resident)[1]	15.0	12.7	13.8	11.7	6.9	6.8

Source: Fehr & Peers, 2020.
Notes:
1 MTC Model results at analytics.mtc.ca.gov/foswiki/Main/PlanBayAreaVmtPerWorker and accessed in June 2020.

Criterion Number 3: Near Transit Stations. The proposed project would be located more than 0.5 miles walking distance from the 19th Street BART Station but is served by several frequent bus routes. The project site is about 0.2 miles from Broadway (Route 51A with 10-minute peak headways), about 0.3 miles from Telegraph Avenue (Route 6 with 10-minute peak headways), and about 0.5 miles from 20th Street (Routes 72, 72M, and 72R, with 10- to 12-minute peak headways). The proposed project would not satisfy Criterion number 3 because it would only meet two of the following three conditions for this criterion:

- The project has a FAR of 11, when considering the total project development relative to the project site, which is greater than threshold of 0.75.
- The project would provide 215 parking spaces consisting of 187 spaces for the project residents and 28 spaces for the commercial uses. Since the project is located in the D-BV-1 zoning district, the City of Oakland Municipal Code Section 17.116.060 requires a minimum of 0.5 spaces per residential unit and Section 17.116.080 requires a minimum of 0.6 parking spaces per 1,000 square feet of ground-level commercial uses. The proposed project is required to provide a minimum of 165 parking spaces for the residential component and 22 parking spaces for the commercial uses, for a total of 187 parking spaces. Because the project would provide more spaces than required by the Code, the project would not satisfy this requirement.
- 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.

VMT Screening Conclusion

The project would satisfy the Low-VMT Area (Criterion 2) and is therefore presumed to have a less–than-significant impact on VMT.

Project Analysis and Consistency with BVDSP EIR

Table 5.13-2 summarizes the trip generation for the project. The trip generation accounts for the trips generated by the existing uses at the site that would be eliminated.[71] The project is estimated to generate approximately 68 net new vehicle trips during the weekday AM peak hour (15 inbound and 53 outbound) and approximately 105 net new vehicle trips during the weekday PM peak hour (62 inbound and 43 outbound).

71 As this analysis is tiering from the BVDSP EIR consistent with CEQA Guidelines Section 15183, existing uses considered are those present at the site at the time of the BVDSP EIR analysis.

Project and the Development Program Analyzed in the BVDSP EIR

Table 5.13-3 lists the development projects within the BVDSP Plan Area that have been constructed, are currently under construction, approved, and/or proposed, including the project. Table 5.13-3 also accounts for the existing uses on each site that were eliminated.

Table 5.13-4 compares the total amount of development constructed, currently under construction, approved, and/or proposed with the Development Program buildout assumptions used in the BVDSP EIR for the Plan Area (Subdistricts 1 through 5), the Valdez Triangle subarea (Subdistricts 1 through 3) and Subdistrict 2. The project site is in Subdistrict 2 of the Valdez Triangle subarea of the Plan Area.

Table 5.13-2. Automobile Trip Generation

Land Use	Units	ITE Code	Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
				In	*Out*	*Total*	*In*	*Out*	*Total*
Proposed Project[1]									
Residential	343 DU	221[2]	1,870	32	91	123	92	59	151
Retail	15.0 KSF	820[3]	570	9	5	14	27	30	57
		Subtotal	*2,440*	*41*	*96*	*137*	*119*	*89*	*208*
Non-Auto Reduction (-37%)[4]			-900	-15	-35	-50	-44	-33	-76
Total New Project Trips			**1,540**	**26**	**61**	**87**	**75**	**56**	**132**
Existing Uses									
Residential	15 DU	221[2]	-80	-1	-4	-5	-4	-3	-7
Auto Repair	11.1 KSF	942[5]	-360	-17	-8	-25	-17	-18	-35
		Subtotal	*-440*	*-18*	*-12*	*-30*	*-21*	*-21*	*-42*
Non-Auto Reduction (-37%)[4]			160	7	4	11	8	8	15
Total Existing Trips			**-280**	**-11**	**-8**	**-19**	**-13**	**-13**	**-27**
Net New Project Trips			**1,260**	**15**	**53**	**68**	**62**	**43**	**105**

Source: Fehr & Peers, 2020.
Notes: DU = Dwelling units, KSF = 1,000 square feet.

1 The project evaluated in this analysis is larger than the proposed project and therefore provides a very conservative evaluation of the project's impacts.

2 ITE *Trip Generation* (10th Edition) land use category 221 (Multi-Family [Mid-Rise]):
Daily: T = 5.44 * X
AM Peak Hour: T = 0.36 * X (26% in, 74% out)
PM Peak Hour: T = 0.44 * X (61% in, 39% out)

3 ITE *Trip Generation* (10th Edition) land use category 820 (Shopping Center):
Daily: T = 37.75 * X
AM Peak Hour: T = 0.94 * X (62% in, 38% out)
PM Peak Hour: T = 3.81 * X (48% in, 52% out)

4 The 36.7% reduction is based on the City of Oakland's *Transportation Impact Review Guidelines* for development between 0.5 and 1.0 miles of a BART Station.

5 ITE *Trip Generation* (10th Edition) land use category 942 (Automobile Care Center):
Daily: T = 32.2 * X
AM Peak Hour: T = 2.25 * X (68% in, 32% out)
PM Peak Hour: T = 3.11 * X (48% in, 52% out)

Table 5.13-3. Developments in the Broadway Valdez District Specific Plan

Development	BVDSP Subdistrict	Status	Proposed Development[1]				Active Existing Uses[2]	Net Development[1,3]				
			Residential (DU)	*Retail (KSF)*	*Office (KSF)*	*Hotel (Room)*		*Residential (DU)*	*Retail (KSF)*	*Office (KSF)*	*Hotel (Room)*	*Other (KSF)*
3001 Broadway (Sprouts)	5	Constructed	0	36.0	0	0	Parking Lot	0	36.0	0	0	0
2345 Broadway (HIVE)	1	Constructed	105	30.3	64.0	0	11.4 KSF Auto Repair and 30.2 KSF Warehouse	105	94.3	30.3	64.0	-41.6
2425 Valdez	3	Constructed	71	1.5	0	0	Parking Lot	71	1.5	0	0	0
3093 Broadway	5	Constructed	423	20.0	0	0	40.2 KSF Auto Dealership	423	-20.2	0	0	0
2302 Valdez	2	Constructed	196	31.5	0	0	3.6 KSF Auto Repair	196	31.5	0	0	-3.6
2315 Valdez/ 2330 Webster	1	Constructed	235	16.0	0	0	Parking Lot	235	16.0	0	0	0
2630 Broadway	3	Constructed	255	37.5	0	0	Parking Lot/ Vacant	255	37.5	0	0	0
3416 Piedmont Avenue	5	Under Construction	9	1.5	0	0	Vacant Lot	9	1.5	0	0	0
2400 Valdez	2	Constructed	224	23.5	0	0	Parking Lot	224	23.5	0	0	0
3000 Broadway	5	Under Construction	127	8.0	0	0	3 DU, 8.8 KSF Restaurant, and 10.2 KSF Auto Repair	124	-0.8	0	0	-10.2
2820 Broadway	4	Under Construction	218	18.0	0	0	42.2 KSF Auto Dealership	218	-24.2	0	0	0
24th & Harrison	2	Under Construction	437	65.0	0	0	55.2 KSF Auto Dealership, 5.3 KSF Auto Repair, and 3.25 KSF Fitness Center	437	6.6	0	0	-5.3
2401 Broadway	3	Under Construction	72	27.2	0	159	15.5 KSF Auto Dealership, and 7.1 KSF Retail	72	4.5	0	159	0

Table 5.13-3. Developments in the Broadway Valdez District Specific Plan

Development	BVDSP Subdistrict	Status	Proposed Development[1]				Active Existing Uses[2]	Net Development[1,3]				
			Residential (DU)	*Retail (KSF)*	*Office (KSF)*	*Hotel (Room)*		*Residential (DU)*	*Retail (KSF)*	*Office (KSF)*	*Hotel (Room)*	*Other (KSF)*
2500 Webster	3	Under Construction	30	6.4	0	0	6.3 KSF Auto Dealership	30	0.1	0	0	0
3300 Broadway	5	Approved	45	3.0	0	0	5.5 KSF Retail	45	-2.5	0	0	0
2305 Webster	1	Approved	130	3.0	0	0	Parking Lot	130	3.0	0	0	0
295 29th Street	4	Under Construction	91	0	0	0	13.9 KSF Auto Repair	91	0	0	0	-13.9
2415 Valdez	3	Under Construction	89	0.9	0	0	Parking Lot	89	0.9	0	0	0
88 Grand Avenue	1	Proposed	275	1	0	0	Parking Lot	275	1.0	0	0	0
290 27th Street	2	Proposed	198	3.7	0	0	1.0 KSF Retail, and 22.3 KSF Office	198	-7.3	-22.3	0	0
2424 Webster	3	Proposed	0	9.6	146.6	0	12.5 KSF Auto Dealership, 7.7 KSF Retail, and 9.5 KSF Office	0	-10.6	137.1	0	0
24th & Waverly (Proposed Project)[4]	2	Proposed	343	15.0	0	0	15 DU and 11.1 KSF Auto Repair	330	15.0	0	0	-11.1
		Total	**3,573**	**348.7**	**210.6**	**159**		**3,557**	**133.5**	**178.8**	**159**	**-85.7**

Source: City of Oakland, June 2020.

Notes:

1 DU = dwelling units, ksf = 1,000 square feet, RM = room

2 Consists of active uses at the time the BVDSP EIR was prepared.

3 Retail and non-retail uses (such as auto repair and warehouses) are presented separately because the non-retail uses generate fewer trips than typical retail uses.

4 The project evaluated in this analysis is larger than the proposed project and therefore provides a very conservative evaluation of the project's impacts.

Table 5.13-4. Development Comparison within the Plan Area, Valdez Triangle, and Subdistrict 2

	Residential (DU)	Retail (KSF)	Office (KSF)	Hotel (Rooms)
Plan Area (Subdistricts 1 through 5)				
Constructed, Under Construction, Approved, and Proposed Development Projects[1]	3,557	133.5	178.8	159
Development Program Buildout[2]	1,797	1,114.1	694.9	180
Percent Completed	198%	12%	26%	88%
Valdez Triangle (Subdistricts 1 through 3)				
Constructed, Under Construction, Approved, and Proposed Development Projects[1]	2,645	143.7	178.8	159
Development Program Buildout[2]	965	793.5	116.1	180
Percent Completed	274%	18%	154%	88%
Subdistrict 2				
Constructed, Under Construction, Approved, and Proposed Development Projects[1]	1,383	69.1	-22.3	0
Development Program Buildout[2]	487	388.2	0	0
Percent Completed	284%	18%	NA	0

Source: Fehr & Peers, 2020.
Notes: DU = dwelling units, KSF = 1,000 square feet.
1 Information from City of Oakland, June 2020. Accounts for existing active uses that would be eliminated.
2 Based on Table 4.13-7 on page 4.13-37 of BVDSP Draft EIR.

Table 5.13-5 compares the trip generation associated with the project to the trip generation in the Plan Area (Subdistricts 1 through 5), the Valdez Triangle subarea (Subdistricts 1 through 3), and Subdistrict 2.

Trips generated by the project, combined with trips generated by other developments that have been constructed, currently under construction, approved, or proposed for development in the Plan Area, would represent approximately 60% of the AM and 53% of the PM peak-hour trips anticipated in the BVDSP EIR; 107% of the AM and 79% of the PM peak-hour trips anticipated in the BVDSP EIR for the Valdez Triangle subarea; and 103% of the AM and 73% of the PM peak-hour trips anticipated in the BVDSP EIR for Subdistrict 2.

In general, the amount of residential development in the Plan Area, Valdez Triangle, and Subdistrict 2 and the amount of office development in the Valdez Triangle are currently more than what was assumed under the Development Program buildout in the BVDSP EIR. As a result, the AM peak hour trip generation for the Valdez Triangle and Subdistrict 2 are above the trip generation estimated in the BVDSP EIR. However, the PM peak hour trip generation for the Valdez Triangle and Subdistrict 2, as well as the AM and PM peak hour trip generation for the overall Plan Area, are below the trip generation estimated in the BVDSP EIR because the amount of retail and office uses currently proposed in the Plan Area are well below the BVDSP EIR assumptions.

The exceedance of the AM peak hour trip generation for the Valdez Triangle and Subdistrict 2 above the trip generation estimated in the BVDSP EIR would not result in additional impacts because the overall AM and PM peak hour trip generations for the Plan Area are below the BVDSP EIR, none of the BVDSP EIR impacts are triggered during the AM peak hour, and the AM peak hour trip generation is slightly more than half of the PM peak hour trip generation.

Table 5.13-5. Trip Generation Comparison

	AM Peak Hour	PM Peak Hour
Plan Area (Subdistricts 1 through 5)		
Constructed, Development Projects Approved, Proposed, or Under Construction[1]	1,180	1,975
Development Program Buildout[2]	1,981	3,709
Percent Completed	60%	53%
Valdez Triangle (Subdistricts 1 through 3)		
Constructed, Development Projects Approved, Proposed, or Under Construction[1]	962	1,576
Development Program Buildout[2]	899	2,006
Percent Completed	107%	79%
Subdistrict 2		
Constructed, Development Projects Under Construction, Approved, or Proposed	372	668
Development Program Buildout[2]	361	910
Percent Completed	103%	73%

Source: Fehr & Peers, 2020.
Notes:
1 Based on application of the BVDSP trip generation model with the developments shown in Table 5.13-3, and accounting for the trips generated by existing uses that would be eliminated.
2 Based on Table 4.13-10 on page 4.13-43 of the BVDSP EIR.

The exceedance in the AM peak hour would not affect intersection operations beyond the ones identified as having a significant impact and discussed below. Furthermore, considering that the BVDSP EIR analyzed the impacts of the Development Program at signalized intersections in the immediate vicinity of the project site, the proposed project would not cause additional impacts beyond those analyzed in the BVDSP EIR, nor would it increase the magnitude of the impacts identified in the BVDSP EIR.

Traffic Impacts at BVDSP EIR Intersections

The BVDSP EIR identified 28 significant impacts at intersections that serve the Plan Area. It also identified the specific level of development in the Plan Area and/or each Subdistrict that would trigger each impact and its associated mitigation measure(s). The proposed project, combined with other projects under construction, approved, and proposed for development in the Plan Area, would trigger the BVDSP EIR Mitigation Measures TRANS-1, TRANS-2, TRANS-4, TRANS-5, TRANS-10, and TRANS-22. According to the BVDSP EIR, the project applicant would fund the cost of preparing and funding mitigation measures identified in the BVDSP EIR. However, because the City of Oakland adopted the citywide Transportation Impact Fee (TIF) program, the applicant may elect pay the applicable TIF to mitigate project impacts.

Additional Study Intersections

The current City of Oakland Transportation Impact Review Guidelines (dated April 14, 2017) require analysis of project impacts at intersections adjacent to the project site, signalized and all-way stop-controlled intersections where the project would add 50 or more peak hour trips, and side-street stop-controlled intersections where the project would add 10 or more trips to the stop-controlled approach. According to the Guidelines, this traffic impact analysis would be completed as a non-CEQA analysis because intersection LOS, or other metrics based on vehicular delay or congestion, cannot be used to identify impacts in CEQA documents.

Based on the City's current criteria, the following four intersections would need to be evaluated, and the text in the parentheses describes why each intersection is selected as a study intersection:

1. 24th Street/Waverly Street (adjacent to and northwest of the project site)
2. 27th Street/24th Street/Bay Place/Harrison Street (adjacent to and northeast of the project site)
3. 23rd Street/Waverly Street (project would add more than 10 peak hour trips to the stop-controlled approach of a side-street stop-controlled intersection)
4. 23rd Street/Harrison Street (project would add more than 10 peak hour trips to the stop-controlled approach of a side-street stop-controlled intersection)

The BVDSP EIR analyzed two of the four intersections above (intersections #2 and #4). The Transportation Impact Review (TIR, Non-CEQA) Memorandum provided as Attachment J evaluates the effects of the project on these four intersections. As described in the memorandum, the proposed project would not affect traffic operations at the two previously evaluated intersections beyond the levels identified in the BVDSP EIR. In addition, the proposed project would not affect traffic operations at the other two intersections listed above (intersections #1 and #3) that were not previously evaluated in the BVDSP EIR.

Furthermore, the proposed project would not add 50 or more peak hour trips to any additional signalized or all-way stop-controlled intersections; the project would also not add 10 or more peak hour trips to the stop-controlled approach of side-street stop-controlled intersections in the vicinity that were not analyzed in BVDSP EIR or the TIR Memorandum. Therefore, analysis of additional intersections beyond the ones analyzed in the BVDSP EIR or the TIR Memorandum is not needed. Overall, the proposed project would not result in new or more severe impacts on traffic operations at the intersections beyond the ones identified in the BVDSP EIR.

Consistency of 24th Street Improvements with the BVDSP EIR

The project would include a public plaza along the north frontage of the project on 24th Street between Harrison and Waverly streets. The plaza improvements would maintain the segment of 24th Street adjacent to the project as a one-way westbound street. The BVDSP EIR assumed that this segment of 24th Street would be converted to two-way operations. Maintaining 24th Street between Harrison and Waverly Streets as a one-way westbound street would not result in additional impacts beyond the ones identified in the BVDSP EIR because the street would continue to be open and accessible to vehicles, cyclists, and pedestrians, and the intersection operations analysis completed for the project, as described in the TIR Memorandum provided as Attachment J and which accounts for 24th Street between Harrison and Waverly streets remaining one-way, shows no new or more severe impacts on traffic operations beyond the ones identified in the BVDSP EIR.

Substantially induce additional automobile travel by increasing physical roadway capacity in congested areas or by adding new roadways to the network (Criterion 5.13.c)

24th Street would remain a westbound one-way street adjacent to the project site and would be narrowed to one lane to accommodate a public plaza that would be constructed as part of the proposed project, along the frontage of the project site from Harrison to Waverly streets. Other than this, the proposed project would not modify the roadway network surrounding the project site. Therefore, the project would not substantially induce additional automobile travel by increasing the physical roadway capacity in congested areas (i.e., by adding new mixed-flow lanes) and would not add new roadways to the network and would have a less-than-significant impact on inducing additional automobile traffic.

Conclusion

The combined trip generation for projects that are currently approved, proposed, or under construction in the Plan Area and the Valdez Triangle subarea including the project, remains lower than the estimated trip generation in the BVDSP EIR under the Development Program for those areas. Although the overall trips generated by the Valdez Triangle and Subdistrict 2 during the AM peak hour would exceed the estimate for the Development Program in the BVDSP EIR, the exceedance is not expected to cause additional significant impacts beyond the ones identified in the BVDSP EIR.

Additionally, the project would not result in significant impacts to the intersections not analyzed in the BVDSP EIR (see Attachment J). Therefore, the project would not cause additional impacts beyond those evaluated in the BVDSP EIR, nor would the project increase the magnitude of the impacts identified in the EIR. In addition, this transportation analysis determined that the project would not result in any significant impacts to vehicle access and circulation, bicycle access and bicycle parking, pedestrian access and circulation, and transit access, consistent with the findings of the BVDSP EIR.

The proposed project would be consistent with the findings of BVDSP EIR and would not result in an increase in the severity of significant impacts identified in the BVDSP EIR, nor would it result in new significant impacts related to transportation and circulation that were not identified in the BVDSP EIR. The proposed project, combined with other projects under construction, approved, and proposed for development in the Plan Area, would trigger the BVDSP EIR Mitigation Measures TRANS-1, TRANS-2, TRANS-4, TRANS-5, TRANS-10, and TRANS-22. The project may elect to pay the applicable TIF to mitigate project impacts based on its fair-share contribution to those impacts. SCA TRANS-1: Construction Activity in the Public Right-of-Way (#74); SCA TRANS-2: Bicycle Parking (#75); SCA TRANS-3: Transportation Improvements (#76); SCA TRANS-4: Transportation and Parking Demand Management (#77); SCA TRANS-5: Transportation Impact Fee (#78); and SCA TRANS-6: Plug-In Electric Vehicle (PEV) Charging Infrastructure (#80), including Section (b) for PEV Capable Parking Spaces (see Attachment J) apply to the project and would further reduce transportation-related effects. Attachment A provides the full description of the applicable SCAs.

5.14 Utilities and Service Systems

Would the project:	Equal or Less Severity of Impact Previously Identified in BVDSP EIR	Substantial Increase in Severity of Previously Identified Significant Impact in EIR	New Significant Impact
a. Exceed wastewater treatment requirements of the San Francisco Bay Regional Water Quality Control Board; Require or result in construction of new storm water drainage facilities or expansion of existing facilities, construction of which could cause significant environmental effects; 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;	■	□	□
b. 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;	■	□	□
c. 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; Violate applicable federal, state, and local statutes and regulations related to solid waste;	■	□	□

Would the project:	Equal or Less Severity of Impact Previously Identified in BVDSP EIR	Substantial Increase in Severity of Previously Identified Significant Impact in EIR	New Significant Impact
d. Violate applicable federal, state and local statutes and regulations relating to energy standards; or 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.	■	□	□

BVDSP EIR Findings

The BVDSP EIR found that impacts, including cumulative impacts, to water, wastewater, stormwater, solid waste services, and energy would be less than significant with implementation of applicable City SCAs and compliance with applicable regulations.

Project Analysis

The BVDSP allows for flexibility with respect to the quantity and type of future development within each subdistrict (or subarea) within the Plan Area and between subareas as long as such development conforms to the general traffic generation parameters established by the Plan. Furthermore, the Development Program is not intended to be a cap that restricts development. As shown in Table 3-1 in Chapter 3, BVDSP and EIR, the project would provide more dwelling units on the site compared to the Illustrative Development Program for Site 7 (i.e., 330 units instead of 118 units) but would provide less retail square footage (13,192 square feet instead of 127,733 square feet). This difference, however, represents minor net changes in the Development Program in terms of impacts related to utilities and service systems because the project conforms to the traffic generation parameters analyzed in the BVDSP EIR, as described above in Section 5.13. As such, the project is within the envelope of the Development Program analyzed in the BVDSP EIR.

Water, Wastewater, Stormwater, Electrical Power, Natural Gas, and Telecommunication (Criteria 5.14.a, 5.14b, 5.14c, and 5.14.d)

The project site is within a built-out urban area, and the extension of new utility infrastructure to the area would not be required. The water and sanitary sewer demand and stormwater facilities, as well as solid waste and energy associated with the proposed project, are consistent with the Development Program analyzed in the BVDSP EIR. All on-site utilities would be designed in accordance with applicable codes and current engineering practices. However, the project would pay a sewer mitigation fee, which would either contribute to the cost of replacing pipes for the local collection system to increase capacity or be used to perform inflow and infiltration rehabilitation projects outside of the Plan Area, as described in the BVDSP EIR.

In addition, implementation of the following SCAs would further address any potential impacts to water, wastewater, stormwater, solid waste services, and energy: SCA-UTIL-1: Sanitary Sewer System (#86), which would require a Sanitary Sewer Impact Analysis; SCA-UTIL-2: Storm Drain System (#87), which would require the project storm drainage system to be designed in accordance with the City's Storm Drainage Design Guidelines; SCA-UTIL-3: Recycling Collection and Storage Space (#83), which requires compliance with the City's Recycling Space Allocation Ordinance (Chapter 17.118 of the Oakland Planning Code); SCA-UTIL-4: Construction and Demolition Waste Reduction and Recycling (#81), which requires the compliance with the City's Construction and Demolition Waste Reduction and Recycling Ordinance (Chapter 15.34 of the Oakland Municipal Code); SCA-UTIL-5: Underground Utilities (#82), which requires all new gas, electric, cable, and telephone facilities to be underground; SCA-UTIL-6: Green Building Requirements (#84), which requires compliance with the California Green Building Standards and applicable requirements of the City's Green Building Ordinance (Chapter 18.02 of the Oakland Municipal Code); and SCA-UTIL-7: Water Efficient Landscape Ordinance (WELO) (#89), which requires implementation of measures to reduce landscape water usage. In addition, the project would be required to comply with the standards of Title 24 of the California Code of Regulations. The City of Oakland SCA related to recycled water (SCA #88), would not apply to the project as there is currently no access to recycled water to the site.[72]

Conclusion

The proposed project would be consistent with the findings of BVDSP EIR and would not result in any new or more severe significant impacts related to water supply, sewer capacity, stormwater drainage facilities, solid waste services, and energy than those identified in the BVDSP EIR. Implementation of SCA-UTIL-1: Sanitary Sewer System (#86), SCA-UTIL-2: Storm Drain System (#87), SCA-UTIL-3: Recycling Collection and Storage Space (#83), SCA-UTIL-4: Construction and Demolition Waste Reduction and Recycling (#81), SCA-UTIL-5: Underground Utilities (#82), SCA-UTIL-6: Green Building Requirements (#84) and SCA-UTIL-7: Water Efficient Landscape Ordinance (WELO) (#89), as well as compliance with Title 24 and CALGreen requirements would ensure that impacts to utilities and service systems would be less than significant. Attachment A provides the full description of the applicable SCAs.

[72] East Bay Municipal Utility District. 2017. "East Bay Recycled Water Project Map." Accessed June 7, 2020. https://www.ebmud.com/files/2215/7245/7044/EBRWP_2017_Current.png.

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Attachment A

Standard Conditions of Approval and Mitigation Monitoring Reporting Program

The City of Oakland's Uniformly Applied Development Standards adopted as Standard Conditions of Approval (Standard Conditions of Approval, or SCAs) were originally adopted by the City in 2008 (Ordinance No. 12899 C.M.S.) pursuant to Public Resources Code section 21083.3) and have been incrementally updated over time. The SCAs incorporate development policies and standards from various adopted plans, policies, and ordinances (such as the Oakland Planning and Municipal Codes, Oakland Creek Protection, Stormwater Water Management and Discharge Control Ordinance, Oakland Tree Protection Ordinance, Oakland Grading Regulations, National Pollutant Discharge Elimination System [NPDES] permit requirements, Housing Element-related mitigation measures, Green Building Ordinance, historic/Landmark status, California Building Code, and Uniform Fire Code, among others), which have been found to substantially mitigate environmental effects.

These SCAs are incorporated into projects as conditions of approval, regardless of the determination of a project's environmental impacts. As applicable, the SCAs are adopted as requirements of an individual project when it is approved by the City, and are designed to, and will, avoid or substantially reduce a project's environmental effects.

In reviewing project applications, the City determines which SCAs apply based upon the zoning district, community plan, and the type of permits/approvals required for the project. The City also will determine which SCAs apply to a specific project based on the specific project type and/or project site characteristics. Because these SCAs are mandatory City requirements imposed on a city-wide basis, environmental analyses assume these SCAs will be implemented by the project, and these SCAs are not imposed as mitigation measures under CEQA.

All SCAs identified in the CEQA Analysis are included herein. To the extent that any SCA identified in the CEQA Analysis was inadvertently omitted, it is automatically incorporated herein by reference.

- The first column identifies the SCA applicable to that topic in the CEQA Analysis.
- The second column identifies the monitoring schedule or timing applicable to the project.
- The third column names the party responsible for monitoring the required action for the project.

In addition to the SCAs identified and discussed in the CEQA Analysis, other SCAs that are applicable to the project are included herein.

The project applicant is responsible for compliance with any recommendations in approved technical reports and with all SCAs set forth herein at its sole cost and expense, unless otherwise expressly provided in a specific SCA, and subject to the review and approval of the City of Oakland. Overall monitoring and compliance with the SCAs will be the responsibility of the Planning and Zoning Division. Prior to the issuance of a demolition, grading, and/or construction permit, the project applicant shall pay the applicable mitigation and monitoring fee to the City in accordance with the City's Master Fee Schedule.

Note that the SCAs included in this document are referred to using an abbreviation for the environmental topic area and are numbered sequentially for each topic area—i.e., **SCA-AIR-1**, **SCA-AIR-2**, etc. The SCA title are also provided—i.e., **SCA-AIR-1: Dust Controls – Construction Related (#20)**.

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
Aesthetics, Shadow and Wind			
SCA-AES-1: *Lighting* (#19). 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.	Prior to building permit final	N/A	Bureau of Building
SCA-AES-2: *Trash and Blight Removal* (#16). The project applicant and his/her successors shall maintain the property free of blight, as defined in Chapter 8.24 of the Oakland Municipal Code. For non-residential and multi-family residential projects, the project applicant shall install and maintain trash receptacles near public entryways as needed to provide sufficient capacity for building users.	Ongoing	N/A	Bureau of Building
SCA-AES-3: *Graffiti Control* (#17). 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: 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.	Ongoing	N/A	Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
ii. Covering with new paint to match the color of the surrounding surface. iii. Replacing with new surfacing (with City permits if required.			
SCA-AES-4: *Landscape Plan* (#18). a. *Landscape Plan Required* 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. Proposed plants shall be predominantly drought-tolerant. Specification of any street trees shall comply with the Master Street Tree List and Tree Planting Guidelines (which can be viewed at http://www2.oaklandnet.com/oakca1/groups/pwa/documents/report/oak042662.pdf and http://www2.oaklandnet.com/oakca1/groups/pwa/documents/form/oak025595.pdf, respectively), and with any applicable streetscape plan. b. *Landscape Installation* 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. c. *Landscape Maintenance* 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.	a. Prior to approval of construction-related permit b. Prior to building permit final c. Ongoing	a. Bureau of Planning b. Bureau of Planning c. N/A	a. N/A b. Bureau of Building c. Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
Air Quality			
SCA-AIR-1: *Dust Controls – Construction Related (#20).* The project applicant shall implement all of the following applicable dust control measures during construction of the project: 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. Limit vehicle speeds on unpaved roads to 15 miles per hour. e. All demolition activities (if any) shall be suspended when average wind speeds exceed 20 mph f. All trucks and equipment, including tires, shall be washed off prior to leaving the site. g. 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. ENHANCED CONTORLS h. Apply and maintain vegetative ground cover (e.g., hydroseed) or non-toxic soil stabilizers to disturbed areas of soil that will be inactive for more than one month. Enclose, cover, water twice daily, or apply (non-toxic) soil stabilizers to exposed stockpiles (dirt, sand, etc.). i. 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. j. When working at a site, install appropriate wind breaks (e.g., trees, fences) on the windward side(s) of the site, to minimize wind-blown dust.	During construction	N/A	Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
Windbreaks must have a maximum 50% air porosity. k. 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. l. All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12%. Moisture content can be verified by lab samples or moisture probe.			
SCA-AIR-2: *Criteria Air Pollutant Controls – Construction Related (#21).* The project applicant shall implement all of the following applicable basic control measures for criteria air pollutants during construction of the project as applicable: a. 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 two 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. b. 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 two 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"). c. 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. Equipment check documentation should be kept at the construction site and be available for review by the City and the Bay Area Air Quality District as needed.	a-f. During Construction	a-f. N/A	a-f. Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
d. Portable equipment shall be powered by grid electricity if available. If electricity is not available, propane or natural gas generators shall be used if feasible. Diesel engines shall only be used if grid electricity is not available and propane or natural gas generators cannot meet the electrical demand. e. Low VOC (i.e., ROG) coatings shall be used that comply with BAAQMD Regulation 8, Rule 3: Architectural Coatings. f. All equipment to be used on the construction site shall comply with the requirements of Title 13, Section 2449, of the California Code of Regulations ("California Air Resources Board Off-Road Diesel Regulations") and upon request by the City (and the Air District if specifically requested), the project applicant shall provide written documentation that fleet requirements have been met. ***[Enhanced Control measures g. Criteria Air Pollutant Reduction Measures and h. Construction Emissions Minimization Plan do not apply to the Proposed Project.]***			
SCA-AIR-3: *Diesel Particulate Matter Controls – Construction Related (#22).* ***[Note: The CEQA analysis above satisfies a.i. (below) and the project applicant has committed to the use of the most effective VDECS on all off-road diesel construction equipment (e.g., use of Tier 4 engines), as described in Chapter 2, Project Description. Therefore this SCA has been satisfied.]*** a. *Diesel Particulate Matter Reduction Measures.* The project applicant shall implement appropriate measures during construction to reduce potential health risks to sensitive receptors due to exposure to diesel particulate matter (DPM) from construction emissions. 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 current guidance from the California Air Resources Board (CARB) and Office of Environmental Health and Hazard Assessment to determine the health risk to sensitive receptors exposed to DPM from project construction emissions. The HRA	a. Prior to issuance of construction related permit (i) During construction (ii) b. Prior to issuance of a construction related permit	a. Bureau of Planning b. Bureau of Planning	a. Bureau of Building b. Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
shall be submitted to the City (and the Air District if specifically requested) for review and approval. If the HRA concludes that the health risk is at or below acceptable levels, then DPM reduction measures are not required. If the HRA concludes that the health risk exceeds acceptable levels, DPM reduction measures shall be identified to reduce the health risk to acceptable levels as set forth under subsection b below. Identified DPM reduction measures shall be submitted to the City for review and approval prior to the issuance of building permits and the approved DPM reduction measures shall be implemented during construction. *-or-* ii. All off-road diesel equipment shall be equipped with the most effective Verified Diesel Emission Control Strategies (VDECS) available for the engine type (Tier 4 engines automatically meet this requirement) as certified by CARB. The equipment shall be properly maintained and tuned in accordance with manufacturer specifications. This shall be verified through an equipment inventory submittal and Certification Statement that the Contractor agrees to compliance and acknowledges that a significant violation of this requirement shall constitute a material breach of contract. b. Construction Emissions Minimization Plan (if required by a above) The project applicant shall prepare a Construction Emissions Minimization Plan (Emissions Plan) for all identified DPM reduction measures (if any). The Emissions Plan shall be submitted to the City (and the Bay Area Air Quality District if specifically requested) for review and approval prior to the issuance of building permits. The Emissions Plan shall include the following: i. An equipment inventory summarizing the type of off-road equipment required for each phase of construction, including the equipment manufacturer, equipment identification number, engine model year, engine certification (tier rating), horsepower, and engine serial number. For all VDECS, the			

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
equipment inventory shall also include the technology type, serial number, make, model, manufacturer, CARB verification number level, and installation date. ii. A Certification Statement that the Contractor agrees to comply fully with the Emissions Plan and acknowledges that a significant violation of the Emissions Plan shall constitute a material breach of contract.			
SCA-AIR-4: *Asbestos in Structures (#26).* 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.	Prior to approval of construction-related permit	Applicable regulatory agency with jurisdiction	Applicable regulatory agency with jurisdiction
Biological Resources			
SCA-BIO-1: *Tree Removal During Bird Breeding Season (#29).* 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.	Prior to removal of trees	Bureau of Planning	Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
SCA-BIO-2: *Tree Permit (#30)* *a. Tree Permit Required* 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. *b. Tree Protection During Construction* 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, filling, 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	a. Prior to approval of construction-related permit b. During construction c. Prior to building permit final	a. Permit approval by Public Works Department, Tree Division; evidence of approval submitted to Bureau of Building b. Public Works Department, Tree Division c. Public Works Department, Tree Division	a. Bureau of Building b. Bureau of Building c. Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
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. c. *Tree Replacement Plantings* 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			

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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.			
SCA-BIO-3: *Bird Collision Reduction Measures (#28).* The project applicant shall submit a Bird Collision Reduction Plan for City review and approval to reduce potential bird collisions to the maximum feasible extent. The Plan shall include all of the following mandatory measures, as well as applicable and specific project Best Management Practice (BMP) strategies to reduce bird strike impacts to the maximum feasible extent. The project applicant shall implement the approved Plan. Mandatory measures include all of the following: i. For large buildings subject to federal aviation safety regulations, install minimum intensity white strobe lighting	Prior to approval of construction-related permit	Bureau of Planning	Bureau of Building

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with three second flash instead of solid red or rotating lights. ii. Minimize the number of and co-locate rooftop-antennas and other rooftop structures. iii. Monopole structures or antennas shall not include guy wires. iv. Avoid the use of mirrors in landscape design. v. Avoid placement of bird-friendly attractants (i.e., landscaped areas, vegetated roofs, water features) near glass unless shielded by architectural features taller than the attractant that incorporate bird friendly treatments no more than two inches horizontally, four inches vertically, or both (the "two-by-four" rule), as explained below. vi. Apply bird-friendly glazing treatments to no less than 90 percent of all windows and glass between the ground and 60 feet above ground or to the height of existing adjacent landscape or the height of the proposed landscape. Examples of bird-friendly glazing treatments include the following: • Use opaque glass in window panes instead of reflective glass. • Uniformly cover the interior or exterior of clear glass surface with patterns (e.g., dots, stripes, decals, images, abstract patterns). Patterns can be etched, fritted, or on films and shall have a density of no more than two inches horizontally, four inches vertically, or both (the "two-by-four" rule). • Install paned glass with fenestration patterns with vertical and horizontal mullions no more than two inches horizontally, four inches vertically, or both (the "two-by-four" rule). • Install external screens over non-reflective glass (as close to the glass as possible) for birds to perceive windows as solid objects. • Install UV-pattern reflective glass, laminated glass with a patterned UV-reflective coating, or UV-absorbing and UV-			

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reflecting film on the glass since most birds can see ultraviolet light, which is invisible to humans. • Install decorative grilles, screens, netting, or louvers, with openings no more than two inches horizontally, four inches vertically, or both (the "two-by-four" rule). • Install awnings, overhangs, sunshades, or light shelves directly adjacent to clear glass which is recessed on all sides. • Install opaque window film or window film with a pattern/design which also adheres to the "two-by-four" rule for coverage. i. Reduce light pollution. Examples include the following: • Extinguish night-time architectural illumination treatments during bird migration season (February 15 to May 15 and August 15 to November 30). • Install time switch control devices or occupancy sensors on non-emergency interior lights that can be programmed to turn off during non-work hours and between 11:00 p.m. and sunrise. • Reduce perimeter lighting whenever possible. • Install full cut-off, shielded, or directional lighting to minimize light spillage, glare, or light trespass. • Do not use beams of lights during the spring (February 15 to May 15) or fall (August 15 to November 30) migration. ii. Develop and implement a building operation and management manual that promotes bird safety. Example measures in the manual include the following: • Donation of discovered dead bird specimens to an authorized bird conservation organization or museums (e.g., UC Berkeley Museum of Vertebrate Zoology) to aid in species identification and to benefit scientific study, as per all federal, state and local laws. • Distribution of educational materials on bird-safe practices for the building occupants. Contact Golden Gate Audubon Society or American Bird Conservancy for materials.			

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• Asking employees to turn off task lighting at their work stations and draw office blinds, shades, curtains, or other window coverings at end of work day. • Install interior blinds, shades, or other window coverings in windows above the ground floor visible from the exterior as part of the construction contract, lease agreement, or CC&Rs. • Schedule nightly maintenance during the day or to conclude before 11 p.m., if possible.			
Cultural Resources			
SCA-CUL-1: *Archaeological and Paleontological Resources – Discovery During Construction* (#32). 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	During construction	N/A	Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
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 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.			
SCA-CUL-2: *Human Remains – Discovery During Construction* (#34). 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)	During construction	N/A	Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
shall be completed expeditiously and at the expense of the project applicant.			
SCA-CUL-3: Property Relocation (#35). 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.	Prior to approval of construction-related permit	Bureau of Planning (including Oakland Cultural Resource Survey)	N/A
Geology, Soils and Geohazards			
SCA-GEO-1: *Construction-Related Permit(s)* (#36). 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.	Prior to approval of construction-related permit	Bureau of Building	Bureau of Building
SCA-GEO-2: *Soils Report* (#37). The project applicant shall submit a soils report prepared by a registered geotechnical engineer for City review and approval. The soils report shall contain, at a minimum, field test results and observations regarding the nature, distribution and strength of existing soils, and recommendations for appropriate grading practices and project design. The project applicant shall implement the recommendations contained in the approved report during project design and construction.	Prior to approval of construction-related permit	Bureau of Building	Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
Hazards and Hazardous Materials			
SCA-HAZ-1: *Hazardous Building Materials and Site Contamination* (#43). 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 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. b. *Environmental Site Assessment Required:* 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. c. *Health and Safety Plan Required:* The project applicant shall submit a Health and Safety Plan for review and approval by the City to protect project construction workers from risks associated with hazardous materials. The	a. Prior to approval of demolition, grading, or building permits b. Prior to approval of construction-related permit c. Prior to approval of construction-related permit d. During construction	a. Bureau of Building b. Applicable regulatory agency with jurisdiction c. Bureau of Building d. N/A	a. Bureau of Building b. Applicable regulatory agency with jurisdiction c. Bureau of Building d. Bureau of Building e. Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
project applicant shall implement the approved Plan. d. *Best Management Practices Required for Contaminated Sites:* The project applicant shall ensure that Best Management Practices (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.			
SCA-HAZ-2: *Hazardous Materials Related to Construction* (#42). 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; e. Implement lead-safe work practices and comply with all local, regional, state, and federal	During Construction	N/A	Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
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.			
Hydrology and Water Quality			
SCA-HYD-1: *Erosion and Sedimentation Control Plan for Construction (#48).* *a. Erosion and Sedimentation Control Plan Required* 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 on to lands of adjacent property owners, public streets, or to 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 may be necessary. The project applicant shall obtain permission or easements necessary for off-site work. There shall be a clear	a. Prior to approval of construction-related permit b. During construction	a. Bureau of Building b. N/A	a. N/A b. Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
notation that the plan is subject to changes 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 complete, the project applicant shall ensure that the storm drain system shall be inspected and that the project applicant shall clear the system of any debris or sediment. *b. Erosion and Sedimentation Control During Construction* 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.			
SCA-HYD-2: *NPDES C.3 Stormwater Requirements for Regulated Projects* (#53). a. Post-Construction Stormwater Management Plan Required The project applicant shall comply with the requirements of Provision C.3 of the Municipal Regional Stormwater Permit issued under the National Pollutant Discharge Elimination System (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; and vii. Hydromodification management measures, if required by Provision C.3, so that post-project	a. Prior to approval of construction-related permit b. Prior to building permit final	a. Bureau of Planning; Bureau of Building b. Bureau of Building	a. Bureau of Building b. Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
stormwater runoff flow and duration match pre-project runoff. b. Maintenance Agreement Required 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; and ii. Legal access to the on-site stormwater treatment measures for representatives of the City, the local vector control district, and staff of the Regional Water Quality Control Board, San Francisco 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.			
Noise			
SCA-NOI-1: *Construction Days/Hours* (#61). 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.	During construction	N/A	Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
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.			
SCA-NOI-2: *Construction Noise* (#62). 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	During construction	N/A	Bureau of Building

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	When Required	*Initial Approval*	*Monitoring/ Inspection*
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.			
SCA-NOI-3: *Extreme Construction Noise (#63).* a. *Construction Noise Management Plan Required* 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;	a. Prior to approval of construction-related permit b. During construction	a. Bureau of Building b. Bureau of Building	a. Bureau of Building b. Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
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. b. *Public Notification Required* 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.			
SCA-NOI-4: *Construction Noise Complaints (#65).* 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.	Prior to approval of construction-related permit	Bureau of Building	Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
SCA-NOI-5: *Operational Noise* (#67). 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.	Ongoing	N/A	Bureau of Building
SCA-NOI-6: *Exposure to Community Noise* (#66). 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 65 dBA: Industrial activities	Prior to approval of construction-related permit	Bureau of Planning	Bureau of Building
SCA-NOI-7: *Vibration Impacts on Adjacent Structures or Vibration-Sensitive Activities (#69).* The project applicant shall submit a Vibration Analysis prepared by an acoustical and/or structural engineer or other appropriate qualified professional for City review and approval that establishes pre-construction baseline conditions and threshold levels of vibration that could damage the structure and/or substantially interfere with activities located at **2338 Waverly Street and 2337 Harrison Street.** The Vibration Analysis shall identify design means and methods of construction that shall be utilized in order to not exceed the thresholds. The applicant shall implement the recommendations during construction.	Prior to construction	Bureau of Planning	Bureau of Building
Public Services			
SCA-PS-1: *Capital Improvements Impact Fee (#72).* The project applicant shall comply with the requirements of the City of Oakland Capital	Prior to issuance of building permit	Bureau of Building	N/A

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
Improvements Fee Ordinance (chapter 15.74 of the Oakland Municipal Code).			
Transportation and Circulation			
SCA-TRANS-1: *Construction* Activity *in the Public Right-of-Way* (#74). a. *Obstruction Permit Required* 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* In the event of obstructions to vehicle or bicycle travel lanes, bus stops, or sidewalks, 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 accommodations (or detours, if accommodations are not feasible), including detour signs if required, lane closure procedures, signs, cones for drivers, and designated construction access routes. The Traffic Control Plan shall be in conformance with the City's Supplemental Design Guidance for Accommodating Pedestrians, Bicyclists, and Bus Facilities in Construction Zones. The project applicant shall implement the approved Plan during construction. c. *Repair City Streets* 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.	a. Prior to Approval of Construction Related Permit b. N/A c. Prior to Building Permit Final	a. Department of Transportation b. Department of Transportation c. N/A	a. Department of Transportation b. Department of Transportation c. Department of Transportation

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	When Required	*Initial Approval*	*Monitoring/ Inspection*
SCA-TRANS-2: *Bicycle Parking* (#75)**.** 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.	Prior to approval of construction-related permit	Bureau of Planning	Bureau of Building
SCA-TRANS-3: *Transportation Improvement (#76).* The project applicant shall implement the recommended on- and off-site transportation-related improvements contained within the Transportation Impact Review for the project (e.g., signal timing adjustments, restriping, signalization, traffic control devices, roadway reconfigurations, transportation demand management measures, and transit, 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 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)	Prior to building permit final or as otherwise specified	Bureau of Building; Department of Transportation	Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
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 q. Bi-directional curb ramps (where feasible, and if project is on a street corner) r. Upgrade ramps on receiving curb (where feasible, and if project is on a street corner)			
SCA-TRANS-4: *Transportation and Parking Demand Management (#77).* a. Transportation and Parking Demand Management (TDM Plan Required) 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. • Achieve the following project vehicle trip reductions (VTR): o Projects generating 50-99 net new a.m. or p.m. peak hour vehicle trips: 10% VTR o Projects generating 100 or more net new a.m. or p.m. peak hour vehicle trips: 20% 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. The TDM Plan should include the following: • Baseline existing conditions of parking and curbside regulations within the surrounding neighborhood that could affect the effectiveness of TDM strategies, including inventory of parking spaces and occupancy if applicable.	a. Prior to approval of planning application. b. Prior to building permit final c. Ongoing	a. Bureau of Planning b. Bureau of Building c. Department of Trans-portation	a. N.A b. Bureau of Building c. Department of Transportation

<table>
<tr><th rowspan="2">Standard Conditions of Approval</th><th colspan="3">Implementation/Monitoring</th></tr>
<tr><th>When Required</th><th>Initial Approval</th><th>Monitoring/ Inspection</th></tr>
<tr><td>
• Proposed TDM strategies to achieve VTR goals (see below).
iii. For employers with 100 or more employees at the subject site, the TDM Plan shall also comply with the requirements of Oakland Municipal Code Chapter 10.68 Employer-Based Trip Reduction Program.
iv. The following TDM strategies must be incorporated into a TDM Plan based on a project location or other characteristics. When required, these mandatory strategies should be identified as a credit toward a project's VTR.
<table>
<tr><th>Improvement</th><th>Required by code or when…</th></tr>
<tr><td>Bus boarding bulbs or islands</td><td>• A bus boarding bulb or island does not already exist and a bus stop is located along the project frontage; and/or
• A bus stop along the project frontage serves a route with 15 minutes or better peak hour service and has a shared bus-bike lane curb</td></tr>
<tr><td>Bus shelter</td><td>• A stop with no shelter is located within the project frontage, or
• The project is located within 0.10 miles of a flag stop with 25 or more boardings per day</td></tr>
<tr><td>Concrete bus pad</td><td>• A bus stop is located along the project frontage and a concrete bus pad does not already exist</td></tr>
<tr><td>Curb extensions or bulb-outs</td><td>• Identified as an improvement within site analysis</td></tr>
<tr><td>Implementation of a corridor-level bikeway improvement</td><td>• A buffered Class II or Class IV bikeway facility is in a local or county adopted plan within 0.10 miles of the project location; and</td></tr>
</table>
</td><td></td><td></td><td></td></tr>
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Standard Conditions of Approval		Implementation/Monitoring		
		When Required	*Initial Approval*	*Monitoring/ Inspection*
	• The project would generate 500 or more daily bicycle trips			
Implementation of a corridor-level transit capital improvement	• A high-quality transit facility is in a local or county adopted plan within 0.25 miles of the project location; and • The project would generate 400 or more peak period transit trips			
Installation of amenities such as lighting; pedestrian-oriented green infrastructure, trees, or other greening landscape; and trash receptacles per the Pedestrian Master Plan and any applicable streetscape plan.	• Always required			
Installation of safety improvements identified in the Pedestrian Master Plan (such as crosswalk striping, curb ramps, count down signals, bulb outs, etc.)	• When improvements are identified in the Pedestrian Master Plan along project frontage or at an adjacent intersection			
In-street bicycle corral	• A project includes more than 10,000 square feet of ground floor retail, is located along a Tier 1 bikeway, and on-street vehicle parking is provided along the project frontages.			

Standard Conditions of Approval		Implementation/Monitoring		
		When Required	*Initial Approval*	*Monitoring/ Inspection*
Intersection improvements [73]	• Identified as an improvement within site analysis			
New sidewalk, curb ramps, curb and gutter meeting current City and ADA standards	• Always required			
No monthly permits and establish minimum price floor for public parking[74]	• If proposed parking ratio exceeds 1:1000 sf. (commercial)			
Parking garage is designed with retrofit capability	• Optional if proposed parking ratio exceeds 1:1.25 (residential) or 1:1000 sf. (commercial)			
Parking space reserved for car share	• If a project is providing parking and a project is located within downtown. One car share space reserved for buildings between 50 – 200 units, then one car share space per 200 units.			
Paving, lane striping or restriping (vehicle and bicycle), and signs to midpoint of street section	• Typically required			
Pedestrian crossing improvements	• Identified as an improvement within site analysis			
Pedestrian-supportive signal changes[75]	• Identified as an improvement within operations analysis			

73 Including but not limited to visibility improvements, shortening corner radii, pedestrian safety islands, accounting for pedestrian desire lines.

74 May also provide a cash incentive or transit pass alternative to a free parking space in commercial properties.

75 Including but not limited to reducing signal cycle lengths to less than 90 seconds to avoid pedestrian crossings against the signal, providing a leading pedestrian interval, provide a "scramble" signal phase where appropriate.

Standard Conditions of Approval		Implementation/Monitoring		
		When Required	*Initial Approval*	*Monitoring/ Inspection*
Real-time transit information system	• A project frontage block includes a bus stop or BART station and is along a Tier 1 transit route with 2 or more routes or peak period frequency of 15 minutes or better			
Relocating bus stops to far side	• A project is located within 0.10 mile of any active bus stop that is currently near-side			
Signal upgrades[76]	• Project size exceeds 100 residential units, 80,000 sf. of retail, or 100,000 sf. of commercial; and • Project frontage abuts an intersection with signal infrastructure older than 15 years			
Transit queue jumps	• Identified as a needed improvement within operations analysis of a project with frontage along a Tier 1 transit route with 2 or more routes or peak period frequency of 15 minutes or better			
Trenching and placement of conduit for providing traffic signal interconnect	• Project size exceeds 100 units, 80,000 sf. of retail, or 100,000 sf. of commercial; and • Project frontage block is identified for signal interconnect improvements as part of a planned ITS improvement; and • A major transit improvement is identified within operations analysis requiring traffic signal interconnect			

[76] Including typical traffic lights, pedestrian signals, bike actuated signals, transit-only signals

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
Unbundled parking — • If proposed parking ratio exceeds 1:1.25 (residential) v. Other 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 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 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, the Master Street Tree List and Tree Planting Guidelines (which can be viewed at http://www2.oaklandnet.com/oakca1/groups/pwa/documents/report/oak042662.pdf and http://www2.oaklandnet.com/oakca1/groups/pwa/documents/form/oak025595.pdf, respectively) • 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,			

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
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 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 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			

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
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. b. TDM Implementation – Physical Improvements 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. c. TDM Implementation – Operational Strategies 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 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.			
SCA-TRANS-5: *Transportation Impact Fee* (#78). The project applicant shall comply with the requirements of the City of Oakland Transportation Impact Fee Ordinance (Chapter 15.74 of the Oakland Municipal Code).	Prior to issuance of building permit	Bureau of Building	N/A

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
SCA-TRANS-6: *Plug-In Electric Vehicle (PEV) Charging Infrastructure* (#80). 1. *PEV-Ready Parking Spaces*. The applicant shall submit, for review and approval of the Building Official and the Zoning Manager, plans that show the location of parking spaces equipped with full electrical circuits designated for future PEV charging (i.e., "PEV-Ready) per the requirements of Chapter 15.04 of the Oakland Municipal Code. Building electrical plans shall indicate sufficient electrical capacity to supply the required PEV-Ready parking spaces. 2. *PEV-Capable Parking Spaces.* The applicant shall submit, for review and approval of the Building Official, plans that show the location of inaccessible conduit to supply PEV-capable parking spaces per the requirements of Chapter 15.04 of the Oakland Municipal Code. Building electrical plans shall indicate sufficient electrical capacity to supply the required PEV-capable parking spaces. 3. *ADA-Accessible Spaces.* The applicant shall submit, for review and approval of the Building Official, plans that show the location of future accessible EV parking spaces as required under Title 24 Chapter 11B Table 11B-228.3.2.1, and specify plans to construct all future accessible EV parking spaces with appropriate grade, vertical clearance, and accessible path of travel to allow installation of accessible EV charging station(s).	Prior to issuance of building permit	Bureau of Building	Bureau of Building
Utilities and Service Systems			
SCA-UTIL-1: *Sanitary Sewer System (#86).* 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	Prior to approval of construction-related permit	Public Works Department, Department of Engineering and Construction	N/A

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
pay the Sanitary Sewer Impact Fee in accordance with the City's Master Fee Schedule for funding improvements to the sanitary sewer system.			
SCA-UTIL-2: *Storm Drain System (#87).* 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% compared to the pre-project condition.	Prior to approval of construction-related permit	Bureau of Building	Bureau of Building
SCA-UTIL-3: *Recycling Collection and Storage Space* (#83). 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 (2) cubic feet of storage and collection space per residential unit is required, with a minimum of ten (10) cubic feet. For non-residential projects, at least two (2) cubic feet of storage and collection space per 1,000 square feet of building floor area is required, with a minimum of ten (10) cubic feet.	Prior to approval of construction-related permit	Bureau of Planning	Bureau of Building
SCA-UTIL-4: *Construction and Demolition Waste Reduction and Recycling* (#81). 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.	Prior to approval of construction-related permit	Public Works Department, Environ-mental Services Division	Public Works Department, Environ-mental Services Division

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
SCA-UTIL-5: *Underground Utilities* (#82). 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.	During Construction	N/A	Bureau of Building
SCA-UTIL-6*: Green Building Requirements* (#84)*.* *a. Compliance with Green Building Requirements During Plan-Check* 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	a. Prior to approval of construction-related permit b. During Construction c. Prior to final approval	a. Bureau of Building b. N/A c. Bureau of Planning	a. N/A b. Bureau of Building c. Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
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 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. • 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. *b. Compliance with Green Buildings Requirements During Construction* 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.			

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
c. *Compliance with Green Building Requirements After Construction* Prior to the finalizing the Building Permit, the Green Building Certifier shall submit the appropriate documentation to City staff and attain the minimum required point level.			
SCA-UTIL-7: *Water Efficient Landscape Ordinance (WELO) (#89).* The project applicant shall comply with California's Water Efficient Landscape Ordinance (WELO) in order to reduce landscape water usage. For any landscape project with an aggregate (total noncontiguous) landscape area equal to 2,500 sq. ft. or less. The project applicant may implement either the Prescriptive Measures or the Performance Measures, of, and in accordance with the California's Model Water Efficient Landscape Ordinance. For any landscape project with an aggregate (total noncontiguous) landscape area over 2,500 sq. ft., the project applicant shall implement the Performance Measures in accordance with the WELO. *Prescriptive Measures:* Prior to construction, the project applicant shall submit documentation showing compliance with Appendix D of California's Model Water Efficient Landscape Ordinance (see website below starting on page 23): http://www.water.ca.gov/wateruseefficiency/landscapeordinance/docs/Title%2023%20extract%20-%20Official%20CCR%20pages.pdf *Performance Measures:* Prior to construction, the project applicant shall prepare and submit a Landscape Documentation Package for review and approval, which includes the following: *a.* Project Information: i. Date, ii. Applicant and property owner name, iii. Project address, iv. Total landscape area, v. Project type (new, rehabilitated, cemetery, or home owner installed), vi. Water supply type and water purveyor, vii. Checklist of documents in the package, and	Prior to approval of construction-related permit	Bureau of Planning	Bureau of Building

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
viii. Applicant signature and date with the statement: "I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package." *b.* Water Efficient Landscape Worksheet i. Hydrozone Information Table ii. Water Budget Calculations with Maximum Applied Water Allowance (MAWA) and Estimated Total Water Use *c.* Soil Management Report *d.* Landscape Design Plan *e.* Irrigation Design Plan, and *f.* Grading Plan Upon installation of the landscaping and irrigation systems, the Project applicant shall submit a Certificate of Completion and landscape and irrigation maintenance schedule for review and approval by the City. The Certificate of Compliance shall also be submitted to the local water purveyor and property owner or his or her designee. For the specific requirements within the Water Efficient Landscape Worksheet, Soil Management Report, Landscape Design Plan, Irrigation Design Plan and Grading Plan, see the link below. http://www.water.ca.gov/wateruseefficiency/landscapeordinance/docs/Title%2023%20extract%20-%20Official%20CCR%20pages.pdf			
Other Standard Conditions			
SCA-OTHER-1: *Employee Rights (#93).* The project applicant and business owners in the project shall comply with all state and federal laws regarding employees' right to organize and bargain collectively with employers and shall comply with the City of Oakland Minimum Wage Ordinance (chapter 5.92 of the Oakland Municipal Code).	Ongoing	N/A	N/A
SCA-OTHER-1: *Neighborhood Retail Survey (#94).* The project applicant shall conduct a survey of community members located within one-half mile of the project site to identify neighborhood needs and preferences for the proposed commercial space. The City strongly encourages the project applicant to seek tenants for the proposed commercial space that meet the needs and preferences of local	Prior to commercial operations	N/A	N/A

Standard Conditions of Approval	Implementation/Monitoring		
	When Required	*Initial Approval*	*Monitoring/ Inspection*
community members. Please refer to the City's Survey Guidelines for more information (contained in a separate document and available from the Oakland Planning Bureau).			
SCA-OTHER-3: *Graffiti Control (#17).* The project is subject to the City's Public Art Requirements for Private Development, adopted by Ordinance No. 13275 C.M.S. ("Ordinance"). The public art contribution requirements are equivalent to one-half percent (0.5%) for the "residential" building development costs, and one percent (1.0%) for the "non-residential" building development costs. The contribution requirement can be met through: 1) the installation of freely accessible art at the site; 2) the installation of freely accessible art within one-quarter mile of the site; or 3) satisfaction of alternative compliance methods described in the Ordinance, including, but not limited to, payment of an in-lieu fee contribution. The applicant shall provide proof of full payment of the in-lieu contribution and/or provide plans, for review and approval by the Planning Director, showing the installation or improvements required by the Ordinance prior to issuance of a building permit. Proof of installation of artwork, or other alternative requirement, is required prior to the City's issuance of a final certificate of occupancy for each phase of a project unless a separate, legal binding instrument is executed ensuring compliance within a timely manner subject to City approval.	Payment of in-lieu fees and/or plans showing fulfillment of public art requirement – Prior to Issuance of Building permit.	Bureau of Planning	Bureau of Building

Attachment B

Criteria for Use of Addendum, Per CEQA Guidelines Section 15164

Section 15164(a) of the California Environmental Quality Act (CEQA) Guidelines states that "a lead agency or responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred." Section 15164(e) states that "a brief explanation of the decision not to prepare a subsequent EIR pursuant to Section 15162 should be included in an addendum to an EIR."

As discussed in detail in Chapter 3, BVDSP and EIR, the analysis in the Broadway Valdez District Specific Plan (BVDSP) Environmental Impact Report (EIR) is considered in this assessment, pursuant to CEQA Guidelines Section 15162, 15164, and 15168.

1. Proposed Project

As discussed in Chapter 2, Project Description, above, the proposed project would demolish the existing buildings and surface parking lot on the project site and construct a 15- to 16-story mixed-use residential building of approximately 415,792 gross square feet. Building height would be 160 feet with a maximum height of 180 feet to the top of the mechanical equipment.

The proposed residential units would be consistent with the Development Program for the BVDSP. To allow for an increased density on the site, the proposed project would request a Minor CUP for an exception from the minimum retail square footage requirements established in Planning Code 17.101C.050.C.6. The proposed project would also undergo regular Design Review and would request minor CUPs to allow for residential activities and for the transfer of development rights from the 277 27th Street project. By meeting the required findings, the proposed project would be consistent with the underlying BVDSP zoning. In addition, under the current zoning regulations, the proposed project would be required to provide 164 residential units.

The proposed project would request a minor CUP to transfer development rights from the adjacent 277 27th Street project (under construction by the same project applicant). With the transfer of the unused density of 111 units from the 277 27th Street project, the base density of the proposed project would be 275 residential units. The proposed project would provide 5% of the units to very-low income households (earning no more than 50% of the Area Median Income). Therefore, the proposed project would achieve a 20% density bonus equal to 55 units per the State Density Bonus Law. In total, the proposed project would have 330 residential units.

With authorization of increased density and transfer of density under Minor CUPs, the proposed project would be consistent with the BVDSP zoning and falls within the scope of development analyzed in the BVDSP EIR. The project therefore meets the requirements for an addendum.

2. Conditions for Addendum

None of the following conditions for preparation of a subsequent EIR per Section 15162(a) apply to the project:

1. Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new

significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

3. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:
    a. The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
    b. Significant effects previously examined will be substantially more severe than shown in the previous EIR;
    c. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

3. Project Consistency with Section 15162 of the CEQA Guidelines

Since certification of the BVDSP EIR, no substantial changes have occurred in the circumstances under which the project would be implemented that would change the severity of the project's physical impacts, as explained in Chapter 5, CEQA Checklist, of this document. No new information has emerged that would materially change the analyses or conclusions set forth in the BVDSP EIR.

Furthermore, as demonstrated in the CEQA Checklist, the project would not result in any new significant environmental impacts, result in any substantial increases in the significance of previously identified effects, or necessitate implementation of additional or considerably different mitigation measures than those identified in the BVDSP EIR, nor render any mitigation measures or alternatives found not to be feasible, feasible. The effects of the project would be substantially the same as those reported in the BVDSP EIR.

The analysis presented in CEQA Checklist, combined with the prior BVDSP EIR's analysis, demonstrates that the project would not result in significant impacts that were not previously identified in the BVDSP EIR. The project would not result in a substantial increase in the significance of impacts, nor would it contribute considerably to cumulative effects that were not already accounted for in the certified BVDSP EIR. Overall, the project's impacts are similar to those identified and discussed in the BVDSP EIR, as described in the CEQA Checklist, and the findings reached in the BVDSP EIR are applicable.

Attachment C

Project Consistency with Community Plan or Zoning, Per CEQA Guidelines Section 15183

Section 15183(a) of the California Environmental Quality Act (CEQA) Guidelines states that "…projects which are consistent with the development density established by the existing zoning, community plan, or general plan policies for which an Environmental Impact Report (EIR) was certified shall not require additional environmental review, except as may be necessary to examine whether there are project-specific significant effects which are peculiar to the project or its site."

Project

The proposed project would demolish the existing buildings and surface parking lot on the project site and construct a 15- to 16-story mixed-use residential building of approximately 415,792 gross square feet. Building height would be 160 feet with a maximum height of 180 feet to the top of the mechanical equipment.

The residential component would include 330 dwelling units within approximately 234,405 square feet. At the ground floor, approximately 13,192 square feet of commercial uses would front the project site along 24th and Harrison streets. The residential lobby would also be located along 24th Street. The proposed project would include a new 6,810-square-foot public plaza at the northeast corner of the project site, extending along the block at 24th Street.

Project Consistency

The BVDSP EIR was prepared for the BVDSP; it was certified by the Planning Commission on May 21, 2014 and confirmed by the City Council on June 17, 2014. As determined by the City of Oakland Bureau of Planning, the project is permitted in the zoning district in which it is located, and is consistent with the bulk, density, and land uses envisioned in the Plan Area, as outlined below.

- The land use designation for the site is Central Business District (CBD); this designation is intended 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 proposed mixed-use project would be consistent with this designation.

  The zoning designation for the site is Broadway Valdez District Retail Priority Sites Commercial Zone (D-BV-1) intended to encourage large retail facilities in the Retail Priority Sites of the Broadway Valdez District Specific Plan in order to provide a core of comparison goods retail with a combination of major, mid, and junior size anchor stores. The project site includes 8 of the 10 parcels identified as Retail Priority Site 5(b) in the BVDSP. The proposed mixed-use residential development with commercial uses on the ground floor is consistent with the zoning as further explained below.

  Property development standards are described in Planning Code Section 17.101C.050. For the purpose of calculating retail square footage, the public plaza uses may be included.[1] Therefore, the proposed project would provide 20,451 square feet of retail space (13,192 square feet of commercial uses and the 7,359-square-foot public plaza), which would be approximately 55% of the 37,556-square-foot site.

  To allow for an increased density on the site, the proposed project would request a Minor CUP for an exception from the minimum retail square footage requirements established in Planning Code 17.101C.050.C.6. If the CUP is granted, the proposed project would be consistent with the underlying BVDSP zoning.

[1] In accordance with Planning Code Section 17.101C.050.C.2 (a)(iii), the public plaza would count as retail space.

- Per Planning Code Section 17.101C.050, the permitted non-residential Floor Area Ratio (FAR) for the D-BV-1 zone is 2.5, and with the provision of 50% of retail square footage achieved by the project as described above, the allowed FAR is 8.0. The project site is approximately 37,556 square feet, and therefore the maximum non-residential FAR allowed would be 300,448 square feet. The proposed project would provide approximately 13,192 square feet of commercial uses, well below the maximum FAR. Therefore, the project would comply with the amount of non-residential FAR allowed under the Planning Code.
- With respect to residential density, the D-BV-1 zone allows 1 unit per 125 square feet of retail. As the proposed project provides 20,451 square feet of retail use, 164 residential units could be built at the project site. To allow for an increased density on the site, the proposed project would request a Minor CUP for an exception from the minimum retail square footage requirements established in Planning Code 17.101C.050.C.6. In addition, the proposed project would request a Minor CUP to transfer unused density from the adjacent 277 27th Street project (which was also developed by the project applicant). The 277 27th Street project was allowed to construct up to 650 residential units based the amount of retail provided on that site (65,000 square feet of retail, which is over 60% of the lot area), but only constructed 419 residential units. Of these remaining approved units, the project applicant has requested to transfer 111 units of the unused density from the 277 27th Street project. Together with the 164 units, the base density of the proposed project would be 275 residential units.

  In addition, the proposed project would meet the on-site State Density Bonus Law provisions by providing 5% of the units (14 units) to Very-Low income households (earning no more than 50% of the Area Median Income).[2] Therefore, the proposed project would achieve a 20% density bonus (55 units). In total, the proposed project would be allowed to construct 330 residential units (base of 164 units and 111 transferred units, plus 55 density bonus units). The project would comply with the amount of residential density allowed under the Planning Code and fits within the residential assumptions of the BVDSP EIR. Therefore, in accordance with Section 15183 of the CEQA Guidelines, the project is consistent with the BVDSP EIR.

Therefore, the project is eligible for consideration of an exemption under California Public Resources Code Section 21083.3 and Section 15183 of the CEQA Guidelines.

[2] Although 5% (or 14 units in this case) would be required to be set aside to very-low income households, the proposed project would provide 15 units, providing one more unit than is required under the State Density Bonus Law.

Attachment D

Infill Performance Standards, Per CEQA Guidelines Section 15183.3

California Environmental Quality Act (CEQA) Guidelines Section 15183.3(b) and CEQA Guidelines Appendix M establish eligibility requirements for projects to qualify as infill projects. Table D-1, on the pages following, shows how the proposed project satisfies each of the applicable requirements.

Table D-1. Project Infill Eligibility

CEQA Eligibility Criteria		Eligible?/Notes for Proposed Project
1.	Be located in an urban area on a site that either has been previously developed or that adjoins existing qualified urban uses on at least 75% of the site's perimeter. For the purpose of this subdivision, adjoin means the infill project is immediately adjacent to qualified urban uses, or is only separated from such uses by an improved right-of-way. (CEQA Guidelines Section 15183.3[b][1])	Yes The project site has been previously developed with residential and commercial uses, as well as parking, and adjoins existing urban uses, as described in Chapter 2, Project Description, above.
2.	Satisfy the performance Standards provided in Appendix M (CEQA Guidelines Section 15183.3[b][2]) as presented in 2a and 2b below:	—
	2a. *Performance Standards Related to Project Design.* All projects must implement **all** of the following:	—
	Renewable Energy. *Non-Residential Projects.* All non-residential projects shall include on-site renewable power generation, such as solar photovoltaic, solar thermal, and wind power generation, or clean back-up power supplies, where feasible. *Residential Projects.* Residential projects are also encouraged to include such on-site renewable power generation.	Yes According to Section IV (G) of CEQA Appendix M, for mixed-use projects "…the performance standards in this section that apply to the predominant use shall govern the entire project." Because the predominant use is residential, the proposed project is not required to include on-site renewable power generation.
	Soil and Water Remediation. If the project site is included on any list compiled pursuant to Section 65962.5 of the Government Code, the project shall document how it has remediated the site, if remediation is completed. Alternatively, the project shall implement the recommendations provided in a preliminary endangerment assessment or comparable document that identifies remediation appropriate for the site.	Yes As stated in Section 5.7, Hazards and Hazardous Materials, of the CEQA Checklist, a review of available environmental databases was conducted for the project. The project site has been the subject of environmental investigations in association with the presence of petroleum hydrocarbons and volatile organic compounds (VOCs) in soil, soil vapor, and groundwater related to the possible presence of two former underground storage tanks (UST) previously located along the east side of the parcel. Site investigations concluded that subsurface features potentially associated with a UST, clarifier, or associated piping may exist beneath the eastern portion of the 2359 Harrison Street building where the former Wheel Works was located. However, the possible two former UST locations identified in previous investigation reports were

Table D-1. Project Infill Eligibility

CEQA Eligibility Criteria		Eligible?/Notes for Proposed Project
		not confirmed by the ground-penetrating radar or field observations. Diesel near the eastern border of the site was identified above its Water Board Tier 1 Environmental Screening Levels (ESLs) for residential land use Cis-1,2-dichloroethene, and vinyl chloride corner of the site at levels exceeding the Water Board ESL for residential and commercial land uses. Petroleum hydrocarbons were identified in groundwater samples collected throughout the site, estimated to potentially originate from off-site sources of petroleum hydrocarbons. The project site is not included on the list of hazardous materials release sites compiled pursuant to Government Code Section 65962.5 (i.e., the Cortese List). The proposed project would be required to comply with SCA-HAZ-1: Hazardous Building Materials and Site Contamination (#43), which would replace the requirement for implementation of 1998 LUTE EIR Mitigation Measure M.5, and requires the applicant to submit a Health and Safety Plan for the review and approval by the City. SCA-HAZ-1 would also require implementation of the approved plan to protect project construction workers from risks associated with hazardous materials. In addition, the project applicant would be required to ensure that BMPs are implemented by the contractor during construction to minimize potential hazards related to contaminated soil and groundwater.
	Residential Units Near High-Volume Roadways and Stationary Sources. If a project includes residential units located within 500 feet, or other distance determined to be appropriate by the local agency or air district based on local conditions, of a high volume roadway or other significant sources of air pollution, the project shall comply with any policies and standards identified in the local general plan, specific plan, zoning code, or community risk reduction plan for the protection of public health from such sources of air pollution. If the local government has not adopted such plans or policies, the project shall include measures, such as enhanced air filtration and project design, that the lead agency finds, based on substantial evidence, will promote the protection of public health from sources of air	Yes For projects that include residential units, the BAAQMD recommends evaluating the cumulative health risks to the residents from mobile and stationary sources of TAC emissions within 1,000 feet of the project. Based on the air quality analysis presented in Section 5.2, Air Quality, above, cumulative cancer risk to future project's residents, cumulative hazard index, and cumulative PM2.5 concentration from all sources within 1,000 feet of the project site would be below the City's cumulative thresholds. Furthermore, the proposed project would be required to implement SCA-AIR-5: Exposure to Air Pollution – Toxic Air Contaminants (#24) to reduce health risk to future site residents.

Table D-1. Project Infill Eligibility

CEQA Eligibility Criteria		Eligible?/Notes for Proposed Project
	pollution. Those measures may include, among others, the recommendations of the California Air Resources Board, air districts, and the California Air Pollution Control Officers Association.	
	2b. *Additional Performance Standards by Project Type.* In addition to implementing all the features described in criterion 2a above, the project must meet eligibility requirements provided below by project type.[a]	
	Residential. A residential project must meet **one** of the following: A. *Projects achieving below average regional per capita vehicle miles traveled.* A residential project is eligible if it is located in a low vehicle travel area within the region; B. *Projects located within ½-mile of an Existing Major Transit Stop or High Quality Transit Corridor.* A residential project is eligible if it is located within ½-mile of an existing major transit stop or an existing stop along a high quality transit corridor; **or** C. *Low – Income Housing.* A residential or mixed-use project consisting of 300 or fewer residential units all of which are affordable to low income households is eligible if the developer of the development project provides sufficient legal commitments to the lead agency to ensure the continued availability and use of the housing units for lower income households, as defined in Section 50079.5 of the Health and Safety Code, for a period of at least 30 years, at monthly housing costs, as determined pursuant to Section 50053 of the Health and Safety Code.	Yes The proposed project is eligible under Section (B). The project site is well-served by multiple transit providers, including numerous Alameda-Contra Costa Transit District (AC Transit) routes. As described in Section 5.13, Transportation and Circulation, the proposed project is within a high-quality transit corridor as it is served by several frequent bus routes. The project site is about 0.2 miles from Broadway (Route 51A with 10-minute peak headways), about 0.3 miles from Telegraph Avenue (Route 6 with 10-minute peak headways), and about 0.5 miles from 20th Street (Routes 72, 72M, and 72R, with 10- to 12-minute peak headways).
	Commercial/Retail. A commercial/retail project must meet **one** of the following: A. *Regional Location.* A commercial project with no single-building floor-plate greater than 50,000 square feet is eligible if it locates in a low vehicle travel area; **or** B. *Proximity to Households.* A project with no single-building floor-plate greater than 50,000 square feet located within ½-mile of 1,800 households is eligible.	Not Applicable According to Section IV (G) of CEQA Appendix M, for mixed-use projects "…the performance standards in this Section that apply to the predominant use shall govern the entire project." Because the predominant use is residential, the requirements for commercial/ retail projects do not apply.

Table D-1. Project Infill Eligibility

CEQA Eligibility Criteria		Eligible?/Notes for Proposed Project
	Office Building. An office building project must meet **one** of the following: A. *Regional Location.* Office buildings, both commercial and public, are eligible if they locate in a low vehicle travel area; **or** B. *Proximity to a Major Transit Stop.* Office buildings, both commercial and public, within ½-mile of an existing major transit stop, or ¼-mile of an existing stop along a high quality transit corridor, are eligible.	Not Applicable
	Schools. Elementary schools within 1 mile of 50% of the projected student population are eligible. Middle schools and high schools within 2 miles of 50% of the projected student population are eligible. Alternatively, any school within ½-mile of an existing major transit stop or an existing stop along a high quality transit corridor is eligible. Additionally, to be eligible, all schools shall provide parking and storage for bicycles and scooters, and shall comply with the requirements of Sections 17213, 17213.1, and 17213.2 of the California Education Code.	Not Applicable
	Transit. Transit stations, as defined in Section 15183.3(e)(1), are eligible.	Not Applicable
	Small Walkable Community Projects. Small walkable community projects, as defined in Section 15183.3, subdivisions (e)(6), that implement the project features in 2a above are eligible.	Not Applicable
3.	Be consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in either a sustainable communities strategy or an alternative planning strategy, except as provided in CEQA Guidelines Sections 15183.3(b)(3)(A) or (b)(3)(B) below: (b)(3)(A). Only where an infill project is proposed within the boundaries of a metropolitan planning organization for which a sustainable communities strategy or an alternative planning strategy will be, but is not yet in effect, a residential infill project must have a density of at least 20 units per acre, and a retail or commercial infill project must have a floor area ratio of at least 0.75; or	Yes (see explanation below table)

Table D-1. Project Infill Eligibility

CEQA Eligibility Criteria		Eligible?/Notes for Proposed Project
	(b)(3)(B). Where an infill project is proposed outside of the boundaries of a metropolitan planning organization, the infill project must meet the definition of a "small walkable community project" in CEQA Guidelines §15183.3(f)(5). (CEQA Guidelines Section 15183.3[b][3])	

[a] Where a project includes some combination of residential, commercial and retail, office building, transit station, and/or schools, the performance standards in this section that apply to the predominant use shall govern the entire project.

Explanation for Eligibility Criteria 3 – The adopted Plan Bay Area (2018)[1] serves as the Sustainable Communities' Strategy for the Bay Area, per Senate Bill 375. As defined by the Plan, Priority Development Areas (PDAs) are areas where new development will support the needs of residents and workers in a pedestrian-friendly environment served by transit. The proposed project is consistent with the land use designation, density, and building intensity specified in the General Plan as described in Section 5.9, Land Use, Plans, and Policies, of this document and summarized below.

The General Plan designates the project site as Central Business District (CBD), which is intended 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. Residential land uses may be appropriate in this district, particularly as part of a mixed-use development. The proposed project would provide residential use as part of a mixed-use development with retail space at the ground level. Therefore, the proposed mixed-use project would be consistent with this designation.

The project site is zoned Broadway Valdez District Retail Priority Sites Commercial Zone (D-BV-1). The intent of the D-BV-1 zone is to encourage large retail facilities in the Retail Priority Sites of the Broadway Valdez District Specific Plan in order to provide a core of comparison goods retail with a combination of major, mid, and junior size anchor stores. The project site is within Retail Priority Site 5(b) of this zone.

The project site is in the 45-foot height district. To allow for an increased density on the site, the proposed project would request a Minor CUP for an exception from the minimum retail square footage requirements established in Planning Code 17.101C.050.C.6. The proposed project would have 15 to 16 stories and 160 feet in height, with a maximum height of 180 feet to the top of mechanical equipment. In addition, under the current zoning regulations, the proposed project would be required to provide 164 residential units.

[1] MTC and ABAG (Metropolitan Transportation Commission and Association of Bay Area Governments). 2018. *Plan Bay Area Projections 2040, A Companion to Plan Bay Area 2040*. November 2018.

The proposed project would request CUP to transfer development rights from the adjacent 277 27th Street project (under construction by the same project applicant). With the transfer of the unused density of 111 units from the 277 27th Street project, the base density of the proposed project would be 275 residential units. The proposed project would provide 5% of the units to very-low income households (earning no more than 50% of the Area Median Income). Therefore, the proposed project would achieve a 20% density bonus equal to 55 units per the State Density Bonus Law. In total, the proposed project would have 330 residential units.

With authorization of increased density and transfer of unused density under Minor CUPs, the proposed project would be consistent with the BVDSP zoning.

Attachment E

Project Consistency with the Broadway Valdez Specific Plan, Per CEQA Guidelines Section 15182

California Environmental Quality Act (CEQA) Guidelines Section 15182 establishes eligibility requirements for residential projects to qualify as exempt from CEQA review. Table E-1, on the pages following, shows how the proposed project satisfies each of the applicable requirements.

Project

The proposed project would demolish the existing buildings and surface parking lot on the project site and construct a 15- to 16-story mixed-use residential building of approximately 415,792 gross square feet. Building height would be 160 feet with a maximum height of 180 feet to the top of the mechanical equipment.

The residential component would include 330 dwelling units within approximately 234,405 square feet. At the ground floor, approximately 13,192 square feet of commercial uses would front the project site along 24th and Harrison streets. The residential lobby would also be located along 24th Street. The proposed project would include a new 7,359-square-foot public plaza at the northeast corner of the project site, extending along the block at 24th Street.

Project Consistency

Table E-1 shows how the proposed project satisfies each of the applicable requirements.

Table E-1. Section 15182 Eligibility

CEQA Eligibility Criteria		Eligible?/Notes for Proposed Project
15182(b)	Eligibility. A residential or mixed-use project, or a project with a floor area ratio of at least 0.75 on commercially-zoned property, including any required subdivision or zoning approvals, is exempt if the project satisfies the following criteria:	Yes. Proposed project is a mixed-use residential project.
	(A) It is located within a transit priority area as defined in Public Resources Code Section 21099(a)(7).	Yes. CEQA Section 21099(a)(7) defines a "transit priority area" as an area within 0.5 miles 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 morning and afternoon peak commute periods. As described in Section 5.13, Transportation and Circulation, the proposed project is within a transit priority area as it is served by several frequent bus routes. The project site is about 0.2 miles from Broadway (Route 51A with 10-minute peak headways), about 0.3 miles from Telegraph Avenue (Route 6 with 10-minute peak headways), and about 0.5 miles from 20th Street (Routes 72, 72M, and 72R, with 10- to 12-minute peak headways).
	(B) It is consistent with a specific plan for which an environmental impact report was certified.	Yes. See Attachment C above. As determined by the City of Oakland Bureau of Planning, the project is permitted in the zoning district in which it is located, and is consistent with the bulk, density, and land uses envisioned in the Plan Area.

Table E-1. Section 15182 Eligibility

CEQA Eligibility Criteria		Eligible?/Notes for Proposed Project
	(C) It is consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in either a sustainable communities strategy or an alternative planning strategy for which the State Air Resources Board has accepted the determination that the sustainable communities strategy or the alternative planning strategy would achieve the applicable greenhouse gas emissions reduction targets.	Yes. The adopted Plan Bay Area (2018)[80] serves as the Sustainable Communities' Strategy for the Bay Area, per Senate Bill 375. As described in Section 5.6, Greenhouse Gas and Climate Change, the project will be constructed with land uses at a density and intensity that meets or exceeds Plan Bay Area recommendations. 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. Thus, the project furthers, and is not in conflict with, Plan Bay Area's GHG reduction targets.
Section 15182(c)	Eligibility. Where a public agency has prepared an EIR on a specific plan after January 1, 1980, a residential project undertaken pursuant to and in conformity to that specific plan is exempt from CEQA if the project meets the requirements of this section. Residential projects covered by this section include but are not limited to land subdivisions, zoning changes, and residential planned unit developments.	Yes. The BVDSP EIR was certified by the Planning Commission on May 21, 2014 and confirmed by the City Council on June 17, 2014. See Section 3.1, BVDSP and BVDSP EIR Background, above.

[80] MTC and ABAG (Metropolitan Transportation Commission and Association of Bay Area Governments). 2018. *Plan Bay Area Projections 2040, A Companion to Plan Bay Area 2040*. November 2018.

Attachment F

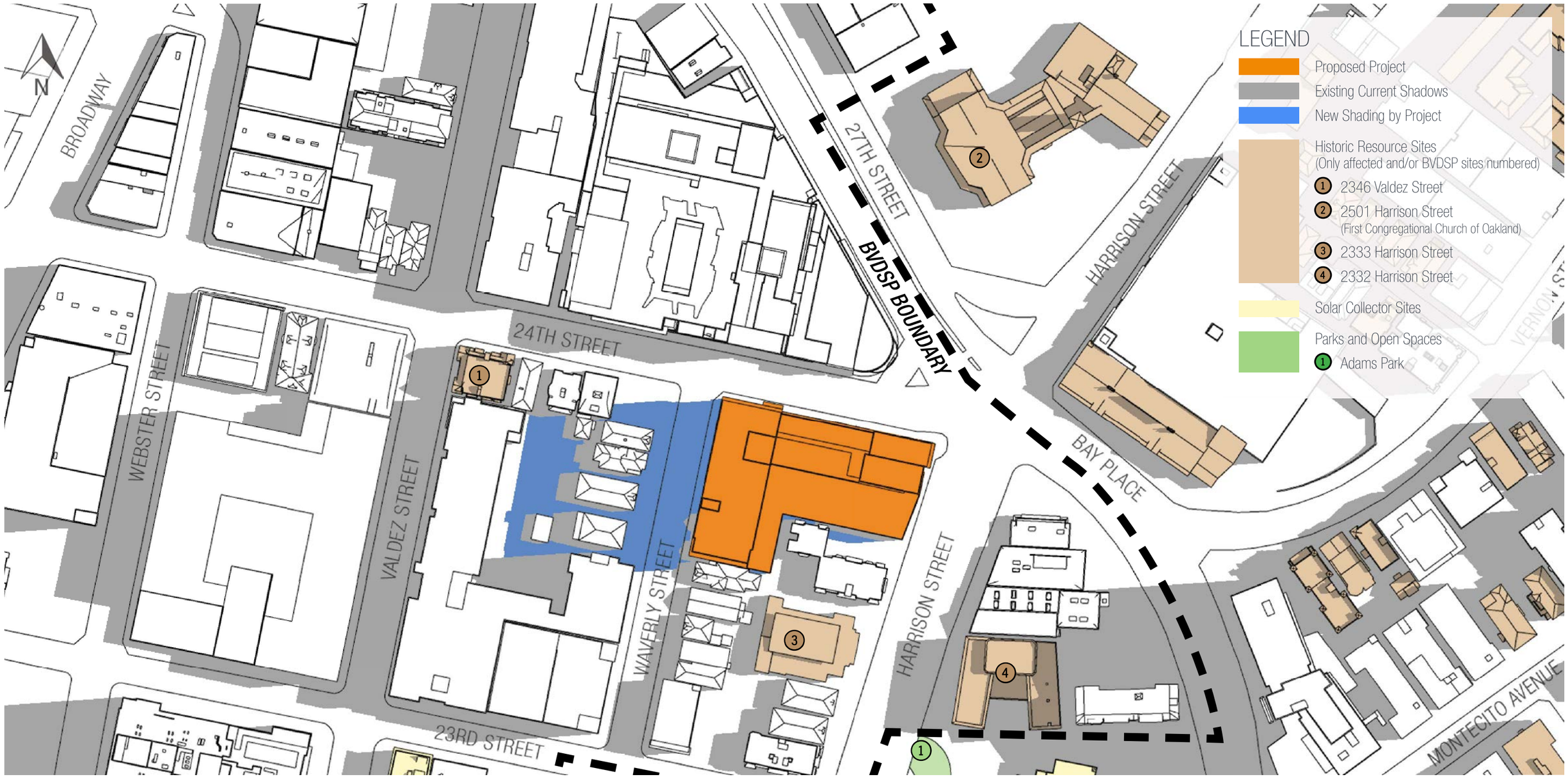
Shadow Diagrams

PREVISION DESIGN

PARCEL 5B: 24TH AND WAVERLY STREETS

Shading diagrams on the Summer Solstice

A1-P



SUMMER SOLSTICE
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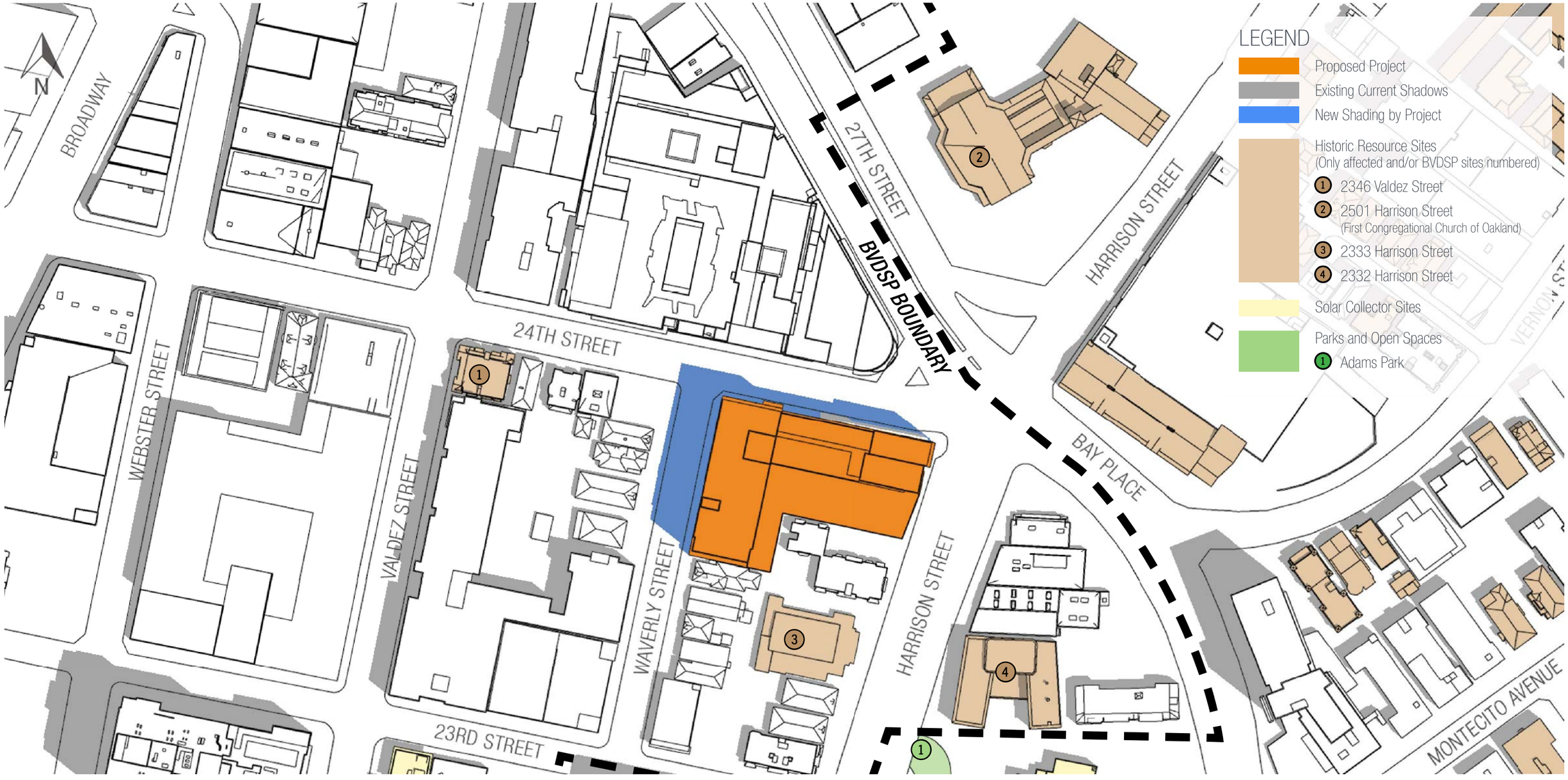
PREVISION DESIGN

PARCEL 5B: 24TH AND WAVERLY STREETS

Shading diagrams on the Summer Solstice

A2-P



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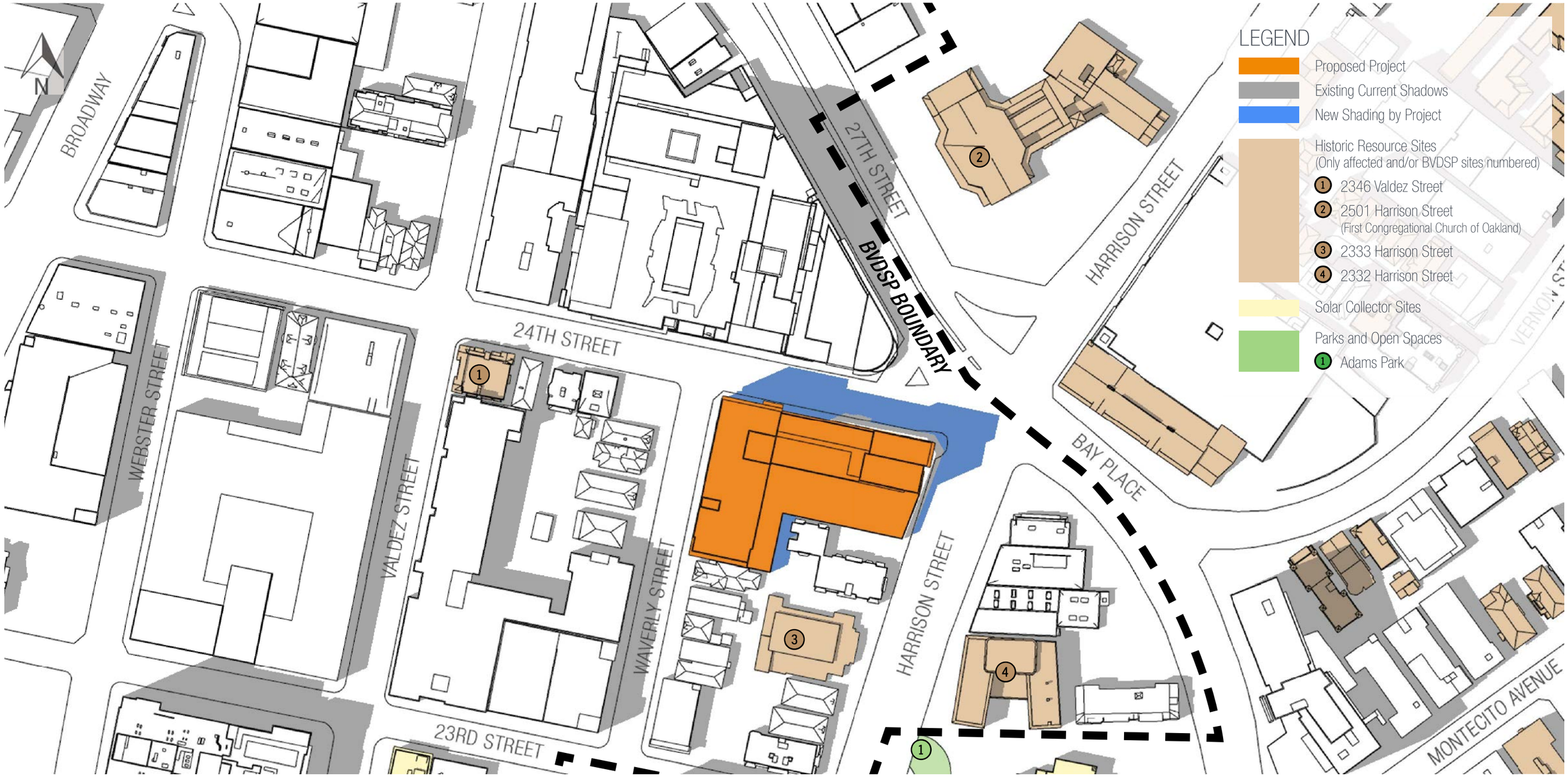
PREVISION DESIGN

PARCEL 5B: 24TH AND WAVERLY STREETS

Shading diagrams on the Summer Solstice

A3-P



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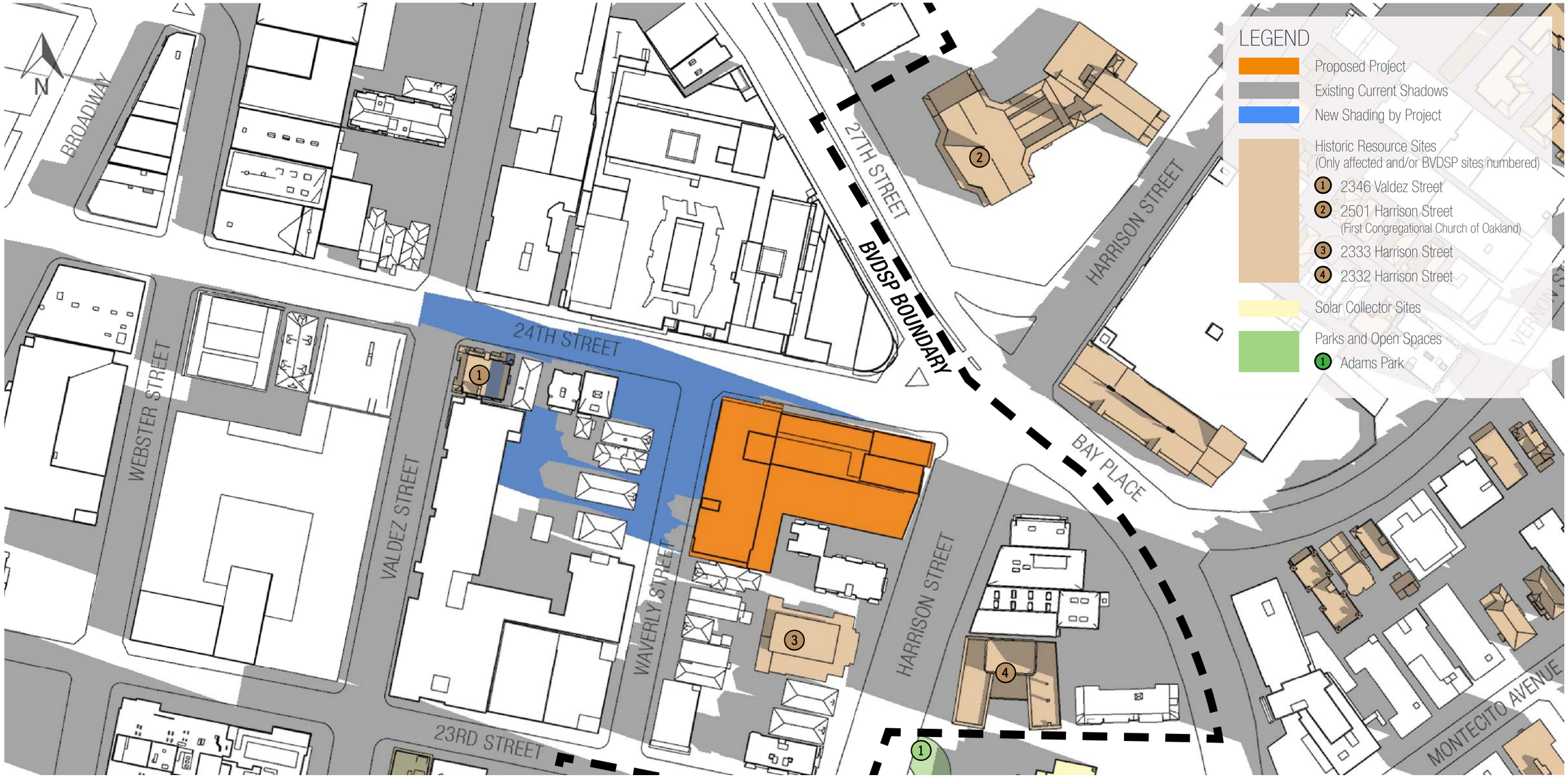
PREVISION DESIGN

PARCEL 5B: 24TH AND WAVERLY STREETS

Shading diagrams on the Vernal/Autumnal Equinoxes

B1-P



VERNAL/AUTUMNAL EQUINOX
MARCH 20 & SEPTEMBER 22

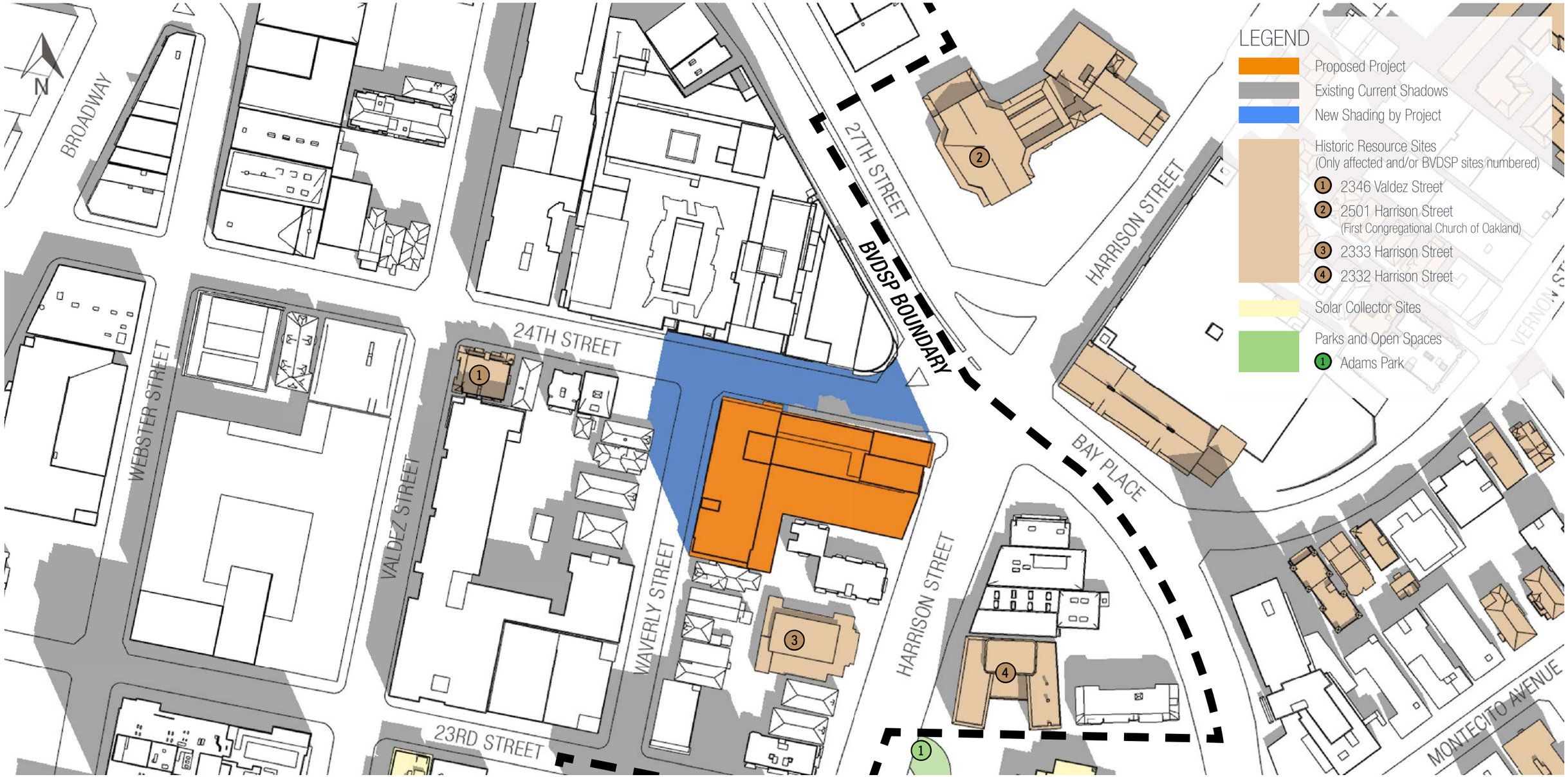
9:00 AM

PREVISION DESIGN

PARCEL 5B: 24TH AND WAVERLY STREETS

Shading diagrams on the Vernal/Autumnal Equinoxes

B2-P



VERNAL/AUTUMNAL EQUINOX
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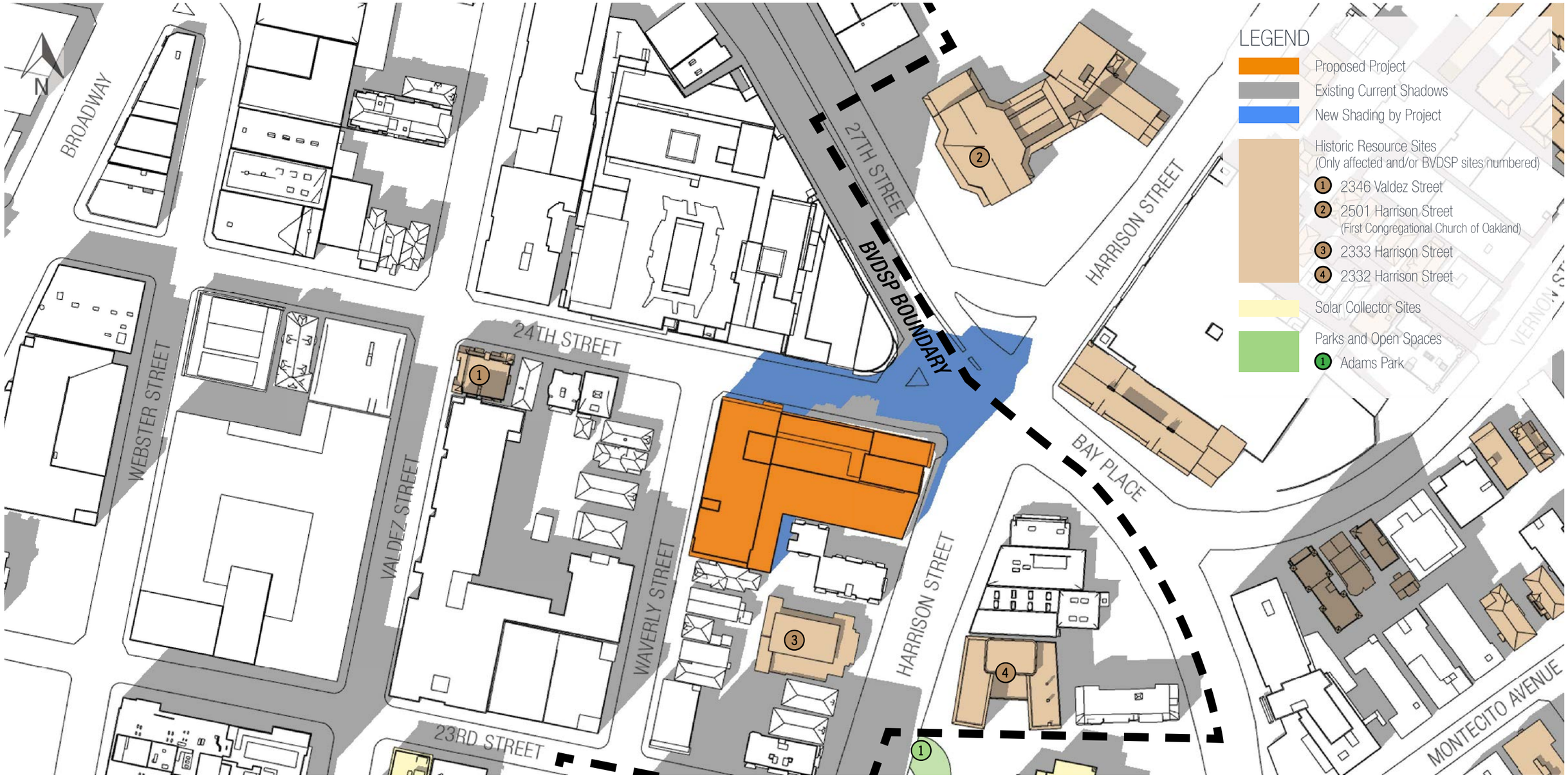
PREVISION DESIGN

PARCEL 5B: 24TH AND WAVERLY STREETS

Shading diagrams on the Vernal/Autumnal Equinoxes

B3-P



VERNAL/AUTUMNAL EQUINOX
MARCH 20 & SEPTEMBER 22

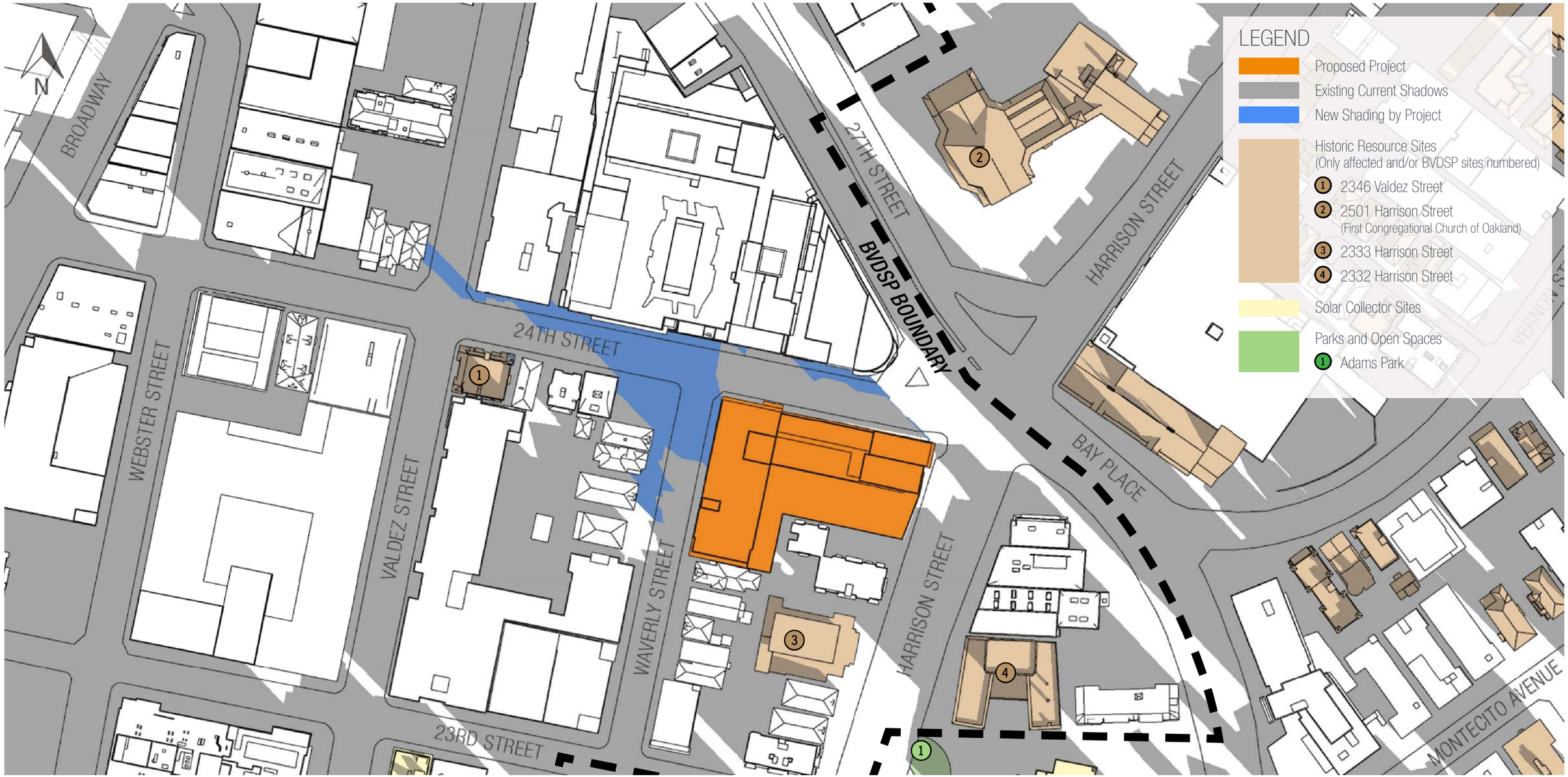
3:00 PM

PREVISION DESIGN

PARCEL 5B: 24TH AND WAVERLY STREETS

Shading diagrams on the Winter Solstice

C1-P



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PREVISION DESIGN

PARCEL 5B: 24TH AND WAVERLY STREETS

Shading diagrams on the Winter Solstice

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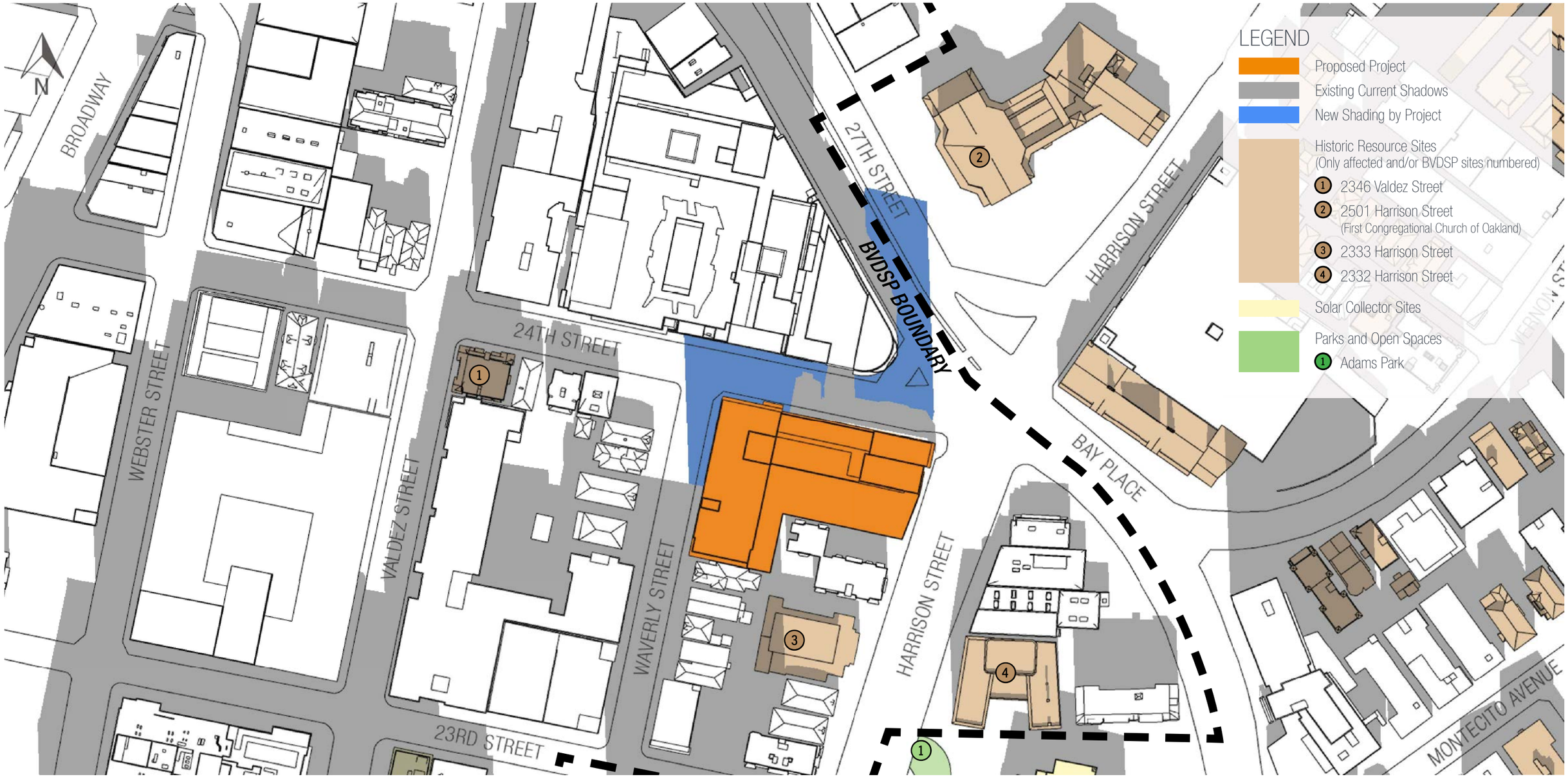

WINTER SOLSTICE
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12:00 PM

PREVISION DESIGN

PARCEL 5B: 24TH AND WAVERLY STREETS

Shading diagrams on the Winter Solstice

C3-P

WINTER SOLSTICE
DECEMBER 21

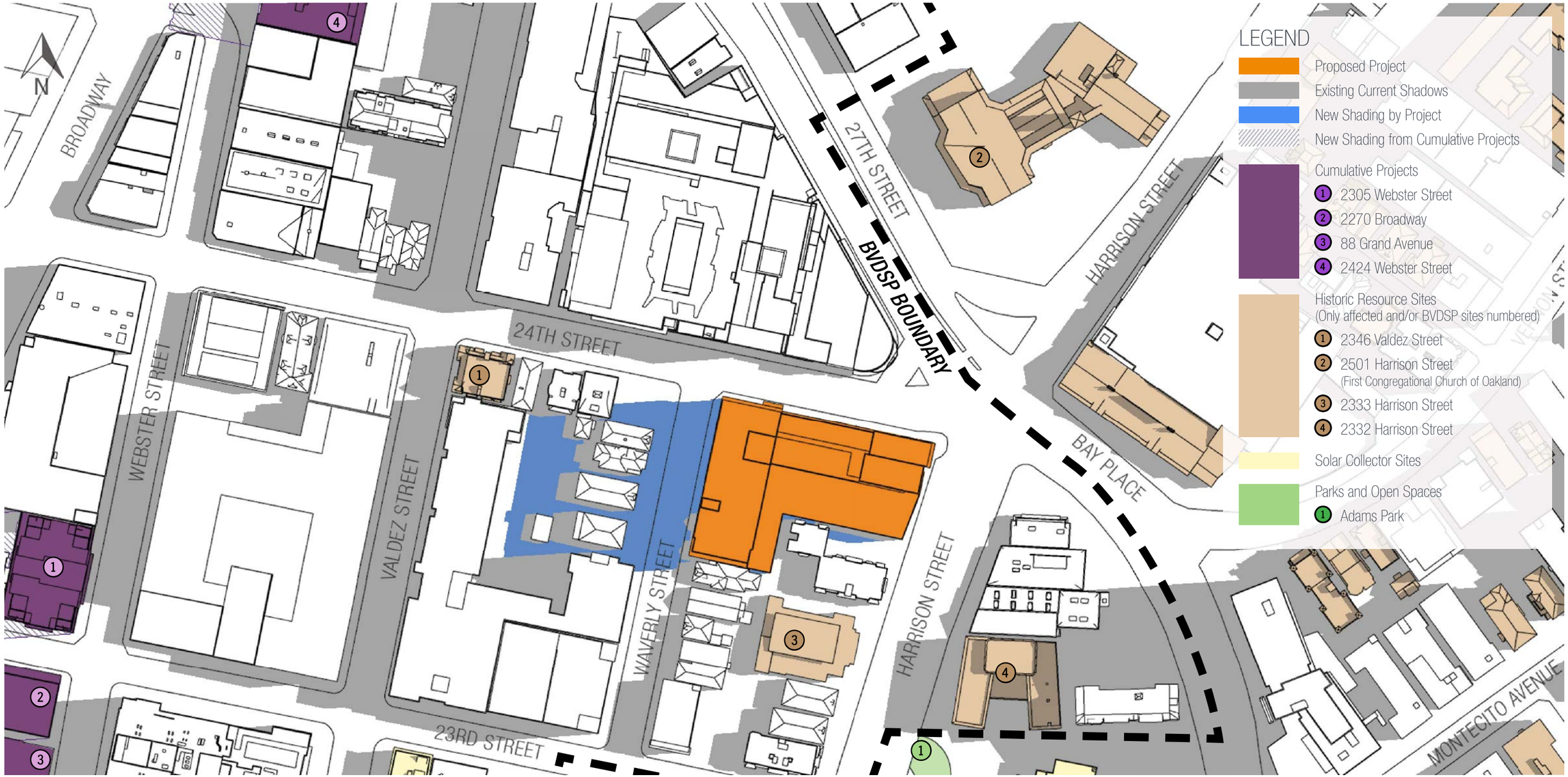
3:00 PM

PREVISION DESIGN

PARCEL 5B: 24TH AND WAVERLY STREETS

Cumulative shading diagrams on the Summer Solstice

A1-C



SUMMER SOLSTICE
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PARCEL 5B: 24TH AND WAVERLY STREETS

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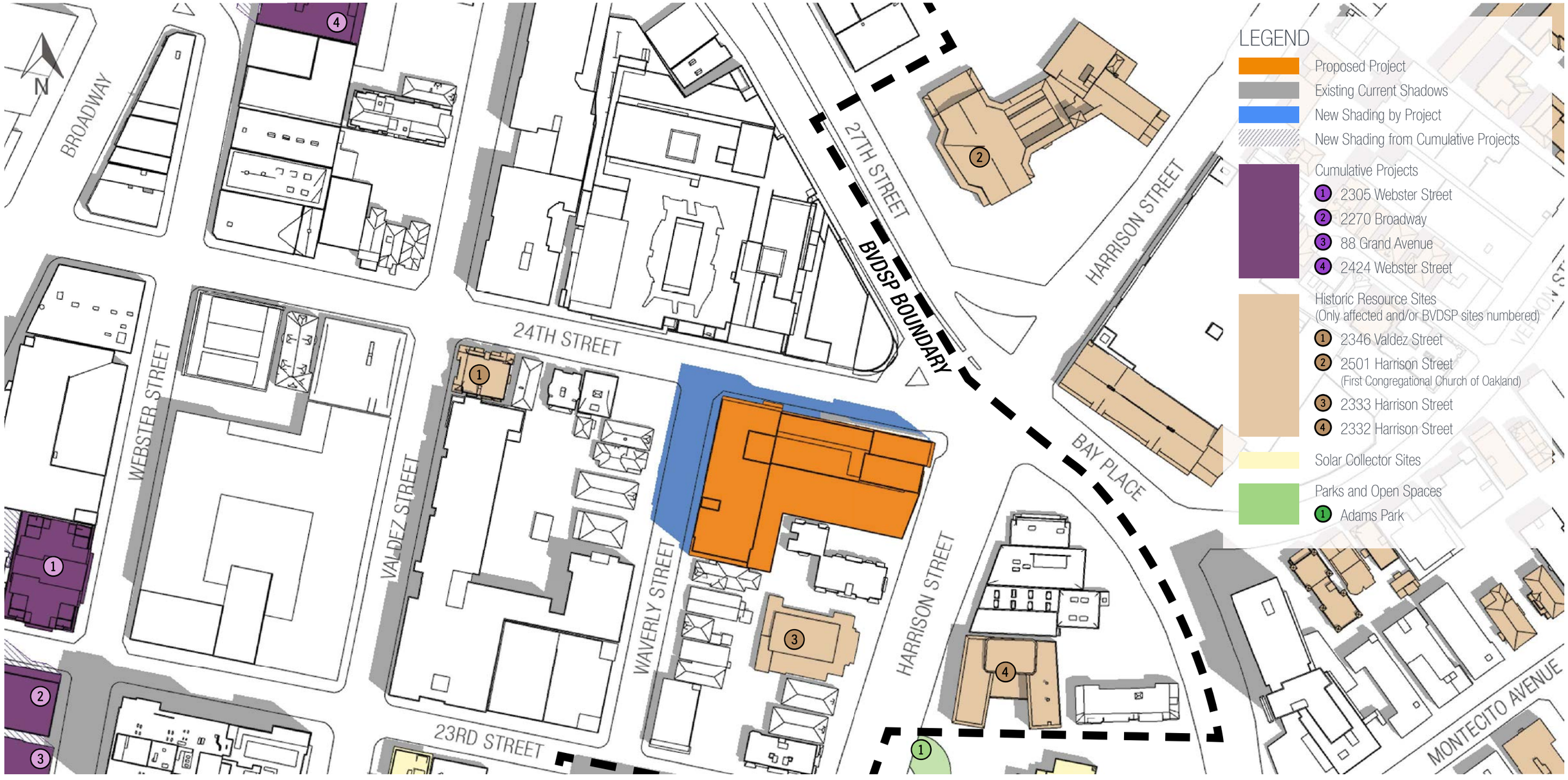

SUMMER SOLSTICE
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PREVISION DESIGN

PARCEL 5B: 24TH AND WAVERLY STREETS

Cumulative shading diagrams on the Summer Solstice

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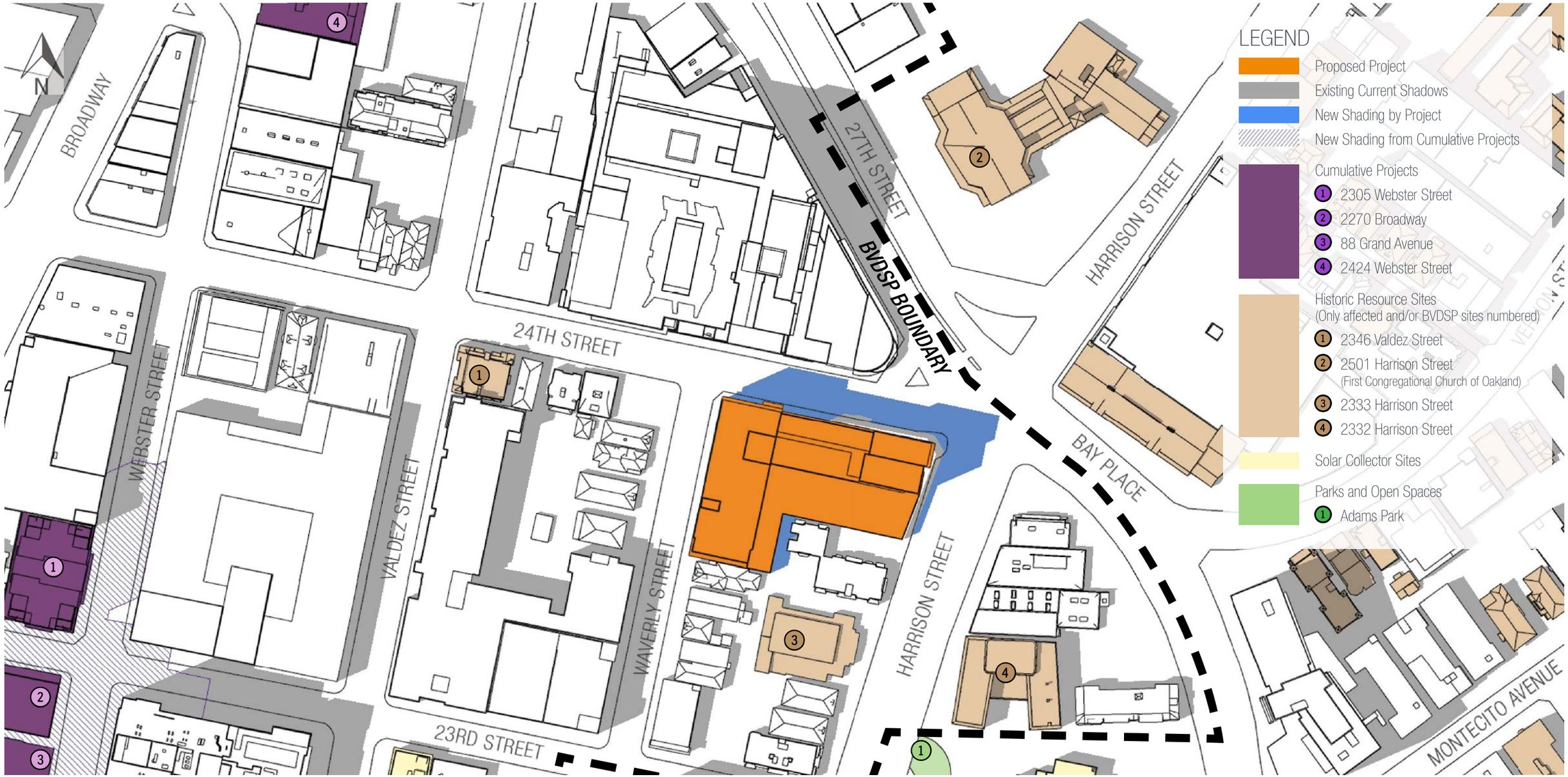

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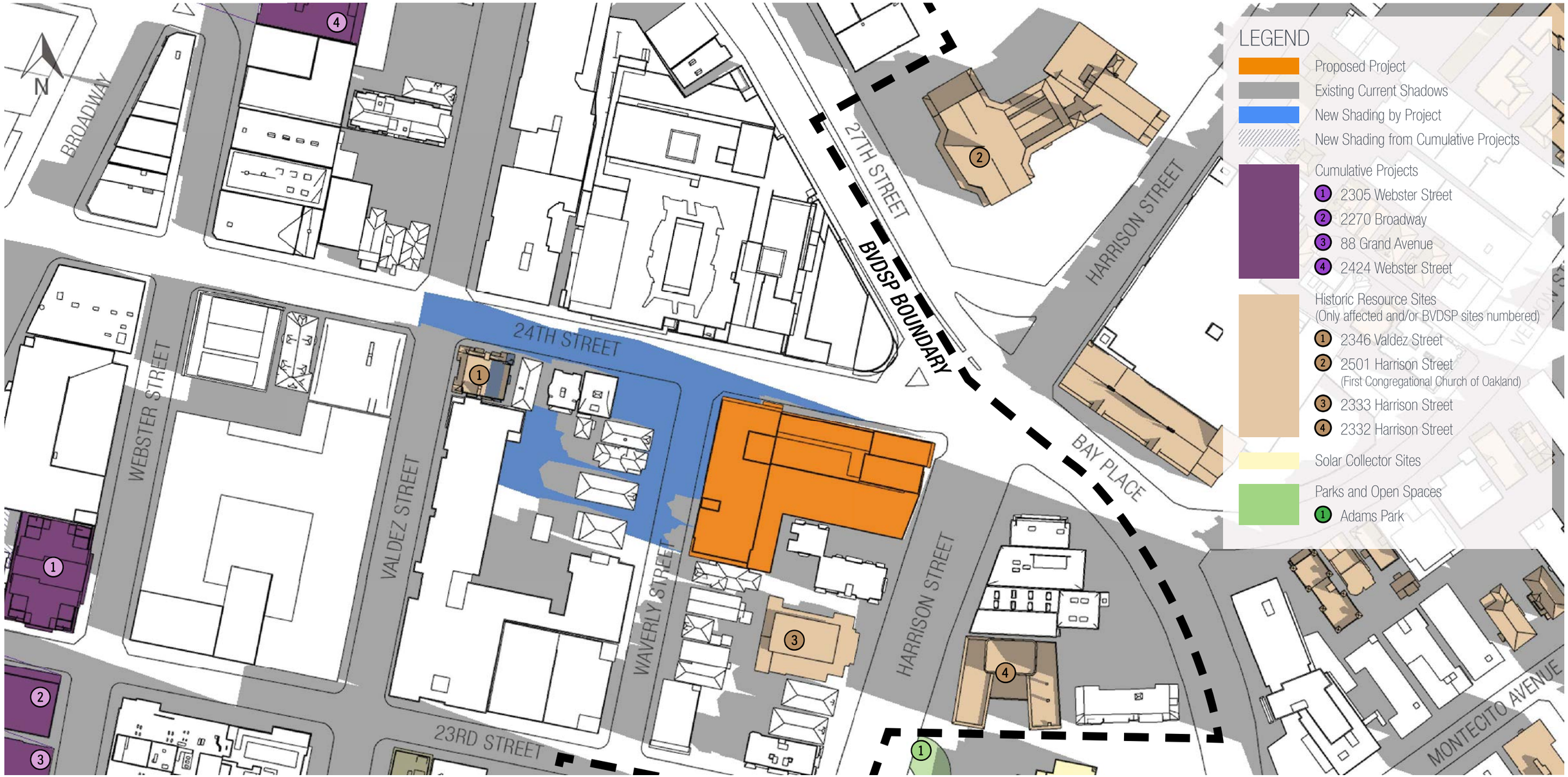
PARCEL 5B: 24TH AND WAVERLY STREETS

Cumulative shading diagrams on the Vernal/Autumnal Equinoxes

B1-C



VERNAL/AUTUMNAL EQUINOX
MARCH 20 & SEPTEMBER 22

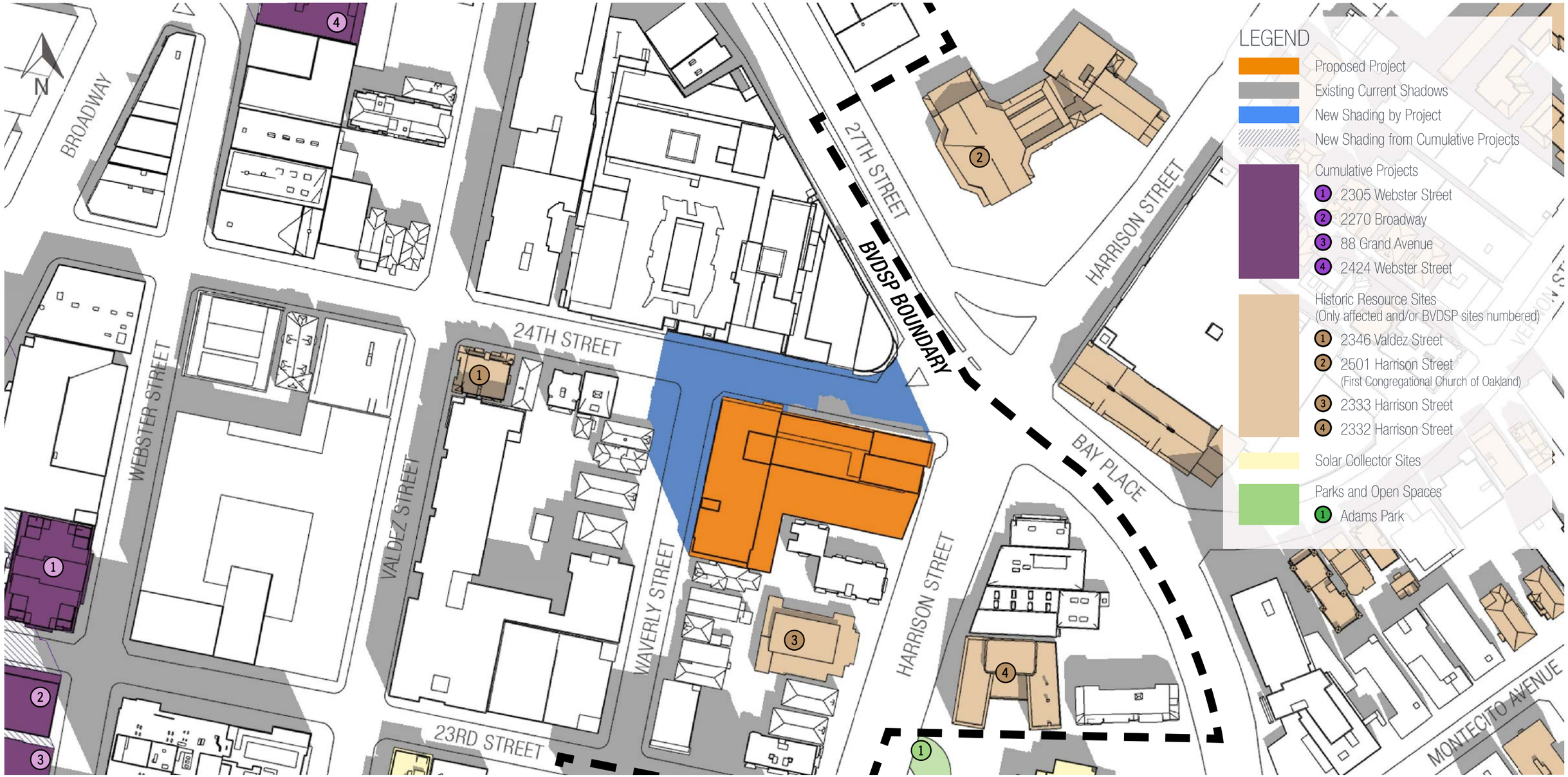
9:00 AM

PREVISION DESIGN

PARCEL 5B: 24TH AND WAVERLY STREETS

Cumulative shading diagrams on the Vernal/Autumnal Equinoxes

B2-C



VERNAL/AUTUMNAL EQUINOX
MARCH 20 & SEPTEMBER 22

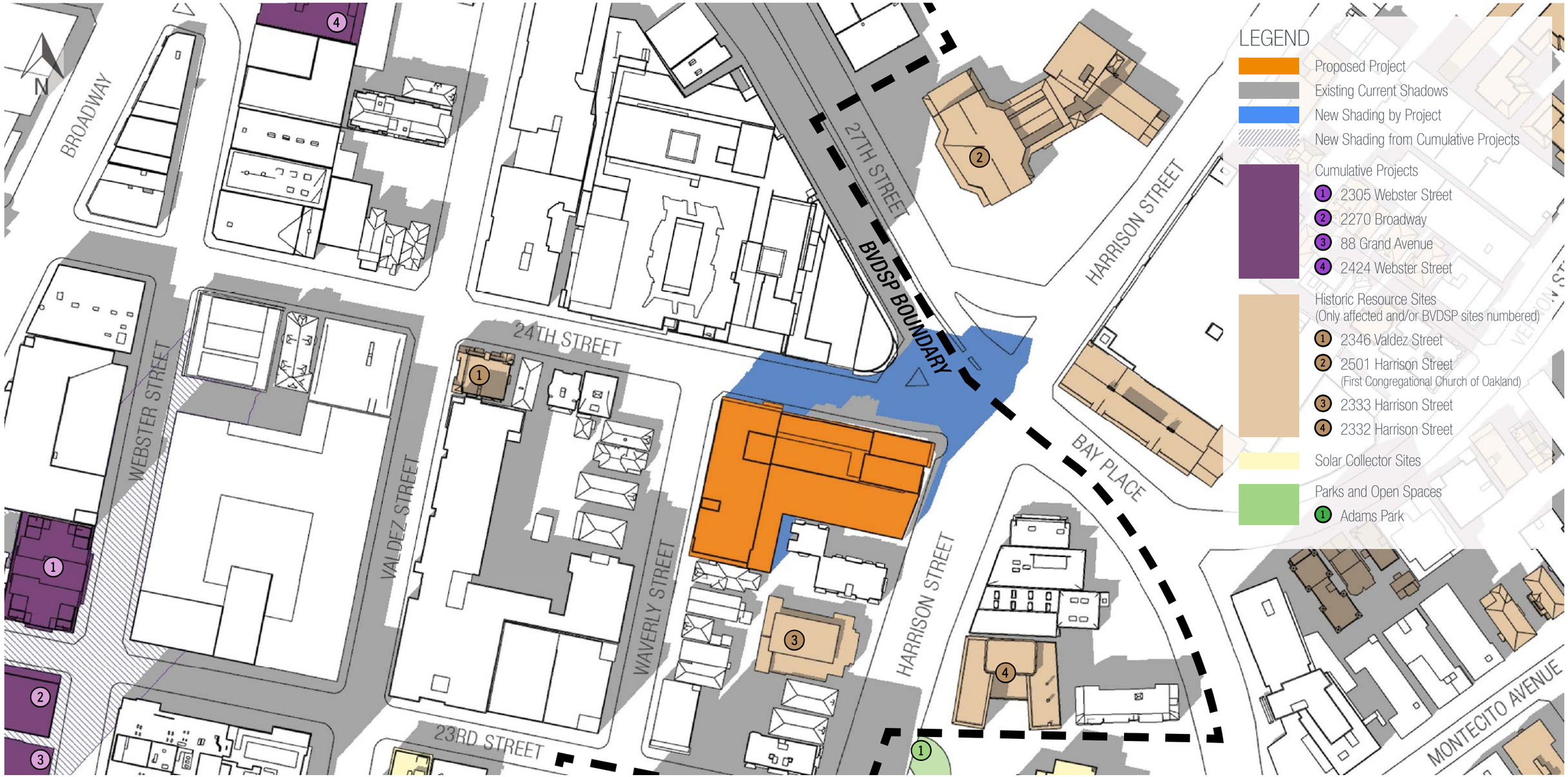
12:00 PM

PREVISION DESIGN

PARCEL 5B: 24TH AND WAVERLY STREETS

Cumulative shading diagrams on the Vernal/Autumnal Equinoxes

B3-C



VERNAL/AUTUMNAL EQUINOX
MARCH 20 & SEPTEMBER 22

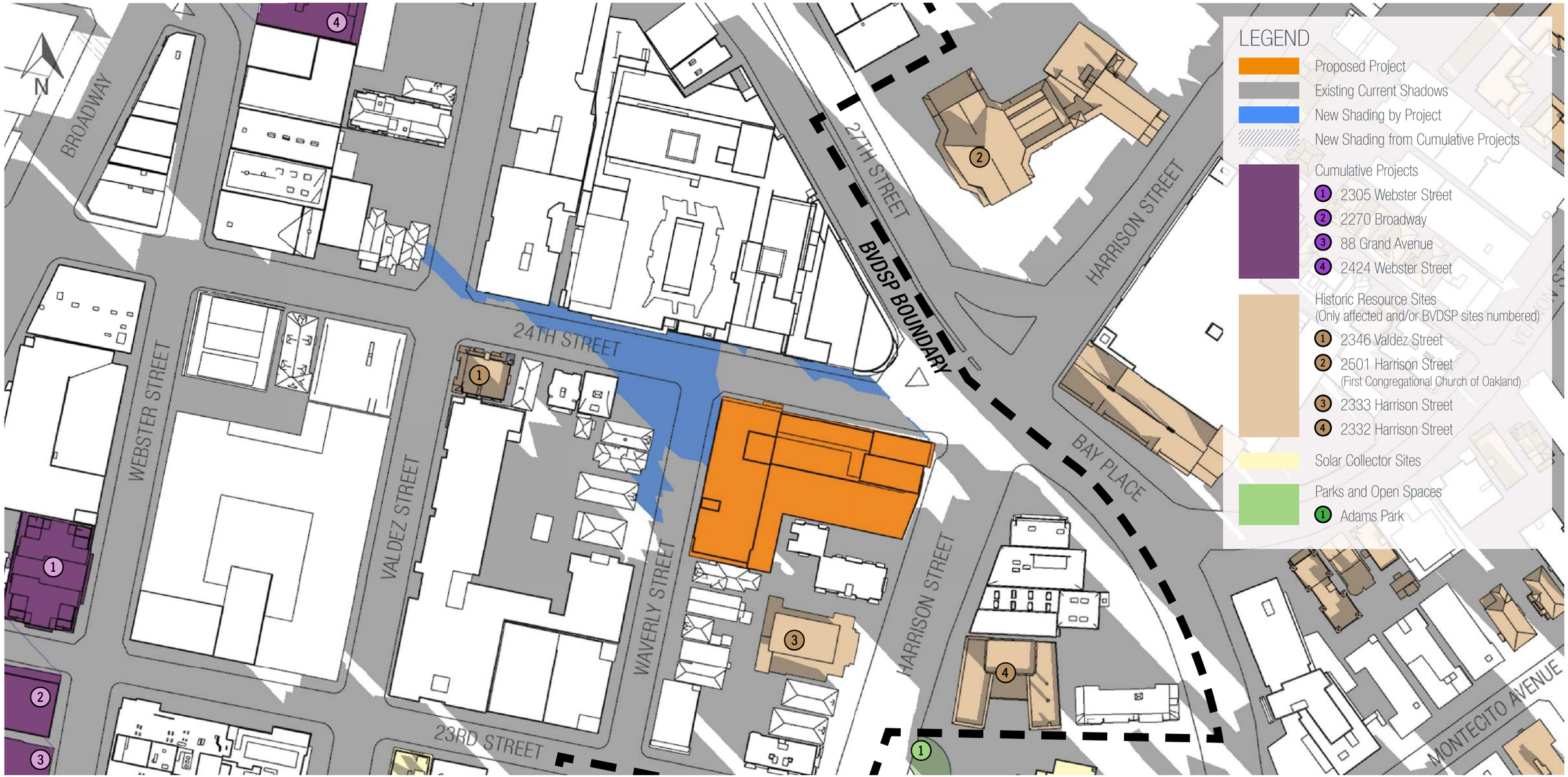
3:00 PM

PREVISION DESIGN

PARCEL 5B: 24TH AND WAVERLY STREETS

Cumulative shading diagrams on the Winter Solstice

C1-C



WINTER SOLSTICE
DECEMBER 21

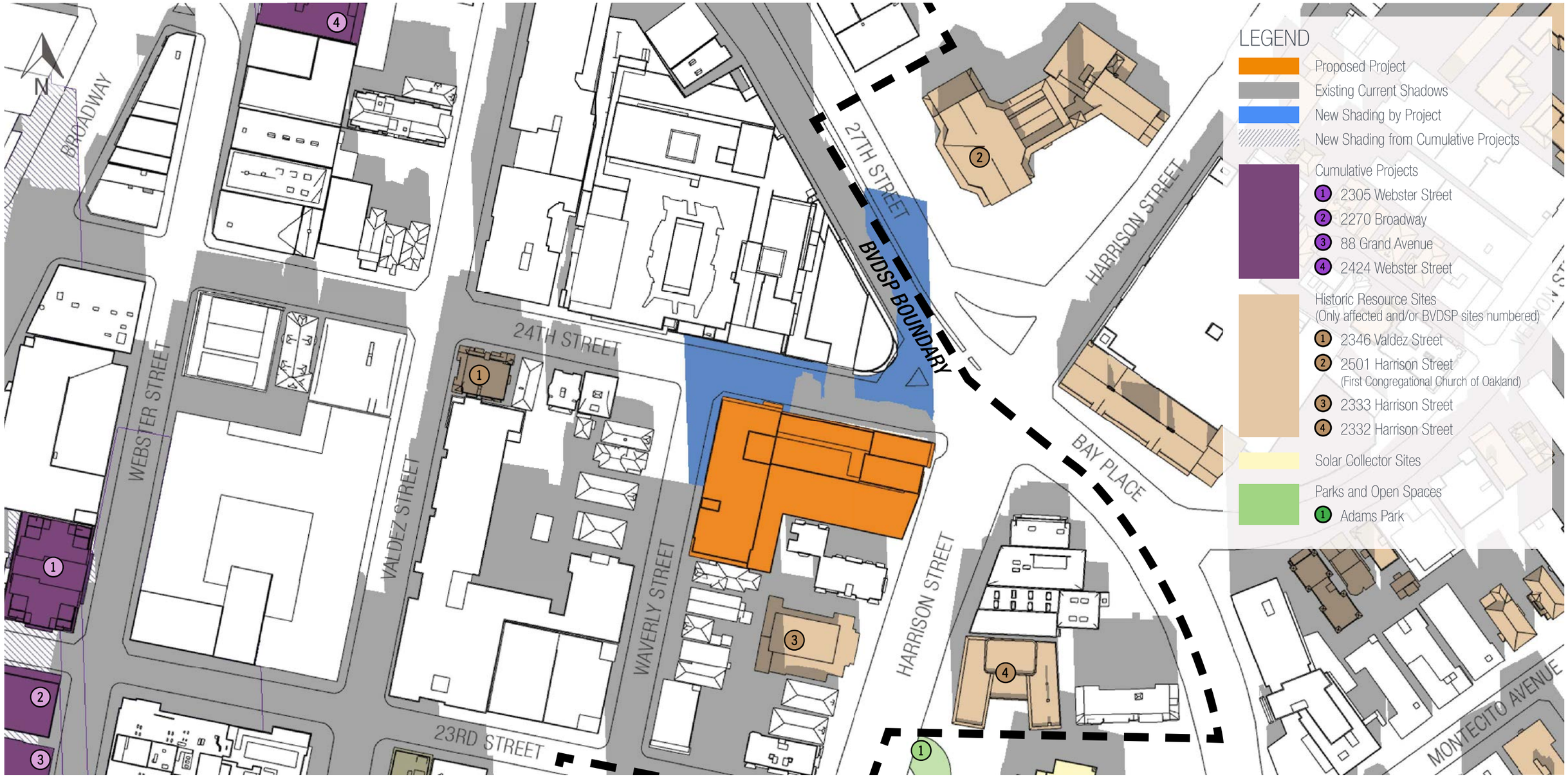
9:00 AM

PREVISION DESIGN

PARCEL 5B: 24TH AND WAVERLY STREETS

Cumulative shading diagrams on the Winter Solstice

C2-C



WINTER SOLSTICE
DECEMBER 21

12:00 PM

PREVISION DESIGN

PARCEL 5B: 24TH AND WAVERLY STREETS

Cumulative shading diagrams on the Winter Solstice

C3-C

WINTER SOLSTICE
DECEMBER 21

3:00 PM

Attachment G

Pedestrian Wind Study

REPORT

24TH AND WAVERLY

OAKLAND, CA

PEDESTRIAN WIND STUDY
RWDI # 2001906
January 13, 2021

SUBMITTED TO

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EXECUTIVE SUMMARY

RWDI was retained to conduct a pedestrian wind assessment for the proposed 24th and Waverly development in Oakland, CA (Image 1). Based on our wind-tunnel testing for the proposed development under the Existing, Existing + Project, and Project + Cumulative configurations (Images 2A through 2C and 3), and the local wind records (Image 4), the potential wind hazard and comfort conditions are predicted as shown on site plans in Figures 1A through 2C, while the associated wind speeds are listed in Tables 1.1 through 2.2. These results can be summarized as follows:

Wind Hazard:

- In the Existing scenario, wind speeds at all but one of the tested locations are expected to comply with the hazard criterion. Wind speeds at this location exceed the hazard criterion for 1 hour annually.
- With the addition of the proposed development and, subsequently, the future surroundings (Existing + Project and Project + Cumulative configurations), winds at all tested locations at and above ground are predicted to comply with the hazard criterion.

Wind Comfort:

- In the Existing scenario, wind speeds at 11 of 53 ground level locations are expected to exceed the comfort threshold of 11 mph, with wind speed averaging 10 mph across all test locations at grade level.
- With the addition of the proposed project in the Existing + Project configuration, while similar average wind conditions as in the Existing configuration are predicted, the number of locations where wind speeds exceed the 11-mph comfort criterion is expected to be 15 at grade level.
- In the Project + Cumulative configuration, wind speeds at 17 test locations are predicted to exceed the 11-mph criterion.
- Wind speeds at all above-grade level locations are expected to meet the 11-mph criterion for both Existing + Project and Project + Cumulative configurations, while the average wind speeds exceeding 10% of the time are expected to be 7 mph and 6 mph, respectively.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1 INTRODUCTION

RWDI was retained to conduct a pedestrian wind assessment for the proposed 24th and Waverly development in Oakland, CA. This report presents the project objectives, background and approach, and discusses of the results from RWDI's assessment.

1.1 Project Description

The project (site shown in Image 1) is located on the northern portion of the block bounded by 24th Street to the north, 23rd Street to the south, Harrison Street to the east, and Waverly Street to the west. The site occupies the entire frontage of the block along 24th Street and has frontage on Waverly and Harrison streets. It is within the Broadway Valdez District Specific Plan (BDVSP) area. The proposed development would include a podium roof amenity at Level 5 and a rooftop amenity area at Level 15.

1.2 Objectives

The objective of the study was to assess the effect of the proposed development on local conditions in pedestrian areas on and around the study site and provide recommendations for minimizing adverse effects, if needed. This quantitative assessment was based on wind speed measurements on a scale model of the project and its surroundings in one of RWDI's boundary-layer wind tunnels. These measurements were combined with the local wind records and compared to appropriate criteria for gauging wind comfort and safety in pedestrian areas. The assessment focused on critical pedestrian areas, including building entrances, public sidewalks and above-grade amenity areas.

Image 1: Aerial View of Site and Surroundings (Photo Courtesy of Google™ Earth)

2 BACKGROUND AND APPROACH

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 of the following configurations:

A - Existing: Existing site with existing surroundings (Image 2A),

B – Existing+ Project: Proposed project with existing surroundings (Image 2B), and,

C – Project + Cumulative: Proposed project with future surroundings (Image 2C).

The wind tunnel model included all relevant surrounding buildings and topography within an approximately 1200 ft radius of the study site. The wind and turbulence profiles in the atmospheric boundary layer beyond the modelled area were also simulated in RWDI's wind tunnel. The wind tunnel model was instrumented with 67 specially designed wind speed sensors to measure mean and gust speeds at a full-scale height of approximately 5 ft above local grade in pedestrian areas throughout the study site. Of these, Sensors 54-67 were instrumented at above-grade private amenity areas. Wind speeds were measured for 36 directions in a 10-degree increment. The measurements at each sensor location were recorded in the form of ratios of local mean and gust speeds to the mean wind speed at a reference height above the model. The placement of wind measurement locations was based on our experience and understanding of the pedestrian usage for this site and reviewed by the design team.

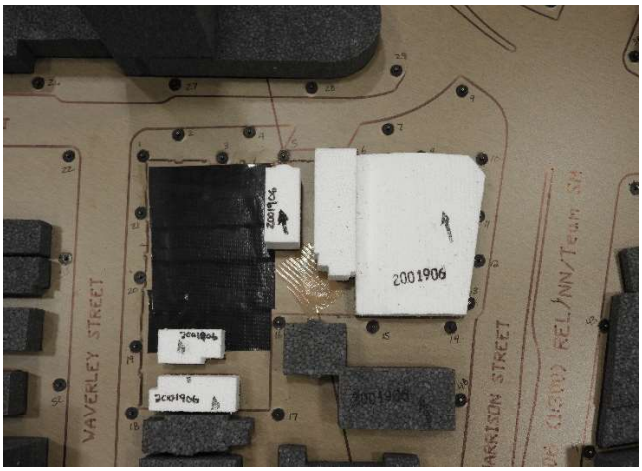


Image 2A: Wind Tunnel Study Model – Existing Configuration

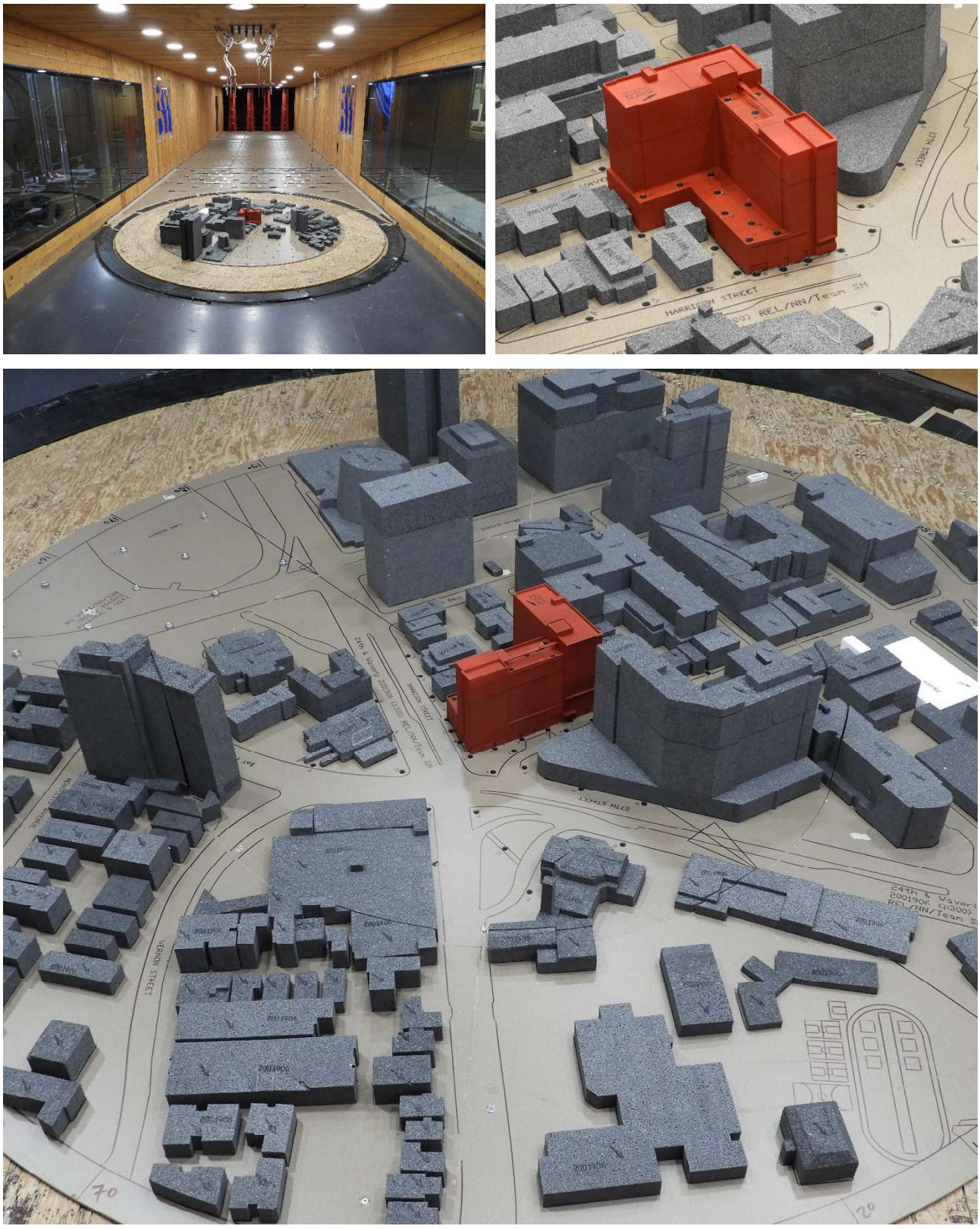


Image 2B: Wind Tunnel Study Model – Existing + Project Configuration

Image 2C: Wind Tunnel Study Model – Project + Cumulative Configuration

2.2 Cumulative Buildings

Anticipated future buildings within the study model radius were included in the Project + Cumulative configuration. These are shown in Image 3 and listed in the table below.

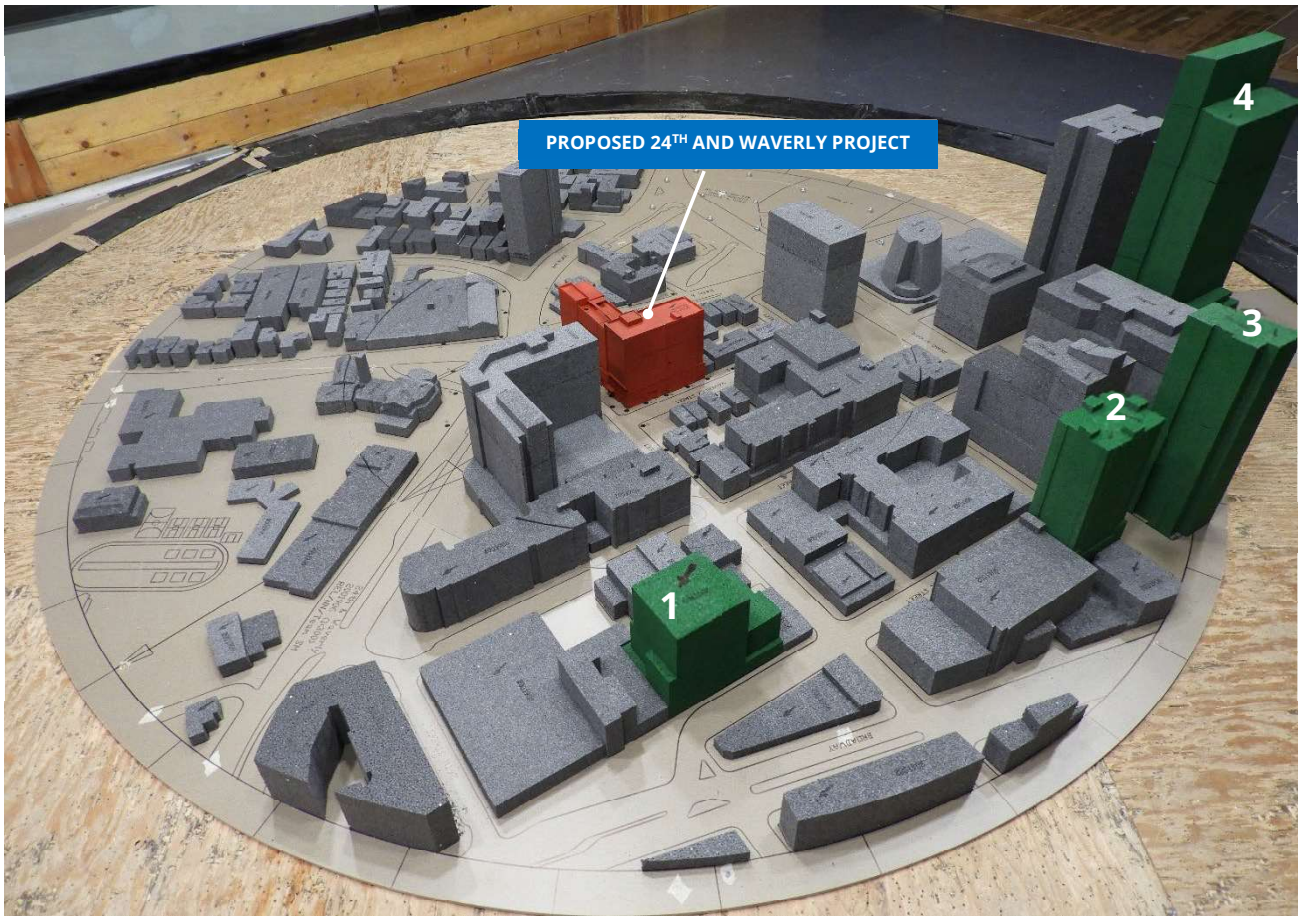


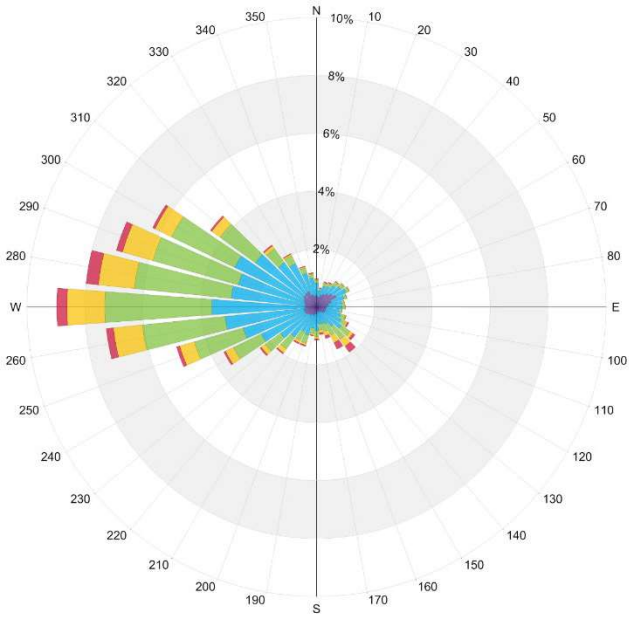
Image 3: Cumulative Buildings

LIST OF CUMULATIVE BUILDINGS AND HEIGHTS		
#	Address	Height
1	2404 -2424 Webster	164’
2	2305 Webster	246’
3	88 Grande Avenue	472’
4	2 Kaiser Plaza	597’

2.3 Meteorological Data

Wind statistics recorded at Metropolitan Oakland International Airport between 1989 and 2019 were analyzed for annual wind conditions. Image 4 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 15 mph measured at the airport (at an anemometer height of 33 feet) occur 11.5% of the time annually.

Wind statistics from Metropolitan Oakland International Airport were combined with the wind tunnel data 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.



Annual Winds

Wind Speed (mph)	Probability (%)
Calm	11.8
1-5	14.3
6-10	36.0
11-15	26.4
16-20	8.7
>20	2.8

Image 4: Directional Distribution of Winds Approaching Metropolitan Oakland International Airport from 1989 to 2019

2.4 Significance Threshold and Comfort Criteria

Significance Threshold

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 430 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". Equivalent wind speeds (EWS) were calculated using the average wind speed (mean velocity) adjusted to include the level of gustiness and turbulence and are used to determine significant wind impacts. EWS is calculated using the formula provided below, wherein the mean wind speed is increased when the turbulence intensity is greater than 15%:

$$EWS = V_m \times (2 \times TI + 0.7)$$

where EWS = equivalent wind speed

V_m = mean pedestrian-level wind speed

TI = turbulence intensity

Wind Comfort

Although not applicable towards Significant Wind Impacts as defined by the City of Oakland, wind comfort speeds have been calculated for informational purposes. Based on the San Francisco Planning Code Section 148, the comfort criteria are that wind speeds (EWS) 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.

3 RESULTS AND DISCUSSION

This section presents the results of the wind tunnel measurements analyzed in terms of equivalent wind speeds as defined by the equation in Section 2.4. The text of the report simply refers to the data as wind speeds.

The wind hazard results for the configurations tested are graphically depicted on a site plan in Figures 1A through 1C. Table 1.1 and Table 1.2 present the wind hazard results for the grade level and above-grade levels, respectively, and list the predicted wind speeds to be exceeded one hour per year. The predicted number of hours per year that the wind hazard criterion (one-minute wind speed of 36 mph) is exceeded is also provided. A letter "e" in the last column of each configuration indicates a wind hazard exceedance.

The wind comfort results are shown in Figure 2A through 2C, located in the "Figures" sections of this report where locations have been color-coded according to the criteria of the 7-mph and 11-mph comfort categories explained in Section 2.4. This same data is also numerically depicted in Table 2.1 and Table 2.2 for the grade level and above-grade, respectively, located in the "Tables" section of this report. For each measurement point, the measured 10% exceeded (90th percentile) wind speed and the percentage of time that the wind speed exceeds 11 mph are listed. The point is marked as a comfort exceedance if the 11-mph threshold is exceeded. A letter "e" in the last column of each configuration indicates a wind comfort exceedance.

3.1 Existing Configuration

3.1.1 Wind Hazard

In the Existing configuration, the wind hazard criterion is currently met at all but one test location to the north of the project site along 24th Street, for a total of 1 hour per year (Location 4 in Figure 1A and Table 1.1). For all test locations, the average wind speed which is exceeded for 1 hour per year is 24 mph (Table 1.1).

3.1.2 Wind Comfort

For the Existing configuration, the average 90th percentile wind speed for the 53 test locations is 10 mph. Wind speeds at 11 of 53 test locations exceed the Planning Code's pedestrian-comfort criterion of 11 mph. Winds currently exceed the applicable criterion 8 % of the time on average (Figure 2A and Table 2.1).

3.2 Existing plus Project Configuration

3.2.1 Wind Hazard

In the Existing + Project configuration, the wind hazard criterion is predicted to be met at all test locations at grade level (Locations 1 through 53 in Figure 1B and Table 1.1). For all test locations, the average wind speed which is exceeded for 1 hour per year would be 25 mph (Table 1.1).

Wind speeds at all above-grade level test locations are also anticipated to meet the hazard criterion for the Existing + Project configuration (Locations 54 through 67 in Figure 1B and Table 1.2). The average wind speeds exceeding 1hr per year at above-grade level areas is 20 mph.

3.2.2 Wind Comfort

With the addition of the proposed project in the Existing + Project configuration, the average 90th percentile wind speeds for the 53 test locations at grade level would be 10 mph, which is similar to the Existing configuration (Table 2.1). Wind speeds at 15 of 53 test locations would exceed the Planning Code's pedestrian-comfort criterion of 11 mph. Wind speeds would exceed the applicable criterion 10% of the time on average (Table 2.1).

Wind speeds at all above grade level test locations are predicted to meet the 11-mph comfort threshold, with an average 90th percentile wind speed of 7 mph (Locations 54 through 67 in Figure 2B and Table 2.2).

3.3 Project plus Cumulative Configuration

3.3.1 Wind Hazard

At grade level, the addition of the approved cumulative (future) developments in the surrounding area in the Project + Cumulative configuration would provide wind speeds similar to the Existing + Project configuration. Wind speeds at all grade level locations are predicted to meet the hazard criterion (Locations 1 through 53 in Figure 1C and Table 1.1).

Wind conditions at above grade level test locations are also expected to result in wind conditions similar to the Existing + Project configuration, with average wind speeds exceeded 1 hour per year to be 20 mph. Wind speeds at all above-grade test locations are expected to meet the hazard criterion (Locations 54 through 67 in Figure 1C and Table 1.2).

3.3.2 Wind Comfort

At grade level, the average 90th percentile wind speed for 53 test locations would be 10 mph and wind speeds at 17 out of 53 Locations are predicted to exceed the comfort criterion of 11 mph. Wind speeds are predicted to exceed the applicable criterion 10% of the time on average (Table 2.1 and Figure 2C).

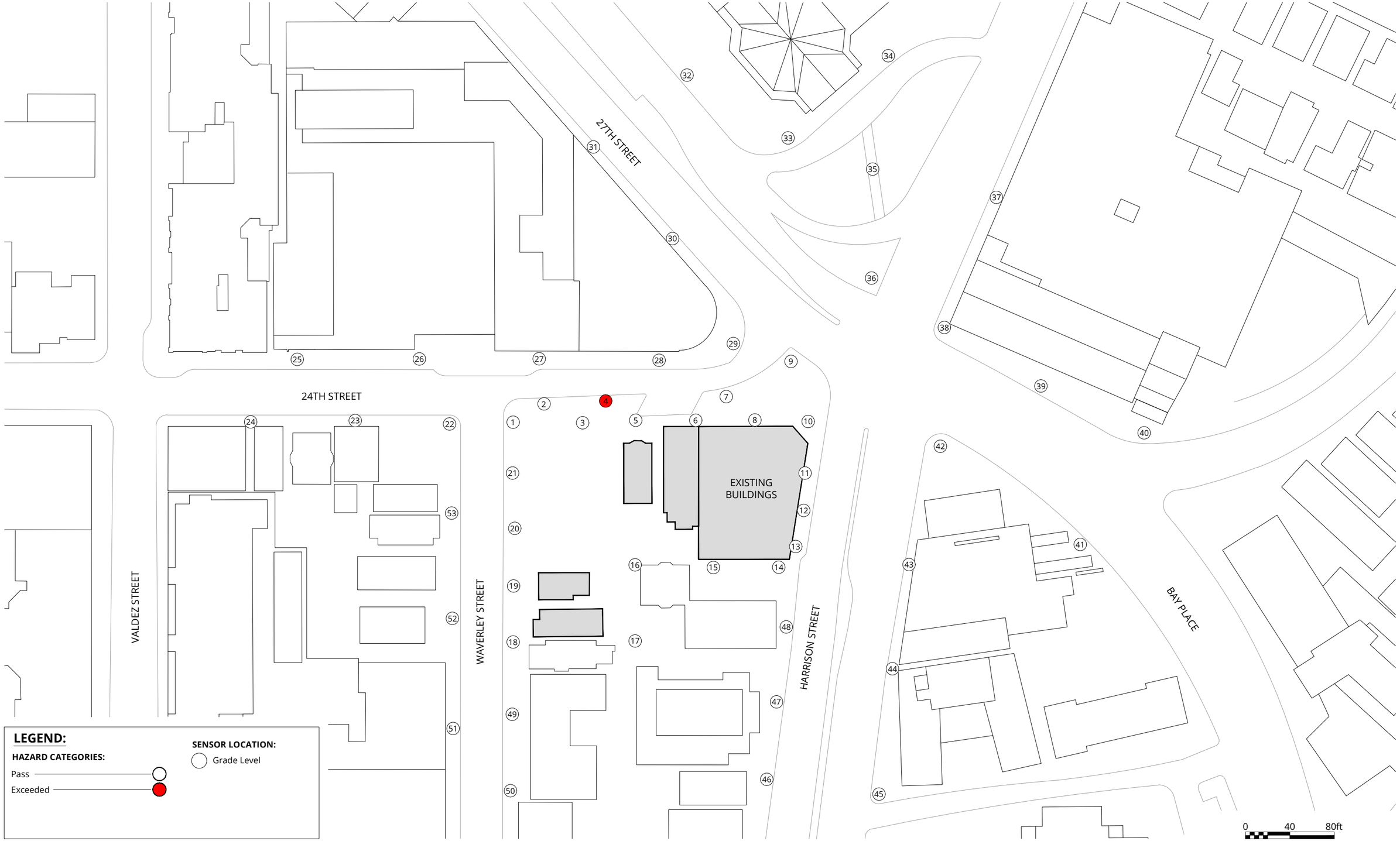
Wind speeds at all above grade level test locations are predicted to meet the 11-mph comfort threshold, with an average 90th percentile wind speed of 6 mph (Locations 54 through 67 in Figure 2C and Table 2.2).

4 APPLICABILITY OF RESULTS

The wind conditions presented in this report pertain to the model of the 24th and Waverly development constructed using the drawings and information listed below. 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.

File Name	File Type	Date Received (dd/mm/yyyy)
24th Waverly- CEQA Building Massing 2020_0421.skp	SketchUp	24/04/20

FIGURES



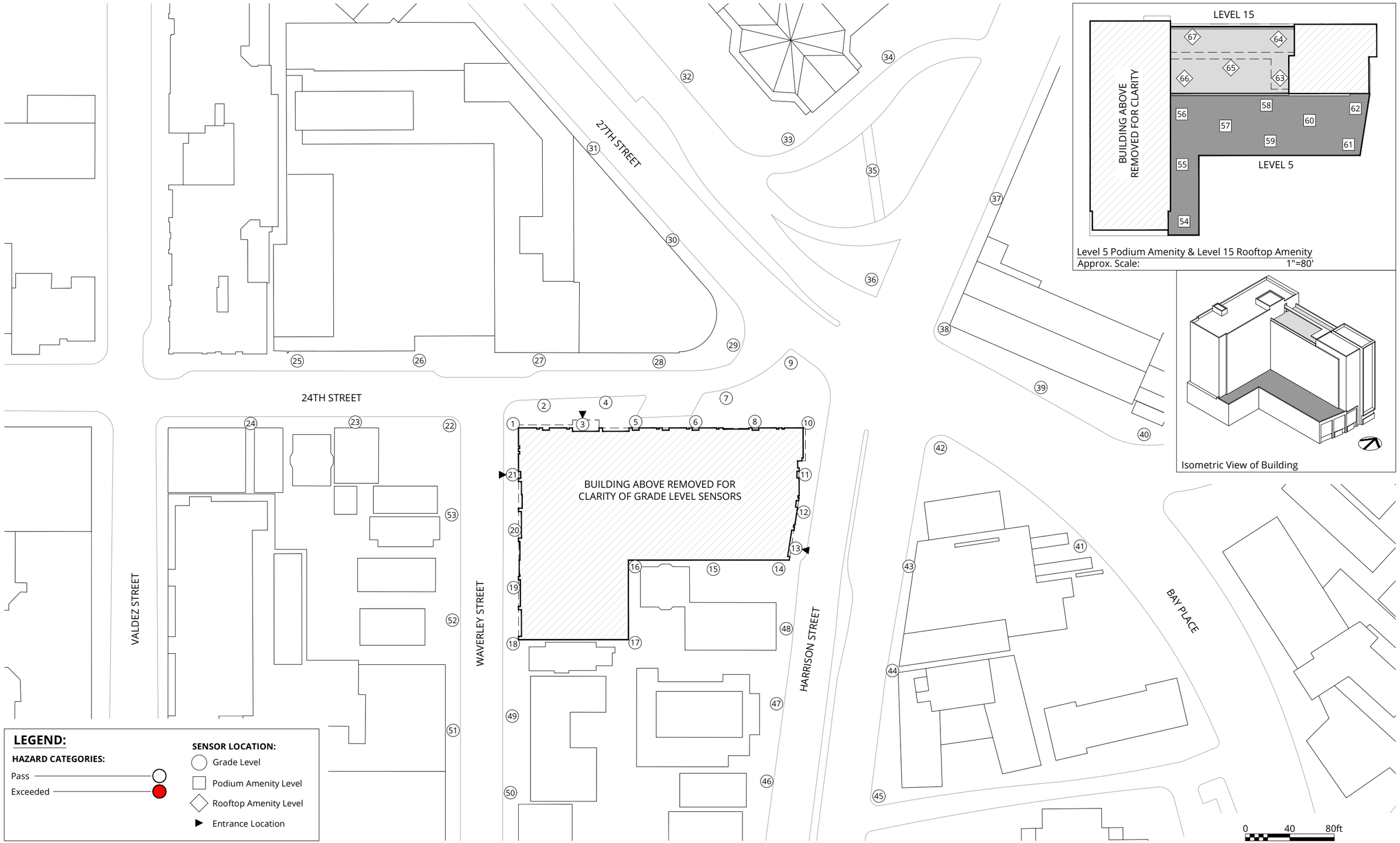
Pedestrian Wind Hazard Conditions
Existing
Annual

24th and Waverly - Oakland, CA

True North

Project #2001906

Drawn by:	GRE	Figure:	1A
Approx. Scale:	1"=80'		
Date Revised:	June 17, 2020		



Level 5 Podium Amenity & Level 15 Rooftop Amenity
Approx. Scale: 1"=80'

Isometric View of Building

Pedestrian Wind Hazard Conditions
Existing + Project
Annual

24th and Waverly - Oakland, CA

True North

Project #2001906

Drawn by:	GRE	Figure:	1B
Approx. Scale:	1"=80'		
Date Revised:	June 17, 2020		

FUTURE BUILDING

27TH STREET

24TH STREET

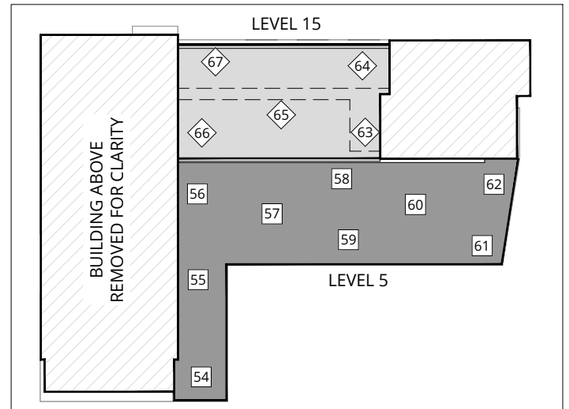
VALDEZ STREET

WAVERLEY STREET

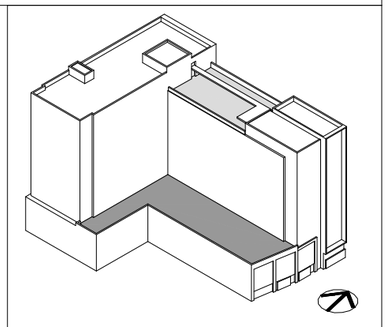
HARRISON STREET

BAY PLACE

BUILDING ABOVE REMOVED FOR CLARITY OF GRADE LEVEL SENSORS



Level 5 Podium Amenity & Level 15 Rooftop Amenity
Approx. Scale: 1"=80'



Isometric View of Building

LEGEND:

HAZARD CATEGORIES:

Pass

Exceeded

SENSOR LOCATION:

Grade Level

Podium Amenity Level

Rooftop Amenity Level

Entrance Location

0 40 80ft

Pedestrian Wind Hazard Conditions
Project + Cumulative
Annual

24th and Waverly - Oakland, CA

True North

Project #2001906

Drawn by: GRE	Figure: 1C
Approx. Scale:	1"=80'
Date Revised:	June 17, 2020

27TH STREET

24TH STREET

VALDEZ STREET

WAVERLEY STREET

HARRISON STREET

BAY PLACE

EXISTING BUILDINGS

LEGEND:

COMFORT CATEGORIES:

1 - 7 mph

8 - 11 mph

> 11 mph

SENSOR LOCATION:

Grade Level

0 40 80ft

Pedestrian Wind Comfort Conditions

Existing

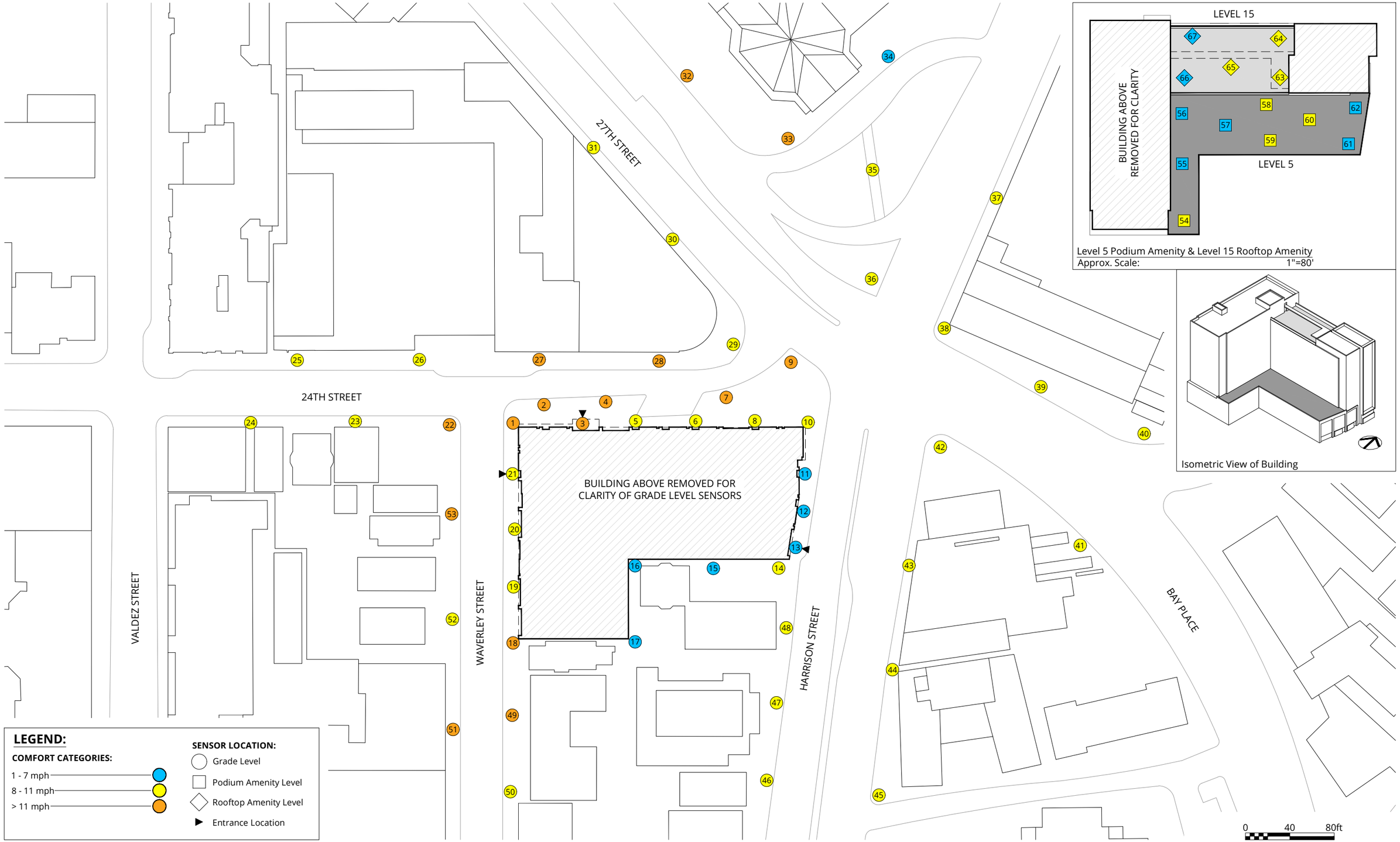
Annual

24th and Waverly - Oakland, CA

True North

Project #2001906

Drawn by:	GRE	Figure:	2A
Approx. Scale:	1"=80'		
Date Revised:	June 17, 2020		



Level 5 Podium Amenity & Level 15 Rooftop Amenity
Approx. Scale: 1"=80'

Isometric View of Building

Pedestrian Wind Comfort Conditions
Existing + Project
Annual

24th and Waverly - Oakland, CA

True North

Project #2001906

Drawn by:	GRE	Figure:	2B
Approx. Scale:	1"=80'		
Date Revised:	June 17, 2020		

FUTURE BUILDING

27TH STREET

24TH STREET

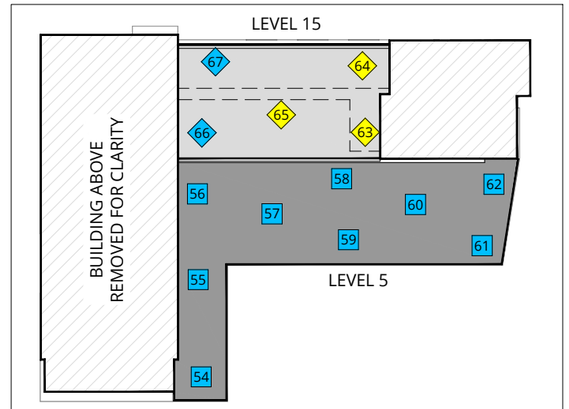
VALDEZ STREET

WAVERLEY STREET

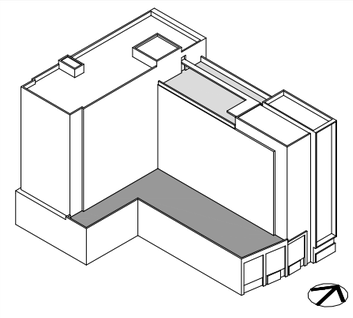
HARRISON STREET

BAY PLACE

BUILDING ABOVE REMOVED FOR CLARITY OF GRADE LEVEL SENSORS



Level 5 Podium Amenity & Level 15 Rooftop Amenity
Approx. Scale: 1"=80'



Isometric View of Building

LEGEND:

COMFORT CATEGORIES:
- 1 - 7 mph
- 8 - 11 mph
- > 11 mph

SENSOR LOCATION:
- Grade Level
- Podium Amenity Level
- Rooftop Amenity Level
- Entrance Location

0 40 80ft

Pedestrian Wind Comfort Conditions
Project + Cumulative
Annual

24th and Waverly - Oakland, CA

True North

Project #2001906

Drawn by:	GRE	Figure:	2C
Approx. Scale:	1"=80'		
Date Revised:	June 17, 2020		

TABLES

Table 1.1: Wind Hazard Conditions - Grade Level

Location	Existing			Existing + Project				Project + Cumulative			
	Wind Speed Exceeded 1hr/year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Exceeds	Wind Speed Exceeded 1hr/year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Hours Change Relative to Existing	Exceeds	Wind Speed Exceeded 1hr/year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Hours Change Relative to Existing	Exceeds
1	28	0		33	0	0		32	0	0	
2	32	0		34	0	0		35	0	0	
3	33	0		28	0	0		29	0	0	
4	37	1	e	31	0	-1		31	0	-1	
5	30	0		24	0	0		24	0	0	
6	18	0		21	0	0		22	0	0	
7	26	0		26	0	0		26	0	0	
8	15	0		21	0	0		21	0	0	
9	26	0		33	0	0		34	0	0	
10	28	0		34	0	0		34	0	0	
11	17	0		22	0	0		23	0	0	
12	18	0		20	0	0		21	0	0	
13	19	0		18	0	0		19	0	0	
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15	23	0		16	0	0		15	0	0	
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17	21	0		20	0	0		21	0	0	
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43	17	0		26	0	0		25	0	0	
44	21	0		25	0	0		23	0	0	
45	28	0		26	0	0		27	0	0	
46	25	0		23	0	0		25	0	0	
47	23	0		21	0	0		22	0	0	

Table 1.1: Wind Hazard Conditions - Grade Level

Location	Existing			Existing + Project				Project + Cumulative			
	Wind Speed Exceeded 1hr/year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Exceeds	Wind Speed Exceeded 1hr/year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Hours Change Relative to Existing	Exceeds	Wind Speed Exceeded 1hr/year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Hours Change Relative to Existing	Exceeds
48	25	0		19	0	0		20	0	0	
49	22	0		34	0	0		34	0	0	
50	18	0		25	0	0		26	0	0	
51	26	0		31	0	0		32	0	0	
52	22	0		29	0	0		30	0	0	
53	23	0		30	0	0		31	0	0	

Summary	Average (mph)	Total Hours	Total	Average (mph)	Total Hours	Hours Change	Total	Average (mph)	Total Hours	Hours Change	Total
	24	**1**	**1 ---- 53**	**25**	**0**	**-1**	**0 ---- 53**	**25**	**0**	**-1**	**0 ---- 53**

Table 1.2: Wind Hazard Conditions - Above-grade Level

Location	Existing			Existing + Project				Project + Cumulative			
	Wind Speed Exceeded 1hr/year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Exceeds	Wind Speed Exceeded 1hr/year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Hours Change Relative to Existing	Exceeds	Wind Speed Exceeded 1hr/year (mph)	Hours per Year Wind Speed Exceeds Hazard Criteria	Hours Change Relative to Existing	Exceeds
54	-	-		23	0	0		23	0	0	
55	-	-		21	0	0		21	0	0	
56	-	-		13	0	0		13	0	0	
57	-	-		21	0	0		21	0	0	
58	-	-		19	0	0		19	0	0	
59	-	-		21	0	0		21	0	0	
60	-	-		24	0	0		24	0	0	
61	-	-		23	0	0		23	0	0	
62	-	-		20	0	0		23	0	0	
63	-	-		20	0	0		19	0	0	
64	-	-		17	0	0		17	0	0	
65	-	-		20	0	0		20	0	0	
66	-	-		15	0	0		16	0	0	
67	-	-		20	0	0		20	0	0	

Summary	Average (mph)	Total Hours	Total	Average (mph)	Total Hours	Hours Change	Total	Average (mph)	Total Hours	Hours Change	Total
	-	-	-	20	0	-	0 ---- 14	20	0	-	0 ---- 14

Table 2.1: Wind Comfort Conditions - Grade Level

Location	Existing			Existing + Project				Project + Cumulative			
	Wind Speed Exceeded 10% of Time (mph)	% of Time Wind Speed Exceeds 11 mph (%)	Exceeds	Wind Speed Exceeded 10% of Time (mph)	% of Time Wind Speed Exceeds 11 mph (%)	Speed Change Relative to Existing (mph)	Exceeds	Wind Speed Exceeded 10% of Time (mph)	% of Time Wind Speed Exceeds 11 mph (%)	Speed Change Relative to Existing (mph)	Exceeds
1	13	21	e	16	32	3	e	15	28	2	e
2	14	26	e	16	35	2	e	16	34	2	e
3	13	21	e	12	17	-1	e	13	19	0	e
4	14	27	e	15	29	1	e	15	31	1	e
5	13	23	e	11	10	-2		12	12	-1	e
6	8	2		10	7	2		10	8	2	
7	12	15	e	13	19	1	e	13	18	1	e
8	6	0		9	4	3		10	5	4	
9	11	10		12	15	1	e	12	12	1	e
10	7	2		10	6	3		11	10	4	
11	5	0		7	2	2		7	2	2	
12	6	0		7	1	1		7	2	1	
13	6	1		7	1	1		7	1	1	
14	5	1		8	1	3		8	1	3	
15	11	10		7	1	-4		6	0	-5	
16	9	2		5	0	-4		4	0	-5	
17	10	7		7	1	-3		6	1	-4	
18	10	7		16	33	6	e	16	31	6	e
19	10	6		11	10	1		11	10	1	
20	11	10		8	1	-3		9	3	-2	
21	14	22	e	9	4	-5		11	10	-3	
22	13	17	e	13	17	0	e	13	19	0	e
23	10	4		8	2	-2		8	2	-2	
24	8	3		8	1	0		8	2	0	
25	8	3		8	2	0		8	3	0	
26	11	10		10	8	-1		11	10	0	
27	11	10		12	16	1	e	12	14	1	e
28	12	14	e	13	19	1	e	12	17	0	e
29	11	10		11	10	0		10	8	-1	
30	8	4		8	2	0		8	2	0	
31	9	5		9	4	0		10	5	1	
32	12	17	e	13	19	1	e	14	23	2	e
33	11	10		12	13	1	e	13	20	2	e
34	7	2		7	1	0		7	1	0	
35	9	3		9	2	0		9	3	0	
36	10	8		11	10	1		11	10	1	
37	10	7		10	8	0		11	10	1	
38	10	7		11	10	1		11	10	1	
39	9	4		8	3	-1		8	2	-1	
40	10	7		10	6	0		8	3	-2	
41	7	1		9	3	2		8	2	1	
42	9	2		9	4	0		10	5	1	
43	8	1		10	7	2		7	1	-1	
44	8	2		11	10	3		8	2	0	
45	12	15	e	10	8	-2		9	3	-3	
46	8	3		8	2	0		8	3	0	
47	8	2		9	3	1		8	2	0	

Table 2.1: Wind Comfort Conditions - Grade Level

Location	Existing			Existing + Project				Project + Cumulative			
	Wind Speed Exceeded 10% of Time (mph)	% of Time Wind Speed Exceeds 11 mph (%)	Exceeds	Wind Speed Exceeded 10% of Time (mph)	% of Time Wind Speed Exceeds 11 mph (%)	Speed Change Relative to Existing (mph)	Exceeds	Wind Speed Exceeded 10% of Time (mph)	% of Time Wind Speed Exceeds 11 mph (%)	Speed Change Relative to Existing (mph)	Exceeds
48	6	2		8	2	2		7	1	1	
49	10	7		16	31	6	e	16	28	6	e
50	7	1		11	10	4		11	10	4	
51	8	3		14	28	6	e	14	27	6	e
52	9	3		11	10	2		12	14	3	e
53	10	7		14	29	4	e	15	27	5	e

Summary	Average (mph)	Average (%)	Total	Average (mph)	Average (%)	Speed Change (mph)	Total	Average (mph)	Average (%)	Speed Change (mph)	Total
	10	**8**	**11 ---- 53**	**10**	**10**	**0**	**15 ---- 53**	**10**	**10**	**0**	**17 ---- 53**

Table 2.2: Wind Comfort Conditions - Above-grade Levels

Location	Existing			Existing + Project				Project + Cumulative			
	Wind Speed Exceeded 10% of Time (mph)	% of Time Wind Speed Exceeds 11 mph (%)	Exceeds	Wind Speed Exceeded 10% of Time (mph)	% of Time Wind Speed Exceeds 11 mph (%)	Speed Change Relative to Existing (mph)	Exceeds	Wind Speed Exceeded 10% of Time (mph)	% of Time Wind Speed Exceeds 11 mph (%)	Speed Change Relative to Existing (mph)	Exceeds
54	-	-		8	2	6		7	2	5	
55	-	-		7	2	4		6	1	3	
56	-	-		5	0	3		4	0	2	
57	-	-		7	2	5		6	1	4	
58	-	-		8	2	6		6	1	4	
59	-	-		8	2	6		6	1	4	
60	-	-		8	2	6		7	2	5	
61	-	-		7	2	4		6	2	3	
62	-	-		7	1	4		6	2	3	
63	-	-		9	3	7		9	2	7	
64	-	-		8	1	6		8	1	6	
65	-	-		8	2	5		8	2	5	
66	-	-		5	0	3		5	0	3	
67	-	-		6	1	4		6	1	4	

Summary	Average (mph)	Average (%)	Total	Average (mph)	Average (%)	Speed Change (mph)	Total	Average (mph)	Average (%)	Speed Change (mph)	Total
	-	**-**	**-**	**7**	**2**	**-**	**0 ---- 14**	**6**	**1**	**-**	**0 ---- 14**

Attachment H

Air Quality and Greenhouse Gas Emissions Estimates (Inputs and Outputs for CalEEMod)

Criteria Air Pollutant and Greenhouse Gas Emissions Approach and Methodology

Emissions from construction and operation of the proposed project were estimated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2. Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on project-specific information; CalEEMod default values were used when project specifics were not known.

Project construction is expected to occur over approximately 27 months, with construction scheduled to commence in June 2021 and end in August 2023. The first full year of project operations after completion of construction was assumed to be Year 2024.

Construction-worker estimates and vendor truck trips by construction phase were based on CalEEMod default values. Haul truck trips during the grading phase were based on project-specific information with an estimated 50 haul trucks for demolition of the existing buildings and surface parking. A total of up to 14,053 cubic yards (CY) of soil would be hauled off site. CalEEMod default trip length values were used for the distances for all on-road vehicle trips. Fugitive dust generated during truck loading is included in CalEEMod as an on-site source of fugitive dust emissions and is calculated based on estimated throughput of loaded and unloaded material.

For the purpose of this analysis, it was assumed that heavy construction equipment would be operating at the project site 5 days per week (22 days per month) during project construction.

Potential project-generated operational AQ and GHG emissions include area sources (landscape maintenance), energy sources (natural gas and electricity), mobile sources, solid waste, and water supply and wastewater treatment.

Area Sources. CalEEMod was used to estimate operational emissions from area sources, including emissions from consumer product use, architectural coatings, and landscape maintenance equipment. Emissions associated with natural gas usage in space heating, water heating, and stoves were calculated in the building energy use module of CalEEMod, as described under Energy Sources, below. For hearths, the CalEEMod default number of fireplaces were adjusted assuming that half of the project's dwelling units would have natural gas fireplaces.

Energy Sources. As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage (non-hearth). For the project, CalEEMod default values for energy consumption for each land use (i.e., residential and commercial) were updated to reflect compliance with the 2019 Title 24 standards for energy efficiency. Pacific Gas and Electric (PG&E) would be the energy source provider for the project. Senate Bill (SB) X1 2 established a target of 33% from renewable energy sources for all electricity providers in California by 2020. The GHG emissions intensity factors for utility energy use in CalEEMod were adjusted to match the 38.9% as presented in PG&E's 2019 Corporate Responsibility Report.

Mobile Sources. Mobile sources for the project would primarily be motor vehicles traveling to and from the project site. Motor vehicles may be fueled with gasoline, diesel, or alternative fuels. Traffic was assumed to include a mixture of vehicles in accordance with the CalEEMod defaults. Regulatory measures related to mobile sources include Assembly Bill (AB) 1493 (Pavley) and related federal standards. AB 1493 required that the CARB establish GHG emission standards for automobiles, light-duty trucks, and other vehicles determined by CARB to be vehicles

that are primarily used for noncommercial personal transportation in the state. In addition, the U.S. Environmental Protection Agency (EPA) and National Highway Traffic Safety Administration (NHTSA) have established corporate fuel economy standards and GHG emission standards, respectively, for automobiles and light-, medium, and heavy-duty vehicles. It is assumed that implementation of these standards and fleet turnover (replacement of older vehicles with newer ones) will gradually reduce emissions from the project's motor vehicles. The effectiveness of fuel economy improvements was evaluated by using the emission factors for motor vehicles in year 2024 for the project to the extent they were captured in CalEEMod. Notably, SB 375 allows a CEQA exemption for sustainable community projects, as well as streamlined CEQA analyses for Transit Priority Projects and certain residential or mixed use projects. The proposed project meets the requirements of Transit Priority Projects as it is over 56% residential based on area, contains 384 dwelling units per acre, and is within 0.5 miles of several bus routes, including AC Transit's trunk lines 6, 51A, and 72/72M/72R, as well as local buses, night buses, Transbay buses, and the "Free B" (Oakland's free downtown circulator shuttle). As such, the project meets the definition of a mixed-use residential project per Public Resources Code Section 21159.28(d). Therefore, the GHG emissions presented in the analysis excludes light duty mobile source emissions.

Solid Waste. The project would generate solid waste, and therefore, result in carbon dioxide equivalent (CO_2e) emissions associated with landfill off-gassing. CalEEMod default values for solid waste generation were used to estimate GHG emissions associated with solid waste.

Water and Wastewater. Supply, conveyance, treatment, and distribution of water for the proposed project require the use of electricity, which would result in associated indirect GHG emissions. Similarly, conveyance and treatment of wastewater generated by the proposed project requires the use of electricity which indirectly would result in GHG emissions. Indoor water consumption of the proposed project land uses were based on CalEEMod default values. However, since the proposed project would be required to comply with the mandatory measures of the CALGreen Code, a 20% indoor and outdoor water reduction was applied. Wastewater was assumed to be treated 100% aerobically (i.e., no septic tanks or facultative lagoons).

Emergency Generator. It was assumed the diesel generator would be 268-horsepower and would be used for non-emergency operation up to 50 hours per year (for routine testing and maintenance).

Operational HRA Assumptions

The dispersion of DPM was performed using American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) Version 18081 and the resultant health risk modeled using the California Air Resources Board (CARB) Hot Spots Analysis and Reporting Program Version 2 (HARP2). AERMOD is a steady-state Gaussian plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of surface and elevated sources, building downwash, and simple and complex terrain. Principal parameters of AERMOD for the proposed project operations included the following:

- Dispersion Model: The air dispersion model used was AERMOD, Version 18081, with the Lakes Environmental Software implementation/user interface, AERMOD View, Version 9.6.5. Under the operational scenario, AERMOD was run with the point source emitting unit emissions (1 gram per second (g/s)) to obtain the "X/Q" values. X/Q is a dispersion factor that is the average effluent concentration normalized by source strength and is used as a way to simplify the representation of emissions from many sources. The maximum concentrations were determined for the 1-hour and Period averaging periods.

- Meteorological Data: The latest 5-year meteorological data (years 2010-2014) for the Oakland International Airport station (OAKLAND/WSO AP) were provided by BAAQMD, and then input to AERMOD.
- Urban and Rural Options: Typically, urban areas have more surface roughness and structures and low-albedo surfaces that absorb more sunlight, and thus, more heat, relative to rural areas. The urban dispersion option was selected and City of Oakland population for year 2019 (433,031 persons) input into AERMOD.
- Terrain Characteristics: Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate. The National Elevation Dataset (NED) dataset with resolution of 1/3 arc-second was used.
- Sensitive Receptors: This HRA evaluates the risk to existing residential receptors located in proximity to the project. A uniform fine 1-kilometer by 1-kilometer Cartesian grid with 20-meter spacing was centered over the project site and converted into discrete receptors to capture the maximum point of impact. In addition, because most proximate sensitive receptors would be located above ground level, a flagpole height of 6 meters was assumed.
- Source Release Operating Scenarios: As a conservative approach, the diesel emergency generator's stack was assumed to be located on the building's rooftop. Because the BAAQMD does not have a recommended protocol for developing emergency generator modeling assumptions, the emergency generator was modeled as a point source based on recommendations from the San Joaquin Valley Air Pollution Control District (SJVAPCD) point source guidance for engines and boilers (SJVAPCD 2006). In addition, proximate building dimensions, including the proposed project, were input into the AERMOD to assess the potential for downwash effects on emissions from the emergency generator. A building downwash analysis, using the latest version of BPIP-Prime, was conducted and incorporated into the modeling analysis to account for potential effluent downwash due to buildings within the project area. Output from BPIP-Prime was then incorporated into the AERMOD modeling input files.

In March 2015, the Office of Environmental Health Hazard Assessment (OEHHA) approved the 2015 Risk Assessment Guidelines Manual (OEHHA 2015). The operational HRA was prepared following the 2015 Risk Assessment Guidelines Manual. OEHHA recommends that an exposure duration (residency time) of 30 years be used to estimate an individual cancer risk for the maximally exposed individual resident starting in the 3rd trimester to accommodate the increased susceptibility of exposures in early life (OEHHA 2015). In addition, it was assumed that students at Westlake Middle School (the maximally exposed school receptor) would be exposed for a period of approximately 3 years, starting at age 11.

References

OEHHA (Office of Environmental Health Hazard Assessment). 2015. Air Toxics Hot Spots Program, Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments. February 2015.

SJVAPCD (San Joaquin Valley Air Pollution Control District). 2006. Guidance for Air Dispersion Modeling. August 2006. Accessed April 2019. http://www.valleyair.org/busind/pto/Tox_Resources/Modeling%20Guidance.pdf.

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CalEEMod Version: CalEEMod.2016.3.2

Date: 11/12/2020 11:22 AM

24th and Waverly Project
Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	230.00	Space	0.00	101,385.00	0
Other Non-Asphalt Surfaces	33.72	1000sqft	0.00	33,722.00	0
Parking Lot	5.00	Space	0.00	2,000.00	0
Apartments High Rise	343.00	Dwelling Unit	0.00	312,043.00	720
Strip Mall	15.00	1000sqft	0.86	15,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	206	**CH4 Intensity (lb/MWhr)**	0.009	**N2O Intensity (lb/MWhr)**	0.002

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 24th and Waverly Project. BAAQMD. Updated CO2 intensity (PG&E Corporate Responsibility Report).

Land Use - Development of 343 residential units and 15,000 sf in retail on a 0.86 acre site. Number of residents adjusted to meet 2.1/du.

Construction Phase - Construction would begin June 2021.

Off-road Equipment - Default equipment assumed.

Off-road Equipment - Adjusted per applicant.

Off-road Equipment - Adjusted per applicant.

Off-road Equipment - Adjusted per applicant.

Off-road Equipment - Adjusted per applicant.

Off-road Equipment - Adjusted per applicant.

Trips and VMT - Adjusted trips per applicant.

Architectural Coating - Use of low-VOC (50 g/L) coatings.

Vehicle Trips - Updated trip generation rates per Traffic Impact Review.

Woodstoves - No wood burning devices.

Area Coating - Use of low-VOC (50 g/L) coatings.

Energy Use - Adjusted to meet 2019 Title 24 Standards.

Water And Wastewater - Default water use assumed.

Solid Waste - Default solid waste assumed.

Construction Off-road Equipment Mitigation - Assume compliance with BAAQMD BMPs - water twice daily. Use of Tier 4 equipment.

Mobile Land Use Mitigation - Project is located proximate to transit and would improve pedestrian network within project site.

Water Mitigation - Reduce water consumption by 20% per CalGreen.

Waste Mitigation - Assume 50% waste diverted consistent with AB 939.

Stationary Sources - Emergency Generators and Fire Pumps - Assume 200 KW emergency generator.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	150	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblAreaCoating	Area_EF_Residential_Exterior	150	50
tblAreaCoating	Area_EF_Residential_Interior	100	50
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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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
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	5.00	238.00
tblConstructionPhase	NumDays	100.00	475.00
tblConstructionPhase	NumDays	10.00	25.00
tblConstructionPhase	NumDays	2.00	25.00
tblConstructionPhase	NumDays	5.00	10.00
tblConstructionPhase	NumDays	1.00	25.00
tblEnergyUse	T24E	426.45	417.92
tblEnergyUse	T24E	3.92	3.50
tblEnergyUse	T24E	2.24	2.00
tblEnergyUse	T24NG	6,115.43	5,809.66
tblEnergyUse	T24NG	3.90	3.86
tblFireplaces	FireplaceDayYear	11.14	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00

tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	51.45	171.00
tblFireplaces	NumberNoFireplace	13.72	172.00
tblFireplaces	NumberWood	58.31	0.00
tblLandUse	LandUseSquareFeet	92,000.00	101,385.00
tblLandUse	LandUseSquareFeet	33,720.00	33,722.00
tblLandUse	LandUseSquareFeet	343,000.00	312,043.00
tblLandUse	LotAcreage	2.07	0.00
tblLandUse	LotAcreage	0.77	0.00
tblLandUse	LotAcreage	0.05	0.00
tblLandUse	LotAcreage	5.53	0.00
tblLandUse	LotAcreage	0.34	0.86
tblLandUse	Population	981.00	720.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
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tblOffRoadEquipment	UsageHours	4.00	8.00

tblOffRoadEquipment	UsageHours	6.00	8.00
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tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.009
tblProjectCharacteristics	CO2IntensityFactor	641.35	206
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.002
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	268.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	0.50
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	50.00
tblTripsAndVMT	HaulingTripNumber	0.00	45.00
tblTripsAndVMT	HaulingTripNumber	0.00	400.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	62.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripNumber	13.00	8.00
tblTripsAndVMT	WorkerTripNumber	8.00	12.00
tblTripsAndVMT	WorkerTripNumber	15.00	8.00
tblTripsAndVMT	WorkerTripNumber	309.00	40.00
tblTripsAndVMT	WorkerTripNumber	62.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	5.00
tblVehicleTrips	ST_TR	4.98	3.34
tblVehicleTrips	ST_TR	42.04	18.61
tblVehicleTrips	SU_TR	3.65	2.45
tblVehicleTrips	SU_TR	20.43	9.05
tblVehicleTrips	WD_TR	4.20	2.82

tblVehicleTrips	WD_TR	44.32	19.62
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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	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	6.86	0.00
tblWoodstoves	NumberNoncatalytic	6.86	0.00
tblWoodstoves	WoodstoveDayYear	14.12	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	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					
2021	0.0821	0.8432	0.7393	1.7500e-003	0.0408	0.0373	0.0780	0.0126	0.0350	0.0476	0.0000	155.6518	155.6518	0.0304	0.0000	156.4124
2022	0.5206	1.7061	1.4559	3.5400e-003	0.0643	0.0742	0.1385	0.0175	0.0701	0.0876	0.0000	316.3467	316.3467	0.0470	0.0000	317.5208
2023	0.7924	0.9325	0.9479	2.1800e-003	0.0397	0.0412	0.0809	0.0108	0.0392	0.0499	0.0000	194.1078	194.1078	0.0274	0.0000	194.7939
Maximum	**0.7924**	**1.7061**	**1.4559**	**3.5400e-003**	**0.0643**	**0.0742**	**0.1385**	**0.0175**	**0.0701**	**0.0876**	**0.0000**	**316.3467**	**316.3467**	**0.0470**	**0.0000**	**317.5208**

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					
2021	0.0290	0.2323	0.8600	1.7500e-003	0.0319	5.1400e-003	0.0371	9.3300e-003	4.9800e-003	0.0143	0.0000	155.6517	155.6517	0.0304	0.0000	156.4123
2022	0.4007	0.4107	1.6013	3.5400e-003	0.0643	4.4300e-003	0.0687	0.0175	4.3800e-003	0.0219	0.0000	316.3464	316.3464	0.0470	0.0000	317.5205
2023	0.7207	0.1995	1.0389	2.1800e-003	0.0397	2.8200e-003	0.0426	0.0108	2.7900e-003	0.0135	0.0000	194.1076	194.1076	0.0274	0.0000	194.7937
Maximum	**0.7207**	**0.4107**	**1.6013**	**3.5400e-003**	**0.0643**	**5.1400e-003**	**0.0687**	**0.0175**	**4.9800e-003**	**0.0219**	**0.0000**	**316.3464**	**316.3464**	**0.0470**	**0.0000**	**317.5205**

	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	**17.54**	**75.80**	**-11.37**	**0.00**	**6.09**	**91.88**	**50.11**	**7.94**	**91.58**	**73.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	1.4669	0.0294	2.5484	1.3000e-004		0.0141	0.0141		0.0141	0.0141	0.0000	4.1653	4.1653	4.0000e-003	0.0000	4.2654
Energy	0.0160	0.1365	0.0595	8.7000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	358.8475	358.8475	0.0118	4.8500e-003	360.5866
Mobile	0.2592	1.1694	2.8472	0.0108	0.9920	8.8500e-003	1.0009	0.2662	8.2500e-003	0.2745	0.0000	994.3908	994.3908	0.0344	0.0000	995.2497
Stationary	0.0110	0.0307	0.0280	5.0000e-005		1.6200e-003	1.6200e-003		1.6200e-003	1.6200e-003	0.0000	5.1027	5.1027	7.2000e-004	0.0000	5.1206
Waste						0.0000	0.0000		0.0000	0.0000	35.2250	0.0000	35.2250	2.0817	0.0000	87.2685
Water						0.0000	0.0000		0.0000	0.0000	8.2998	16.6913	24.9911	0.0293	0.0182	31.1505
Total	**1.7530**	**1.3660**	**5.4831**	**0.0119**	**0.9920**	**0.0356**	**1.0276**	**0.2662**	**0.0350**	**0.3012**	**43.5248**	**1,379.1975**	**1,422.7223**	**2.1619**	**0.0231**	**1,483.6413**

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	1.4669	0.0294	2.5484	1.3000e-004		0.0141	0.0141		0.0141	0.0141	0.0000	4.1653	4.1653	4.0000e-003	0.0000	4.2654
Energy	0.0160	0.1365	0.0595	8.7000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	358.8475	358.8475	0.0118	4.8500e-003	360.5866
Mobile	0.2390	1.0481	2.3782	8.5400e-003	0.7657	7.1100e-003	0.7728	0.2055	6.6300e-003	0.2121	0.0000	786.1121	786.1121	0.0288	0.0000	786.8317
Stationary	0.0110	0.0307	0.0280	5.0000e-005		1.6200e-003	1.6200e-003		1.6200e-003	1.6200e-003	0.0000	5.1027	5.1027	7.2000e-004	0.0000	5.1206
Waste						0.0000	0.0000		0.0000	0.0000	17.6125	0.0000	17.6125	1.0409	0.0000	43.6343
Water						0.0000	0.0000		0.0000	0.0000	6.6398	13.3530	19.9928	0.0234	0.0146	24.9204
Total	**1.7328**	**1.2447**	**5.0141**	**9.5900e-003**	**0.7657**	**0.0339**	**0.7996**	**0.2055**	**0.0334**	**0.2389**	**24.2524**	**1,167.5805**	**1,191.8329**	**1.1096**	**0.0194**	**1,225.3589**

	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	**1.15**	**8.88**	**8.55**	**19.14**	**22.81**	**4.89**	**22.19**	**22.82**	**4.63**	**20.70**	**44.28**	**15.34**	**16.23**	**48.67**	**15.78**	**17.41**

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	6/1/2021	7/5/2021	5	25	
2	Shoring	Site Preparation	7/6/2021	8/9/2021	5	25	
3	Grading	Grading	8/10/2021	9/13/2021	5	25	
4	Building Construction	Building Construction	9/14/2021	7/10/2023	5	475	
5	Architectural Coating	Architectural Coating	9/12/2022	8/9/2023	5	238	
6	Paving	Paving	8/10/2023	8/23/2023	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 631,887; Residential Outdoor: 210,629; Non-Residential Indoor: 22,500; Non-Residential Outdoor: 7,500; Striped

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	1	8.00	158	0.38
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Shoring	Bore/Drill Rigs	1	8.00	221	0.50
Grading	Bore/Drill Rigs	1	8.00	221	0.50
Grading	Excavators	2	8.00	158	0.38
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Architectural Coating	Air Compressors	1	8.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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	5	8.00	0.00	50.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Shoring	3	12.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	8.00	8.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	40.00	20.00	400.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	5.00	3.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Demolition - 2021

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	0.0124	0.1123	0.1433	2.2000e-004		6.2600e-003	6.2600e-003		5.9400e-003	5.9400e-003	0.0000	19.2171	19.2171	4.4300e-003	0.0000	19.3279
Total	**0.0124**	**0.1123**	**0.1433**	**2.2000e-004**		**6.2600e-003**	**6.2600e-003**		**5.9400e-003**	**5.9400e-003**	**0.0000**	**19.2171**	**19.2171**	**4.4300e-003**	**0.0000**	**19.3279**

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	2.0000e-004	6.7500e-003	1.4400e-003	2.0000e-005	4.2000e-004	2.0000e-005	4.4000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.8914	1.8914	1.0000e-004	0.0000	1.8938
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	3.1000e-004	2.1000e-004	2.2400e-003	1.0000e-005	7.9000e-004	1.0000e-005	8.0000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6680	0.6680	1.0000e-005	0.0000	0.6684
Total	**5.1000e-004**	**6.9600e-003**	**3.6800e-003**	**3.0000e-005**	**1.2100e-003**	**3.0000e-005**	**1.2400e-003**	**3.3000e-004**	**2.0000e-005**	**3.5000e-004**	**0.0000**	**2.5594**	**2.5594**	**1.1000e-004**	**0.0000**	**2.5621**

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	6.1400e-003	0.0469	0.1537	2.2000e-004		2.5100e-003	2.5100e-003		2.4200e-003	2.4200e-003	0.0000	19.2171	19.2171	4.4300e-003	0.0000	19.3279
Total	**6.1400e-003**	**0.0469**	**0.1537**	**2.2000e-004**		**2.5100e-003**	**2.5100e-003**		**2.4200e-003**	**2.4200e-003**	**0.0000**	**19.2171**	**19.2171**	**4.4300e-003**	**0.0000**	**19.3279**

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	2.0000e-004	6.7500e-003	1.4400e-003	2.0000e-005	4.2000e-004	2.0000e-005	4.4000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.8914	1.8914	1.0000e-004	0.0000	1.8938
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	3.1000e-004	2.1000e-004	2.2400e-003	1.0000e-005	7.9000e-004	1.0000e-005	8.0000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6680	0.6680	1.0000e-005	0.0000	0.6684
Total	**5.1000e-004**	**6.9600e-003**	**3.6800e-003**	**3.0000e-005**	**1.2100e-003**	**3.0000e-005**	**1.2400e-003**	**3.3000e-004**	**2.0000e-005**	**3.5000e-004**	**0.0000**	**2.5594**	**2.5594**	**1.1000e-004**	**0.0000**	**2.5621**

3.3 Shoring - 2021

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					6.6300e-003	0.0000	6.6300e-003	7.2000e-004	0.0000	7.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2300e-003	0.0378	0.0259	1.2000e-004		1.1500e-003	1.1500e-003		1.0500e-003	1.0500e-003	0.0000	10.3426	10.3426	3.3500e-003	0.0000	10.4262
Total	**3.2300e-003**	**0.0378**	**0.0259**	**1.2000e-004**	**6.6300e-003**	**1.1500e-003**	**7.7800e-003**	**7.2000e-004**	**1.0500e-003**	**1.7700e-003**	**0.0000**	**10.3426**	**10.3426**	**3.3500e-003**	**0.0000**	**10.4262**

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	8.0000e-005	2.6100e-003	6.5000e-004	1.0000e-005	1.6000e-004	1.0000e-005	1.7000e-004	5.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.6484	0.6484	3.0000e-005	0.0000	0.6492
Worker	4.6000e-004	3.2000e-004	3.3600e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0020	1.0020	2.0000e-005	0.0000	1.0026
Total	**5.4000e-004**	**2.9300e-003**	**4.0100e-003**	**2.0000e-005**	**1.3500e-003**	**2.0000e-005**	**1.3600e-003**	**3.7000e-004**	**2.0000e-005**	**3.7000e-004**	**0.0000**	**1.6504**	**1.6504**	**5.0000e-005**	**0.0000**	**1.6517**

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					2.9800e-003	0.0000	2.9800e-003	3.2000e-004	0.0000	3.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.4600e-003	6.3300e-003	0.0536	1.2000e-004		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	10.3426	10.3426	3.3500e-003	0.0000	10.4262
Total	**1.4600e-003**	**6.3300e-003**	**0.0536**	**1.2000e-004**	**2.9800e-003**	**1.9000e-004**	**3.1700e-003**	**3.2000e-004**	**1.9000e-004**	**5.1000e-004**	**0.0000**	**10.3426**	**10.3426**	**3.3500e-003**	**0.0000**	**10.4262**

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	8.0000e-005	2.6100e-003	6.5000e-004	1.0000e-005	1.6000e-004	1.0000e-005	1.7000e-004	5.0000e-005	1.0000e-005	5.0000e-005	0.0000	0.6484	0.6484	3.0000e-005	0.0000	0.6492
Worker	4.6000e-004	3.2000e-004	3.3600e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	1.0020	1.0020	2.0000e-005	0.0000	1.0026
Total	**5.4000e-004**	**2.9300e-003**	**4.0100e-003**	**2.0000e-005**	**1.3500e-003**	**2.0000e-005**	**1.3600e-003**	**3.7000e-004**	**2.0000e-005**	**3.7000e-004**	**0.0000**	**1.6504**	**1.6504**	**5.0000e-005**	**0.0000**	**1.6517**

3.4 Grading - 2021

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					9.4100e-003	0.0000	9.4100e-003	5.1700e-003	0.0000	5.1700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0113	0.1153	0.1360	2.9000e-004		5.1500e-003	5.1500e-003		4.7400e-003	4.7400e-003	0.0000	25.0989	25.0989	8.1200e-003	0.0000	25.3019
Total	**0.0113**	**0.1153**	**0.1360**	**2.9000e-004**	**9.4100e-003**	**5.1500e-003**	**0.0146**	**5.1700e-003**	**4.7400e-003**	**9.9100e-003**	**0.0000**	**25.0989**	**25.0989**	**8.1200e-003**	**0.0000**	**25.3019**

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	1.8000e-004	6.0700e-003	1.2900e-003	2.0000e-005	3.8000e-004	2.0000e-005	4.0000e-004	1.0000e-004	2.0000e-005	1.2000e-004	0.0000	1.7022	1.7022	9.0000e-005	0.0000	1.7044
Vendor	3.2000e-004	0.0105	2.6100e-003	3.0000e-005	6.6000e-004	2.0000e-005	6.8000e-004	1.9000e-004	2.0000e-005	2.1000e-004	0.0000	2.5934	2.5934	1.3000e-004	0.0000	2.5966
Worker	3.1000e-004	2.1000e-004	2.2400e-003	1.0000e-005	7.9000e-004	1.0000e-005	8.0000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6680	0.6680	1.0000e-005	0.0000	0.6684
Total	**8.1000e-004**	**0.0167**	**6.1400e-003**	**6.0000e-005**	**1.8300e-003**	**5.0000e-005**	**1.8800e-003**	**5.0000e-004**	**4.0000e-005**	**5.4000e-004**	**0.0000**	**4.9637**	**4.9637**	**2.3000e-004**	**0.0000**	**4.9694**

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					4.2300e-003	0.0000	4.2300e-003	2.3300e-003	0.0000	2.3300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3300e-003	0.0246	0.1804	2.9000e-004		1.0400e-003	1.0400e-003		1.0000e-003	1.0000e-003	0.0000	25.0989	25.0989	8.1200e-003	0.0000	25.3018
Total	**4.3300e-003**	**0.0246**	**0.1804**	**2.9000e-004**	**4.2300e-003**	**1.0400e-003**	**5.2700e-003**	**2.3300e-003**	**1.0000e-003**	**3.3300e-003**	**0.0000**	**25.0989**	**25.0989**	**8.1200e-003**	**0.0000**	**25.3018**

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	1.8000e-004	6.0700e-003	1.2900e-003	2.0000e-005	3.8000e-004	2.0000e-005	4.0000e-004	1.0000e-004	2.0000e-005	1.2000e-004	0.0000	1.7022	1.7022	9.0000e-005	0.0000	1.7044
Vendor	3.2000e-004	0.0105	2.6100e-003	3.0000e-005	6.6000e-004	2.0000e-005	6.8000e-004	1.9000e-004	2.0000e-005	2.1000e-004	0.0000	2.5934	2.5934	1.3000e-004	0.0000	2.5966
Worker	3.1000e-004	2.1000e-004	2.2400e-003	1.0000e-005	7.9000e-004	1.0000e-005	8.0000e-004	2.1000e-004	0.0000	2.1000e-004	0.0000	0.6680	0.6680	1.0000e-005	0.0000	0.6684
Total	**8.1000e-004**	**0.0167**	**6.1400e-003**	**6.0000e-005**	**1.8300e-003**	**5.0000e-005**	**1.8800e-003**	**5.0000e-004**	**4.0000e-005**	**5.4000e-004**	**0.0000**	**4.9637**	**4.9637**	**2.3000e-004**	**0.0000**	**4.9694**

3.5 Building Construction - 2021

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	0.0458	0.4563	0.3623	6.7000e-004		0.0243	0.0243		0.0229	0.0229	0.0000	58.2610	58.2610	0.0128	0.0000	58.5800
Total	**0.0458**	**0.4563**	**0.3623**	**6.7000e-004**		**0.0243**	**0.0243**		**0.0229**	**0.0229**	**0.0000**	**58.2610**	**58.2610**	**0.0128**	**0.0000**	**58.5800**

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	2.6000e-004	8.9800e-003	1.9100e-003	3.0000e-005	2.6700e-003	3.0000e-005	2.7000e-003	6.7000e-004	3.0000e-005	7.0000e-004	0.0000	2.5165	2.5165	1.3000e-004	0.0000	2.5197
Vendor	2.5100e-003	0.0825	0.0206	2.1000e-004	5.1800e-003	1.8000e-004	5.3600e-003	1.5000e-003	1.7000e-004	1.6700e-003	0.0000	20.4882	20.4882	1.0100e-003	0.0000	20.5134
Worker	4.8500e-003	3.3500e-003	0.0354	1.2000e-004	0.0125	8.0000e-005	0.0126	3.3200e-003	8.0000e-005	3.4000e-003	0.0000	10.5542	10.5542	2.4000e-004	0.0000	10.5602
Total	**7.6200e-003**	**0.0949**	**0.0580**	**3.6000e-004**	**0.0203**	**2.9000e-004**	**0.0206**	**5.4900e-003**	**2.8000e-004**	**5.7700e-003**	**0.0000**	**33.5589**	**33.5589**	**1.3800e-003**	**0.0000**	**33.5932**

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	7.6300e-003	0.0331	0.4005	6.7000e-004		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	58.2609	58.2609	0.0128	0.0000	58.5799
Total	**7.6300e-003**	**0.0331**	**0.4005**	**6.7000e-004**		**1.0200e-003**	**1.0200e-003**		**1.0200e-003**	**1.0200e-003**	**0.0000**	**58.2609**	**58.2609**	**0.0128**	**0.0000**	**58.5799**

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	2.6000e-004	8.9800e-003	1.9100e-003	3.0000e-005	2.6700e-003	3.0000e-005	2.7000e-003	6.7000e-004	3.0000e-005	7.0000e-004	0.0000	2.5165	2.5165	1.3000e-004	0.0000	2.5197
Vendor	2.5100e-003	0.0825	0.0206	2.1000e-004	5.1800e-003	1.8000e-004	5.3600e-003	1.5000e-003	1.7000e-004	1.6700e-003	0.0000	20.4882	20.4882	1.0100e-003	0.0000	20.5134
Worker	4.8500e-003	3.3500e-003	0.0354	1.2000e-004	0.0125	8.0000e-005	0.0126	3.3200e-003	8.0000e-005	3.4000e-003	0.0000	10.5542	10.5542	2.4000e-004	0.0000	10.5602
Total	**7.6200e-003**	**0.0949**	**0.0580**	**3.6000e-004**	**0.0203**	**2.9000e-004**	**0.0206**	**5.4900e-003**	**2.8000e-004**	**5.7700e-003**	**0.0000**	**33.5589**	**33.5589**	**1.3800e-003**	**0.0000**	**33.5932**

3.5 Building Construction - 2022

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	0.1357	1.3360	1.1738	2.2000e-003		0.0689	0.0689		0.0650	0.0650	0.0000	191.7557	191.7557	0.0417	0.0000	192.7993
Total	**0.1357**	**1.3360**	**1.1738**	**2.2000e-003**		**0.0689**	**0.0689**		**0.0650**	**0.0650**	**0.0000**	**191.7557**	**191.7557**	**0.0417**	**0.0000**	**192.7993**

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	8.1000e-004	0.0272	6.1800e-003	8.0000e-005	2.9900e-003	8.0000e-005	3.0700e-003	7.9000e-004	7.0000e-005	8.6000e-004	0.0000	8.1694	8.1694	4.1000e-004	0.0000	8.1797
Vendor	7.7000e-003	0.2572	0.0637	6.9000e-004	0.0171	5.1000e-004	0.0176	4.9300e-003	4.9000e-004	5.4200e-003	0.0000	66.7683	66.7683	3.1700e-003	0.0000	66.8475
Worker	0.0149	9.8700e-003	0.1072	3.7000e-004	0.0411	2.6000e-004	0.0414	0.0109	2.4000e-004	0.0112	0.0000	33.4620	33.4620	7.0000e-004	0.0000	33.4795
Total	**0.0234**	**0.2942**	**0.1771**	**1.1400e-003**	**0.0611**	**8.5000e-004**	**0.0620**	**0.0167**	**8.0000e-004**	**0.0175**	**0.0000**	**108.3996**	**108.3996**	**4.2800e-003**	**0.0000**	**108.5066**

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	0.0251	0.1088	1.3183	2.2000e-003		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	191.7555	191.7555	0.0417	0.0000	192.7991
Total	**0.0251**	**0.1088**	**1.3183**	**2.2000e-003**		**3.3500e-003**	**3.3500e-003**		**3.3500e-003**	**3.3500e-003**	**0.0000**	**191.7555**	**191.7555**	**0.0417**	**0.0000**	**192.7991**

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	8.1000e-004	0.0272	6.1800e-003	8.0000e-005	2.9900e-003	8.0000e-005	3.0700e-003	7.9000e-004	7.0000e-005	8.6000e-004	0.0000	8.1694	8.1694	4.1000e-004	0.0000	8.1797
Vendor	7.7000e-003	0.2572	0.0637	6.9000e-004	0.0171	5.1000e-004	0.0176	4.9300e-003	4.9000e-004	5.4200e-003	0.0000	66.7683	66.7683	3.1700e-003	0.0000	66.8475
Worker	0.0149	9.8700e-003	0.1072	3.7000e-004	0.0411	2.6000e-004	0.0414	0.0109	2.4000e-004	0.0112	0.0000	33.4620	33.4620	7.0000e-004	0.0000	33.4795
Total	**0.0234**	**0.2942**	**0.1771**	**1.1400e-003**	**0.0611**	**8.5000e-004**	**0.0620**	**0.0167**	**8.0000e-004**	**0.0175**	**0.0000**	**108.3996**	**108.3996**	**4.2800e-003**	**0.0000**	**108.5066**

3.5 Building Construction - 2023

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	0.0656	0.6399	0.6078	1.1500e-003		0.0317	0.0317		0.0298	0.0298	0.0000	100.3023	100.3023	0.0217	0.0000	100.8448
Total	**0.0656**	**0.6399**	**0.6078**	**1.1500e-003**		**0.0317**	**0.0317**		**0.0298**	**0.0298**	**0.0000**	**100.3023**	**100.3023**	**0.0217**	**0.0000**	**100.8448**

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	2.9000e-004	9.5000e-003	2.9300e-003	4.0000e-005	2.7700e-003	2.0000e-005	2.7900e-003	7.1000e-004	2.0000e-005	7.3000e-004	0.0000	4.1103	4.1103	1.9000e-004	0.0000	4.1152
Vendor	3.0200e-003	0.1037	0.0298	3.5000e-004	8.9200e-003	1.2000e-004	9.0400e-003	2.5800e-003	1.1000e-004	2.6900e-003	0.0000	33.9461	33.9461	1.4100e-003	0.0000	33.9815
Worker	7.2800e-003	4.6400e-003	0.0516	1.9000e-004	0.0215	1.3000e-004	0.0216	5.7200e-003	1.2000e-004	5.8400e-003	0.0000	16.8329	16.8329	3.3000e-004	0.0000	16.8411
Total	**0.0106**	**0.1179**	**0.0843**	**5.8000e-004**	**0.0332**	**2.7000e-004**	**0.0335**	**9.0100e-003**	**2.5000e-004**	**9.2600e-003**	**0.0000**	**54.8894**	**54.8894**	**1.9300e-003**	**0.0000**	**54.9377**

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	0.0131	0.0569	0.6896	1.1500e-003		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	100.3022	100.3022	0.0217	0.0000	100.8447
Total	**0.0131**	**0.0569**	**0.6896**	**1.1500e-003**		**1.7500e-003**	**1.7500e-003**		**1.7500e-003**	**1.7500e-003**	**0.0000**	**100.3022**	**100.3022**	**0.0217**	**0.0000**	**100.8447**

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	2.9000e-004	9.5000e-003	2.9300e-003	4.0000e-005	2.7700e-003	2.0000e-005	2.7900e-003	7.1000e-004	2.0000e-005	7.3000e-004	0.0000	4.1103	4.1103	1.9000e-004	0.0000	4.1152
Vendor	3.0200e-003	0.1037	0.0298	3.5000e-004	8.9200e-003	1.2000e-004	9.0400e-003	2.5800e-003	1.1000e-004	2.6900e-003	0.0000	33.9461	33.9461	1.4100e-003	0.0000	33.9815
Worker	7.2800e-003	4.6400e-003	0.0516	1.9000e-004	0.0215	1.3000e-004	0.0216	5.7200e-003	1.2000e-004	5.8400e-003	0.0000	16.8329	16.8329	3.3000e-004	0.0000	16.8411
Total	**0.0106**	**0.1179**	**0.0843**	**5.8000e-004**	**0.0332**	**2.7000e-004**	**0.0335**	**9.0100e-003**	**2.5000e-004**	**9.2600e-003**	**0.0000**	**54.8894**	**54.8894**	**1.9300e-003**	**0.0000**	**54.9377**

3.6 Architectural Coating - 2022

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	0.3495					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0109	0.0751	0.0967	1.6000e-004		4.3600e-003	4.3600e-003		4.3600e-003	4.3600e-003	0.0000	13.6174	13.6174	8.9000e-004	0.0000	13.6395
Total	**0.3604**	**0.0751**	**0.0967**	**1.6000e-004**		**4.3600e-003**	**4.3600e-003**		**4.3600e-003**	**4.3600e-003**	**0.0000**	**13.6174**	**13.6174**	**8.9000e-004**	**0.0000**	**13.6395**

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	1.1400e-003	7.6000e-004	8.2400e-003	3.0000e-005	3.1600e-003	2.0000e-005	3.1800e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.5740	2.5740	5.0000e-005	0.0000	2.5754
Total	**1.1400e-003**	**7.6000e-004**	**8.2400e-003**	**3.0000e-005**	**3.1600e-003**	**2.0000e-005**	**3.1800e-003**	**8.4000e-004**	**2.0000e-005**	**8.6000e-004**	**0.0000**	**2.5740**	**2.5740**	**5.0000e-005**	**0.0000**	**2.5754**

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	0.3495					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5800e-003	6.8700e-003	0.0977	1.6000e-004		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	13.6173	13.6173	8.9000e-004	0.0000	13.6395
Total	**0.3510**	**6.8700e-003**	**0.0977**	**1.6000e-004**		**2.1000e-004**	**2.1000e-004**		**2.1000e-004**	**2.1000e-004**	**0.0000**	**13.6173**	**13.6173**	**8.9000e-004**	**0.0000**	**13.6395**

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	1.1400e-003	7.6000e-004	8.2400e-003	3.0000e-005	3.1600e-003	2.0000e-005	3.1800e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.5740	2.5740	5.0000e-005	0.0000	2.5754
Total	**1.1400e-003**	**7.6000e-004**	**8.2400e-003**	**3.0000e-005**	**3.1600e-003**	**2.0000e-005**	**3.1800e-003**	**8.4000e-004**	**2.0000e-005**	**8.6000e-004**	**0.0000**	**2.5740**	**2.5740**	**5.0000e-005**	**0.0000**	**2.5754**

3.6 Architectural Coating - 2023

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	0.6902					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0202	0.1373	0.1908	3.1000e-004		7.4600e-003	7.4600e-003		7.4600e-003	7.4600e-003	0.0000	26.8943	26.8943	1.6100e-003	0.0000	26.9345
Total	**0.7104**	**0.1373**	**0.1908**	**3.1000e-004**		**7.4600e-003**	**7.4600e-003**		**7.4600e-003**	**7.4600e-003**	**0.0000**	**26.8943**	**26.8943**	**1.6100e-003**	**0.0000**	**26.9345**

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	2.1100e-003	1.3500e-003	0.0150	5.0000e-005	6.2400e-003	4.0000e-005	6.2800e-003	1.6600e-003	4.0000e-005	1.7000e-003	0.0000	4.8890	4.8890	1.0000e-004	0.0000	4.8913
Total	**2.1100e-003**	**1.3500e-003**	**0.0150**	**5.0000e-005**	**6.2400e-003**	**4.0000e-005**	**6.2800e-003**	**1.6600e-003**	**4.0000e-005**	**1.7000e-003**	**0.0000**	**4.8890**	**4.8890**	**1.0000e-004**	**0.0000**	**4.8913**

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	0.6902					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1300e-003	0.0136	0.1930	3.1000e-004		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	26.8942	26.8942	1.6100e-003	0.0000	26.9345
Total	**0.6933**	**0.0136**	**0.1930**	**3.1000e-004**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**	**0.0000**	**26.8942**	**26.8942**	**1.6100e-003**	**0.0000**	**26.9345**

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	2.1100e-003	1.3500e-003	0.0150	5.0000e-005	6.2400e-003	4.0000e-005	6.2800e-003	1.6600e-003	4.0000e-005	1.7000e-003	0.0000	4.8890	4.8890	1.0000e-004	0.0000	4.8913
Total	**2.1100e-003**	**1.3500e-003**	**0.0150**	**5.0000e-005**	**6.2400e-003**	**4.0000e-005**	**6.2800e-003**	**1.6600e-003**	**4.0000e-005**	**1.7000e-003**	**0.0000**	**4.8890**	**4.8890**	**1.0000e-004**	**0.0000**	**4.8913**

3.7 Paving - 2023

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	3.6300e-003	0.0350	0.0492	8.0000e-005		1.7300e-003	1.7300e-003		1.5900e-003	1.5900e-003	0.0000	6.6038	6.6038	2.0900e-003	0.0000	6.6559
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.6300e-003**	**0.0350**	**0.0492**	**8.0000e-005**		**1.7300e-003**	**1.7300e-003**		**1.5900e-003**	**1.5900e-003**	**0.0000**	**6.6038**	**6.6038**	**2.0900e-003**	**0.0000**	**6.6559**

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	3.0000e-005	1.1400e-003	3.3000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.3744	0.3744	2.0000e-005	0.0000	0.3748
Worker	7.0000e-005	4.0000e-005	4.7000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1547	0.1547	0.0000	0.0000	0.1548
Total	**1.0000e-004**	**1.1800e-003**	**8.0000e-004**	**0.0000**	**3.0000e-004**	**0.0000**	**3.0000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.5291**	**0.5291**	**2.0000e-005**	**0.0000**	**0.5296**

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	1.4300e-003	8.6500e-003	0.0563	8.0000e-005		3.4000e-004	3.4000e-004		3.3000e-004	3.3000e-004	0.0000	6.6038	6.6038	2.0900e-003	0.0000	6.6559
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.4300e-003**	**8.6500e-003**	**0.0563**	**8.0000e-005**		**3.4000e-004**	**3.4000e-004**		**3.3000e-004**	**3.3000e-004**	**0.0000**	**6.6038**	**6.6038**	**2.0900e-003**	**0.0000**	**6.6559**

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	3.0000e-005	1.1400e-003	3.3000e-004	0.0000	1.0000e-004	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.3744	0.3744	2.0000e-005	0.0000	0.3748
Worker	7.0000e-005	4.0000e-005	4.7000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1547	0.1547	0.0000	0.0000	0.1548
Total	**1.0000e-004**	**1.1800e-003**	**8.0000e-004**	**0.0000**	**3.0000e-004**	**0.0000**	**3.0000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.5291**	**0.5291**	**2.0000e-005**	**0.0000**	**0.5296**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	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	0.2390	1.0481	2.3782	8.5400e-003	0.7657	7.1100e-003	0.7728	0.2055	6.6300e-003	0.2121	0.0000	786.1121	786.1121	0.0288	0.0000	786.8317
Unmitigated	0.2592	1.1694	2.8472	0.0108	0.9920	8.8500e-003	1.0009	0.2662	8.2500e-003	0.2745	0.0000	994.3908	994.3908	0.0344	0.0000	995.2497

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	967.26	1,145.62	840.35	2,250,966	1,737,426
Enclosed Parking with Elevator	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Strip Mall	294.30	279.15	135.75	415,017	320,334
Total	1,261.56	1,424.77	976.10	2,665,983	2,057,760

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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments High Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Enclosed Parking with Elevator	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Other Non-Asphalt Surfaces	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Parking Lot	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Strip Mall	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

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	200.9943	200.9943	8.7800e-003	1.9500e-003	201.7953
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	200.9943	200.9943	8.7800e-003	1.9500e-003	201.7953
NaturalGas Mitigated	0.0160	0.1365	0.0595	8.7000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	157.8533	157.8533	3.0300e-003	2.8900e-003	158.7913
NaturalGas Unmitigated	0.0160	0.1365	0.0595	8.7000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	157.8533	157.8533	3.0300e-003	2.8900e-003	158.7913

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	2.88966e+006	0.0156	0.1332	0.0567	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.2032	154.2032	2.9600e-003	2.8300e-003	155.1195
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
Other Non-Asphalt Surfaces	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
Parking Lot	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
Strip Mall	68400	3.7000e-004	3.3500e-003	2.8200e-003	2.0000e-005		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004	0.0000	3.6501	3.6501	7.0000e-005	7.0000e-005	3.6718
Total		**0.0160**	**0.1365**	**0.0595**	**8.7000e-004**		**0.0110**	**0.0110**		**0.0110**	**0.0110**	**0.0000**	**157.8533**	**157.8533**	**3.0300e-003**	**2.9000e-003**	**158.7913**

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	2.88966e+006	0.0156	0.1332	0.0567	8.5000e-004		0.0108	0.0108		0.0108	0.0108	0.0000	154.2032	154.2032	2.9600e-003	2.8300e-003	155.1195
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
Other Non-Asphalt Surfaces	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
Parking Lot	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
Strip Mall	68400	3.7000e-004	3.3500e-003	2.8200e-003	2.0000e-005		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004	0.0000	3.6501	3.6501	7.0000e-005	7.0000e-005	3.6718
Total		**0.0160**	**0.1365**	**0.0595**	**8.7000e-004**		**0.0110**	**0.0110**		**0.0110**	**0.0110**	**0.0000**	**157.8533**	**157.8533**	**3.0300e-003**	**2.9000e-003**	**158.7913**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	1.44522e+006	135.0411	5.9000e-003	1.3100e-003	135.5793
Enclosed Parking with Elevator	551534	51.5354	2.2500e-003	5.0000e-004	51.7408
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	700	0.0654	0.0000	0.0000	0.0657
Strip Mall	153600	14.3524	6.3000e-004	1.4000e-004	14.4096
Total		**200.9943**	**8.7800e-003**	**1.9500e-003**	**201.7953**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	1.44522e+006	135.0411	5.9000e-003	1.3100e-003	135.5793
Enclosed Parking with Elevator	551534	51.5354	2.2500e-003	5.0000e-004	51.7408
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	700	0.0654	0.0000	0.0000	0.0657
Strip Mall	153600	14.3524	6.3000e-004	1.4000e-004	14.4096
Total		**200.9943**	**8.7800e-003**	**1.9500e-003**	**201.7953**

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	1.4669	0.0294	2.5484	1.3000e-004		0.0141	0.0141		0.0141	0.0141	0.0000	4.1653	4.1653	4.0000e-003	0.0000	4.2654
Unmitigated	1.4669	0.0294	2.5484	1.3000e-004		0.0141	0.0141		0.0141	0.0141	0.0000	4.1653	4.1653	4.0000e-003	0.0000	4.2654

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	0.1040					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.2861					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	0.0768	0.0294	2.5484	1.3000e-004		0.0141	0.0141		0.0141	0.0141	0.0000	4.1653	4.1653	4.0000e-003	0.0000	4.2654
Total	**1.4669**	**0.0294**	**2.5484**	**1.3000e-004**		**0.0141**	**0.0141**		**0.0141**	**0.0141**	**0.0000**	**4.1653**	**4.1653**	**4.0000e-003**	**0.0000**	**4.2654**

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	0.1040					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.2861					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	0.0768	0.0294	2.5484	1.3000e-004		0.0141	0.0141		0.0141	0.0141	0.0000	4.1653	4.1653	4.0000e-003	0.0000	4.2654
Total	**1.4669**	**0.0294**	**2.5484**	**1.3000e-004**		**0.0141**	**0.0141**		**0.0141**	**0.0141**	**0.0000**	**4.1653**	**4.1653**	**4.0000e-003**	**0.0000**	**4.2654**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	19.9928	0.0234	0.0146	24.9204
Unmitigated	24.9911	0.0293	0.0182	31.1505

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	22.3478 / 14.0888	23.8135	0.0279	0.0174	29.6812
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	1.11109 / 0.680989	1.1776	1.3900e-003	8.6000e-004	1.4693
Total		**24.9911**	**0.0293**	**0.0182**	**31.1505**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	17.8783 / 11.2711	19.0508	0.0223	0.0139	23.7449
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Strip Mall	0.88887 / 0.544791	0.9421	1.1100e-003	6.9000e-004	1.1754
Total		**19.9929**	**0.0234**	**0.0146**	**24.9204**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	17.6125	1.0409	0.0000	43.6343
Unmitigated	35.2250	2.0817	0.0000	87.2685

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	157.78	32.0279	1.8928	0.0000	79.3478
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	15.75	3.1971	0.1889	0.0000	7.9207
Total		**35.2250**	**2.0817**	**0.0000**	**87.2685**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	78.89	16.0140	0.9464	0.0000	39.6739
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Strip Mall	7.875	1.5986	0.0945	0.0000	3.9604
Total		**17.6125**	**1.0409**	**0.0000**	**43.6343**

10.0 Stationary Equipment

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 (175 - 300 HP)	0.0110	0.0307	0.0280	5.0000e-005		1.6200e-003	1.6200e-003		1.6200e-003	1.6200e-003	0.0000	5.1027	5.1027	7.2000e-004	0.0000	5.1206
Total	**0.0110**	**0.0307**	**0.0280**	**5.0000e-005**		**1.6200e-003**	**1.6200e-003**		**1.6200e-003**	**1.6200e-003**	**0.0000**	**5.1027**	**5.1027**	**7.2000e-004**	**0.0000**	**5.1206**

CalEEMod Version: CalEEMod.2016.3.2

Date: 11/12/2020 11:24 AM

24th and Waverly Project
Bay Area AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	230.00	Space	0.00	101,385.00	0
Other Non-Asphalt Surfaces	33.72	1000sqft	0.00	33,722.00	0
Parking Lot	5.00	Space	0.00	2,000.00	0
Apartments High Rise	343.00	Dwelling Unit	0.00	312,043.00	720
Strip Mall	15.00	1000sqft	0.86	15,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	206	**CH4 Intensity (lb/MWhr)**	0.009	**N2O Intensity (lb/MWhr)**	0.002

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 24th and Waverly Project. BAAQMD. Updated CO2 intensity (PG&E Corporate Responsibility Report).

Land Use - Development of 343 residential units and 15,000 sf in retail on a 0.86 acre site. Number of residents adjusted to meet 2.1/du.

Construction Phase - Construction would begin June 2021.

Off-road Equipment - Default equipment assumed.

Off-road Equipment - Adjusted per applicant.

Off-road Equipment - Adjusted per applicant.

Off-road Equipment - Adjusted per applicant.

Off-road Equipment - Adjusted per applicant.

Off-road Equipment - Adjusted per applicant.

Trips and VMT - Adjusted trips per applicant.

Architectural Coating - Use of low-VOC (50 g/L) coatings.

Vehicle Trips - Updated trip generation rates per Traffic Impact Review.

Woodstoves - No wood burning devices.

Area Coating - Use of low-VOC (50 g/L) coatings.

Energy Use - Adjusted to meet 2019 Title 24 Standards.

Water And Wastewater - Default water use assumed.

Solid Waste - Default solid waste assumed.

Construction Off-road Equipment Mitigation - Assume compliance with BAAQMD BMPs - water twice daily. Use of Tier 4 equipment.

Mobile Land Use Mitigation - Project is located proximate to transit and would improve pedestrian network within project site.

Water Mitigation - Reduce water consumption by 20% per CalGreen.

Waste Mitigation - Assume 50% waste diverted consistent with AB 939.

Stationary Sources - Emergency Generators and Fire Pumps - Assume 200 KW emergency generator.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	150	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblAreaCoating	Area_EF_Residential_Exterior	150	50
tblAreaCoating	Area_EF_Residential_Interior	100	50
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
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
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tblConstructionPhase	NumDays	100.00	475.00
tblConstructionPhase	NumDays	10.00	25.00
tblConstructionPhase	NumDays	2.00	25.00
tblConstructionPhase	NumDays	5.00	10.00
tblConstructionPhase	NumDays	1.00	25.00
tblEnergyUse	T24E	426.45	417.92
tblEnergyUse	T24E	3.92	3.50
tblEnergyUse	T24E	2.24	2.00
tblEnergyUse	T24NG	6,115.43	5,809.66
tblEnergyUse	T24NG	3.90	3.86
tblFireplaces	FireplaceDayYear	11.14	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00

tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	51.45	171.00
tblFireplaces	NumberNoFireplace	13.72	172.00
tblFireplaces	NumberWood	58.31	0.00
tblLandUse	LandUseSquareFeet	92,000.00	101,385.00
tblLandUse	LandUseSquareFeet	33,720.00	33,722.00
tblLandUse	LandUseSquareFeet	343,000.00	312,043.00
tblLandUse	LotAcreage	2.07	0.00
tblLandUse	LotAcreage	0.77	0.00
tblLandUse	LotAcreage	0.05	0.00
tblLandUse	LotAcreage	5.53	0.00
tblLandUse	LotAcreage	0.34	0.86
tblLandUse	Population	981.00	720.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
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tblOffRoadEquipment	PhaseName		Grading
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tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Building Construction
tblOffRoadEquipment	PhaseName		Paving
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tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00

tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.009
tblProjectCharacteristics	CO2IntensityFactor	641.35	206
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.002
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	268.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	0.50
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	50.00
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tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	62.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripNumber	13.00	8.00
tblTripsAndVMT	WorkerTripNumber	8.00	12.00
tblTripsAndVMT	WorkerTripNumber	15.00	8.00
tblTripsAndVMT	WorkerTripNumber	309.00	40.00
tblTripsAndVMT	WorkerTripNumber	62.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	5.00
tblVehicleTrips	ST_TR	4.98	3.34
tblVehicleTrips	ST_TR	42.04	18.61
tblVehicleTrips	SU_TR	3.65	2.45
tblVehicleTrips	SU_TR	20.43	9.05
tblVehicleTrips	WD_TR	4.20	2.82

tblVehicleTrips	WD_TR	44.32	19.62
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	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	6.86	0.00
tblWoodstoves	NumberNoncatalytic	6.86	0.00
tblWoodstoves	WoodstoveDayYear	14.12	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2021	1.3555	13.9177	11.7744	0.0271	0.9041	0.6230	1.3201	0.4554	0.5867	0.8382	0.0000	2,659.0538	2,659.0538	0.7356	0.0000	2,677.4440
2022	10.2665	14.4032	13.0838	0.0308	0.5701	0.6462	1.2163	0.1542	0.6152	0.7694	0.0000	3,024.7290	3,024.7290	0.4157	0.0000	3,035.1218
2023	10.1440	12.8746	12.8515	0.0304	0.5886	0.5644	1.1530	0.1588	0.5371	0.6959	0.0000	2,991.3362	2,991.3362	0.4638	0.0000	3,001.5017
Maximum	**10.2665**	**14.4032**	**13.0838**	**0.0308**	**0.9041**	**0.6462**	**1.3201**	**0.4554**	**0.6152**	**0.8382**	**0.0000**	**3,024.7290**	**3,024.7290**	**0.7356**	**0.0000**	**3,035.1218**

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	lb/day										lb/day					
2021	0.5329	4.2921	14.9223	0.0271	0.5345	0.2032	0.5772	0.2278	0.1954	0.3110	0.0000	2,659.0538	2,659.0538	0.7356	0.0000	2,677.4440
2022	9.1828	3.2568	14.2198	0.0308	0.5701	0.0380	0.6081	0.1542	0.0377	0.1919	0.0000	3,024.7290	3,024.7290	0.4157	0.0000	3,035.1218
2023	9.1564	2.7359	14.0821	0.0304	0.5886	0.0690	0.6241	0.1588	0.0664	0.1940	0.0000	2,991.3362	2,991.3362	0.4638	0.0000	3,001.5017
Maximum	**9.1828**	**4.2921**	**14.9223**	**0.0308**	**0.5886**	**0.2032**	**0.6241**	**0.2278**	**0.1954**	**0.3110**	**0.0000**	**3,024.7290**	**3,024.7290**	**0.7356**	**0.0000**	**3,035.1218**

	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	**13.30**	**75.03**	**-14.62**	**0.00**	**17.92**	**83.08**	**50.96**	**29.62**	**82.78**	**69.75**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	lb/day										lb/day					
Area	8.4701	0.3262	28.3150	1.5000e-003		0.1569	0.1569		0.1569	0.1569	0.0000	51.0155	51.0155	0.0491	0.0000	52.2418
Energy	0.0874	0.7480	0.3259	4.7700e-003		0.0604	0.0604		0.0604	0.0604		953.4435	953.4435	0.0183	0.0175	959.1093
Mobile	1.9061	7.2456	18.8545	0.0730	6.5830	0.0564	6.6394	1.7610	0.0526	1.8136		7,398.1232	7,398.1232	0.2424		7,404.1829
Stationary	0.2199	0.6146	0.5607	1.0600e-003		0.0324	0.0324		0.0324	0.0324		112.4949	112.4949	0.0158		112.8892
Total	**10.6835**	**8.9343**	**48.0560**	**0.0804**	**6.5830**	**0.3060**	**6.8890**	**1.7610**	**0.3022**	**2.0632**	**0.0000**	**8,515.0771**	**8,515.0771**	**0.3255**	**0.0175**	**8,528.4232**

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	lb/day										lb/day					
Area	8.4701	0.3262	28.3150	1.5000e-003		0.1569	0.1569		0.1569	0.1569	0.0000	51.0155	51.0155	0.0491	0.0000	52.2418
Energy	0.0874	0.7480	0.3259	4.7700e-003		0.0604	0.0604		0.0604	0.0604		953.4435	953.4435	0.0183	0.0175	959.1093
Mobile	1.7748	6.5188	15.4768	0.0577	5.0811	0.0453	5.1264	1.3592	0.0422	1.4014		5,845.8272	5,845.8272	0.2015		5,850.8655
Stationary	0.2199	0.6146	0.5607	1.0600e-003		0.0324	0.0324		0.0324	0.0324		112.4949	112.4949	0.0158		112.8892
Total	**10.5522**	**8.2076**	**44.6783**	**0.0650**	**5.0811**	**0.2949**	**5.3760**	**1.3592**	**0.2918**	**1.6511**	**0.0000**	**6,962.7811**	**6,962.7811**	**0.2846**	**0.0175**	**6,975.1058**

	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	**1.23**	**8.13**	**7.03**	**19.10**	**22.81**	**3.64**	**21.96**	**22.81**	**3.44**	**19.98**	**0.00**	**18.23**	**18.23**	**12.55**	**0.00**	**18.21**

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	6/1/2021	7/5/2021	5	25	
2	Shoring	Site Preparation	7/6/2021	8/9/2021	5	25	
3	Grading	Grading	8/10/2021	9/13/2021	5	25	
4	Building Construction	Building Construction	9/14/2021	7/10/2023	5	475	
5	Architectural Coating	Architectural Coating	9/12/2022	8/9/2023	5	238	
6	Paving	Paving	8/10/2023	8/23/2023	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 631,887; Residential Outdoor: 210,629; Non-Residential Indoor: 22,500; Non-Residential Outdoor: 7,500; Striped

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	1	8.00	158	0.38
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Shoring	Bore/Drill Rigs	1	8.00	221	0.50
Grading	Bore/Drill Rigs	1	8.00	221	0.50
Grading	Excavators	2	8.00	158	0.38
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Architectural Coating	Air Compressors	1	8.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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	5	8.00	0.00	50.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Shoring	3	12.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	8.00	8.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	40.00	20.00	400.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	5.00	3.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Demolition - 2021

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	lb/day										lb/day					
Off-Road	0.9886	8.9829	11.4663	0.0176		0.5011	0.5011		0.4749	0.4749		1,694.6568	1,694.6568	0.3908		1,704.4273
Total	**0.9886**	**8.9829**	**11.4663**	**0.0176**		**0.5011**	**0.5011**		**0.4749**	**0.4749**		**1,694.6568**	**1,694.6568**	**0.3908**		**1,704.4273**

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	lb/day										lb/day					
Hauling	0.0156	0.5292	0.1116	1.5700e-003	0.0349	1.6600e-003	0.0366	9.5800e-003	1.5900e-003	0.0112		167.9819	167.9819	8.3400e-003		168.1903
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
Worker	0.0257	0.0150	0.1965	6.4000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		63.3568	63.3568	1.4200e-003		63.3922
Total	**0.0413**	**0.5442**	**0.3081**	**2.2100e-003**	**0.1007**	**2.0700e-003**	**0.1027**	**0.0270**	**1.9700e-003**	**0.0290**		**231.3387**	**231.3387**	**9.7600e-003**		**231.5825**

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	lb/day										lb/day					
Off-Road	0.4916	3.7479	12.2981	0.0176		0.2011	0.2011		0.1934	0.1934	0.0000	1,694.6568	1,694.6568	0.3908		1,704.4273
Total	**0.4916**	**3.7479**	**12.2981**	**0.0176**		**0.2011**	**0.2011**		**0.1934**	**0.1934**	**0.0000**	**1,694.6568**	**1,694.6568**	**0.3908**		**1,704.4273**

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	lb/day										lb/day					
Hauling	0.0156	0.5292	0.1116	1.5700e-003	0.0349	1.6600e-003	0.0366	9.5800e-003	1.5900e-003	0.0112		167.9819	167.9819	8.3400e-003		168.1903
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
Worker	0.0257	0.0150	0.1965	6.4000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		63.3568	63.3568	1.4200e-003		63.3922
Total	**0.0413**	**0.5442**	**0.3081**	**2.2100e-003**	**0.1007**	**2.0700e-003**	**0.1027**	**0.0270**	**1.9700e-003**	**0.0290**		**231.3387**	**231.3387**	**9.7600e-003**		**231.5825**

3.3 Shoring - 2021

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	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.2582	3.0228	2.0740	9.4300e-003		0.0916	0.0916		0.0843	0.0843		912.0624	912.0624	0.2950		919.4369
Total	**0.2582**	**3.0228**	**2.0740**	**9.4300e-003**	**0.5303**	**0.0916**	**0.6219**	**0.0573**	**0.0843**	**0.1416**		**912.0624**	**912.0624**	**0.2950**		**919.4369**

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	lb/day										lb/day					
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
Vendor	6.2000e-003	0.2067	0.0487	5.5000e-004	0.0135	4.5000e-004	0.0140	3.9000e-003	4.3000e-004	4.3300e-003		57.7917	57.7917	2.7100e-003		57.8595
Worker	0.0386	0.0226	0.2948	9.5000e-004	0.0986	6.2000e-004	0.0992	0.0262	5.7000e-004	0.0267		95.0351	95.0351	2.1200e-003		95.0883
Total	**0.0448**	**0.2292**	**0.3435**	**1.5000e-003**	**0.1121**	**1.0700e-003**	**0.1132**	**0.0301**	**1.0000e-003**	**0.0311**		**152.8269**	**152.8269**	**4.8300e-003**		**152.9478**

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	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.1169	0.5067	4.2876	9.4300e-003		0.0156	0.0156		0.0156	0.0156	0.0000	912.0624	912.0624	0.2950		919.4369
Total	**0.1169**	**0.5067**	**4.2876**	**9.4300e-003**	**0.2386**	**0.0156**	**0.2542**	**0.0258**	**0.0156**	**0.0414**	**0.0000**	**912.0624**	**912.0624**	**0.2950**		**919.4369**

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	lb/day										lb/day					
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
Vendor	6.2000e-003	0.2067	0.0487	5.5000e-004	0.0135	4.5000e-004	0.0140	3.9000e-003	4.3000e-004	4.3300e-003		57.7917	57.7917	2.7100e-003		57.8595
Worker	0.0386	0.0226	0.2948	9.5000e-004	0.0986	6.2000e-004	0.0992	0.0262	5.7000e-004	0.0267		95.0351	95.0351	2.1200e-003		95.0883
Total	**0.0448**	**0.2292**	**0.3435**	**1.5000e-003**	**0.1121**	**1.0700e-003**	**0.1132**	**0.0301**	**1.0000e-003**	**0.0311**		**152.8269**	**152.8269**	**4.8300e-003**		**152.9478**

3.4 Grading - 2021

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	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.9038	9.2254	10.8778	0.0229		0.4123	0.4123		0.3793	0.3793		2,213.3464	2,213.3464	0.7158		2,231.2425
Total	**0.9038**	**9.2254**	**10.8778**	**0.0229**	**0.7528**	**0.4123**	**1.1651**	**0.4138**	**0.3793**	**0.7931**		**2,213.3464**	**2,213.3464**	**0.7158**		**2,231.2425**

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	lb/day										lb/day					
Hauling	0.0140	0.4763	0.1004	1.4100e-003	0.0315	1.4900e-003	0.0329	8.6200e-003	1.4300e-003	0.0101		151.1838	151.1838	7.5000e-003		151.3713
Vendor	0.0248	0.8267	0.1950	2.1800e-003	0.0542	1.7900e-003	0.0559	0.0156	1.7100e-003	0.0173		231.1668	231.1668	0.0109		231.4381
Worker	0.0257	0.0150	0.1965	6.4000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		63.3568	63.3568	1.4200e-003		63.3922
Total	**0.0646**	**1.3180**	**0.4919**	**4.2300e-003**	**0.1513**	**3.6900e-003**	**0.1550**	**0.0416**	**3.5200e-003**	**0.0452**		**445.7073**	**445.7073**	**0.0198**		**446.2015**

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	lb/day										lb/day					
Fugitive Dust					0.3387	0.0000	0.3387	0.1862	0.0000	0.1862			0.0000			0.0000
Off-Road	0.3462	1.9664	14.4305	0.0229		0.0835	0.0835		0.0796	0.0796	0.0000	2,213.3464	2,213.3464	0.7158		2,231.2425
Total	**0.3462**	**1.9664**	**14.4305**	**0.0229**	**0.3387**	**0.0835**	**0.4222**	**0.1862**	**0.0796**	**0.2658**	**0.0000**	**2,213.3464**	**2,213.3464**	**0.7158**		**2,231.2425**

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	lb/day										lb/day					
Hauling	0.0140	0.4763	0.1004	1.4100e-003	0.0315	1.4900e-003	0.0329	8.6200e-003	1.4300e-003	0.0101		151.1838	151.1838	7.5000e-003		151.3713
Vendor	0.0248	0.8267	0.1950	2.1800e-003	0.0542	1.7900e-003	0.0559	0.0156	1.7100e-003	0.0173		231.1668	231.1668	0.0109		231.4381
Worker	0.0257	0.0150	0.1965	6.4000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		63.3568	63.3568	1.4200e-003		63.3922
Total	**0.0646**	**1.3180**	**0.4919**	**4.2300e-003**	**0.1513**	**3.6900e-003**	**0.1550**	**0.0416**	**3.5200e-003**	**0.0452**		**445.7073**	**445.7073**	**0.0198**		**446.2015**

3.5 Building Construction - 2021

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	lb/day										lb/day					
Off-Road	1.1583	11.5529	9.1711	0.0169		0.6157	0.6157		0.5799	0.5799		1,625.8658	1,625.8658	0.3561		1,634.7691
Total	**1.1583**	**11.5529**	**9.1711**	**0.0169**		**0.6157**	**0.6157**		**0.5799**	**0.5799**		**1,625.8658**	**1,625.8658**	**0.3561**		**1,634.7691**

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	lb/day										lb/day					
Hauling	6.5600e-003	0.2228	0.0470	6.6000e-004	0.0705	7.0000e-004	0.0712	0.0177	6.7000e-004	0.0184		70.7292	70.7292	3.5100e-003		70.8170
Vendor	0.0620	2.0668	0.4874	5.4500e-003	0.1354	4.4800e-003	0.1399	0.0390	4.2800e-003	0.0433		577.9171	577.9171	0.0271		578.5952
Worker	0.1286	0.0752	0.9825	3.1800e-003	0.3286	2.0700e-003	0.3307	0.0872	1.9000e-003	0.0891		316.7838	316.7838	7.0800e-003		316.9608
Total	**0.1972**	**2.3648**	**1.5169**	**9.2900e-003**	**0.5345**	**7.2500e-003**	**0.5417**	**0.1439**	**6.8500e-003**	**0.1507**		**965.4301**	**965.4301**	**0.0377**		**966.3730**

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	lb/day										lb/day					
Off-Road	0.1932	0.8371	10.1404	0.0169		0.0258	0.0258		0.0258	0.0258	0.0000	1,625.8658	1,625.8658	0.3561		1,634.7691
Total	**0.1932**	**0.8371**	**10.1404**	**0.0169**		**0.0258**	**0.0258**		**0.0258**	**0.0258**	**0.0000**	**1,625.8658**	**1,625.8658**	**0.3561**		**1,634.7691**

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	lb/day										lb/day					
Hauling	6.5600e-003	0.2228	0.0470	6.6000e-004	0.0705	7.0000e-004	0.0712	0.0177	6.7000e-004	0.0184		70.7292	70.7292	3.5100e-003		70.8170
Vendor	0.0620	2.0668	0.4874	5.4500e-003	0.1354	4.4800e-003	0.1399	0.0390	4.2800e-003	0.0433		577.9171	577.9171	0.0271		578.5952
Worker	0.1286	0.0752	0.9825	3.1800e-003	0.3286	2.0700e-003	0.3307	0.0872	1.9000e-003	0.0891		316.7838	316.7838	7.0800e-003		316.9608
Total	**0.1972**	**2.3648**	**1.5169**	**9.2900e-003**	**0.5345**	**7.2500e-003**	**0.5417**	**0.1439**	**6.8500e-003**	**0.1507**		**965.4301**	**965.4301**	**0.0377**		**966.3730**

3.5 Building Construction - 2022

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	lb/day										lb/day					
Off-Road	1.0438	10.2772	9.0295	0.0169		0.5303	0.5303		0.4996	0.4996		1,625.9574	1,625.9574	0.3540		1,634.8066
Total	**1.0438**	**10.2772**	**9.0295**	**0.0169**		**0.5303**	**0.5303**		**0.4996**	**0.4996**		**1,625.9574**	**1,625.9574**	**0.3540**		**1,634.8066**

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	lb/day										lb/day					
Hauling	6.1800e-003	0.2050	0.0462	6.5000e-004	0.0239	6.0000e-004	0.0245	6.2900e-003	5.7000e-004	6.8600e-003		69.7708	69.7708	3.4300e-003		69.8566
Vendor	0.0579	1.9588	0.4584	5.4000e-003	0.1354	3.8800e-003	0.1393	0.0390	3.7100e-003	0.0427		572.2890	572.2890	0.0259		572.9374
Worker	0.1197	0.0674	0.9053	3.0600e-003	0.3286	2.0200e-003	0.3306	0.0872	1.8600e-003	0.0890		305.1582	305.1582	6.3600e-003		305.3171
Total	**0.1837**	**2.2312**	**1.4099**	**9.1100e-003**	**0.4879**	**6.5000e-003**	**0.4944**	**0.1324**	**6.1400e-003**	**0.1386**		**947.2180**	**947.2180**	**0.0357**		**948.1111**

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	lb/day										lb/day					
Off-Road	0.1932	0.8371	10.1404	0.0169		0.0258	0.0258		0.0258	0.0258	0.0000	1,625.9574	1,625.9574	0.3540		1,634.8066
Total	**0.1932**	**0.8371**	**10.1404**	**0.0169**		**0.0258**	**0.0258**		**0.0258**	**0.0258**	**0.0000**	**1,625.9574**	**1,625.9574**	**0.3540**		**1,634.8066**

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	lb/day										lb/day					
Hauling	6.1800e-003	0.2050	0.0462	6.5000e-004	0.0239	6.0000e-004	0.0245	6.2900e-003	5.7000e-004	6.8600e-003		69.7708	69.7708	3.4300e-003		69.8566
Vendor	0.0579	1.9588	0.4584	5.4000e-003	0.1354	3.8800e-003	0.1393	0.0390	3.7100e-003	0.0427		572.2890	572.2890	0.0259		572.9374
Worker	0.1197	0.0674	0.9053	3.0600e-003	0.3286	2.0200e-003	0.3306	0.0872	1.8600e-003	0.0890		305.1582	305.1582	6.3600e-003		305.3171
Total	**0.1837**	**2.2312**	**1.4099**	**9.1100e-003**	**0.4879**	**6.5000e-003**	**0.4944**	**0.1324**	**6.1400e-003**	**0.1386**		**947.2180**	**947.2180**	**0.0357**		**948.1111**

3.5 Building Construction - 2023

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	lb/day										lb/day					
Off-Road	0.9649	9.4101	8.9382	0.0169		0.4655	0.4655		0.4385	0.4385		1,625.9463	1,625.9463	0.3518		1,634.7406
Total	**0.9649**	**9.4101**	**8.9382**	**0.0169**		**0.4655**	**0.4655**		**0.4385**	**0.4385**		**1,625.9463**	**1,625.9463**	**0.3518**		**1,634.7406**

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	lb/day										lb/day					
Hauling	4.2200e-003	0.1376	0.0422	6.3000e-004	0.0425	2.5000e-004	0.0427	0.0108	2.4000e-004	0.0111		67.1116	67.1116	3.1000e-003		67.1890
Vendor	0.0434	1.5138	0.4126	5.2400e-003	0.1354	1.7200e-003	0.1371	0.0390	1.6500e-003	0.0406		556.1898	556.1898	0.0222		556.7440
Worker	0.1118	0.0606	0.8350	2.9400e-003	0.3286	1.9800e-003	0.3306	0.0872	1.8200e-003	0.0890		293.4595	293.4595	5.7100e-003		293.6023
Total	**0.1593**	**1.7120**	**1.2898**	**8.8100e-003**	**0.5065**	**3.9500e-003**	**0.5104**	**0.1370**	**3.7100e-003**	**0.1407**		**916.7609**	**916.7609**	**0.0310**		**917.5352**

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	lb/day										lb/day					
Off-Road	0.1932	0.8371	10.1404	0.0169		0.0258	0.0258		0.0258	0.0258	0.0000	1,625.9463	1,625.9463	0.3518		1,634.7406
Total	**0.1932**	**0.8371**	**10.1404**	**0.0169**		**0.0258**	**0.0258**		**0.0258**	**0.0258**	**0.0000**	**1,625.9463**	**1,625.9463**	**0.3518**		**1,634.7406**

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	lb/day										lb/day					
Hauling	4.2200e-003	0.1376	0.0422	6.3000e-004	0.0425	2.5000e-004	0.0427	0.0108	2.4000e-004	0.0111		67.1116	67.1116	3.1000e-003		67.1890
Vendor	0.0434	1.5138	0.4126	5.2400e-003	0.1354	1.7200e-003	0.1371	0.0390	1.6500e-003	0.0406		556.1898	556.1898	0.0222		556.7440
Worker	0.1118	0.0606	0.8350	2.9400e-003	0.3286	1.9800e-003	0.3306	0.0872	1.8200e-003	0.0890		293.4595	293.4595	5.7100e-003		293.6023
Total	**0.1593**	**1.7120**	**1.2898**	**8.8100e-003**	**0.5065**	**3.9500e-003**	**0.5104**	**0.1370**	**3.7100e-003**	**0.1407**		**916.7609**	**916.7609**	**0.0310**		**917.5352**

3.6 Architectural Coating - 2022

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	lb/day										lb/day					
Archit. Coating	8.7363					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2727	1.8780	2.4181	3.9600e-003		0.1090	0.1090		0.1090	0.1090		375.2641	375.2641	0.0244		375.8749
Total	**9.0091**	**1.8780**	**2.4181**	**3.9600e-003**		**0.1090**	**0.1090**		**0.1090**	**0.1090**		**375.2641**	**375.2641**	**0.0244**		**375.8749**

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	lb/day										lb/day					
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
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
Worker	0.0299	0.0169	0.2263	7.7000e-004	0.0822	5.0000e-004	0.0827	0.0218	4.6000e-004	0.0223		76.2895	76.2895	1.5900e-003		76.3293
Total	**0.0299**	**0.0169**	**0.2263**	**7.7000e-004**	**0.0822**	**5.0000e-004**	**0.0827**	**0.0218**	**4.6000e-004**	**0.0223**		**76.2895**	**76.2895**	**1.5900e-003**		**76.3293**

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	lb/day										lb/day					
Archit. Coating	8.7363					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0396	0.1717	2.4432	3.9600e-003		5.2800e-003	5.2800e-003		5.2800e-003	5.2800e-003	0.0000	375.2641	375.2641	0.0244		375.8749
Total	**8.7760**	**0.1717**	**2.4432**	**3.9600e-003**		**5.2800e-003**	**5.2800e-003**		**5.2800e-003**	**5.2800e-003**	**0.0000**	**375.2641**	**375.2641**	**0.0244**		**375.8749**

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	lb/day										lb/day					
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
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
Worker	0.0299	0.0169	0.2263	7.7000e-004	0.0822	5.0000e-004	0.0827	0.0218	4.6000e-004	0.0223		76.2895	76.2895	1.5900e-003		76.3293
Total	**0.0299**	**0.0169**	**0.2263**	**7.7000e-004**	**0.0822**	**5.0000e-004**	**0.0827**	**0.0218**	**4.6000e-004**	**0.0223**		**76.2895**	**76.2895**	**1.5900e-003**		**76.3293**

3.6 Architectural Coating - 2023

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	lb/day										lb/day					
Archit. Coating	8.7363					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2556	1.7373	2.4148	3.9600e-003		0.0944	0.0944		0.0944	0.0944		375.2641	375.2641	0.0225		375.8253
Total	**8.9919**	**1.7373**	**2.4148**	**3.9600e-003**		**0.0944**	**0.0944**		**0.0944**	**0.0944**		**375.2641**	**375.2641**	**0.0225**		**375.8253**

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	lb/day										lb/day					
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
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
Worker	0.0279	0.0152	0.2088	7.4000e-004	0.0822	4.9000e-004	0.0826	0.0218	4.6000e-004	0.0222		73.3649	73.3649	1.4300e-003		73.4006
Total	**0.0279**	**0.0152**	**0.2088**	**7.4000e-004**	**0.0822**	**4.9000e-004**	**0.0826**	**0.0218**	**4.6000e-004**	**0.0222**		**73.3649**	**73.3649**	**1.4300e-003**		**73.4006**

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	lb/day										lb/day					
Archit. Coating	8.7363					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0396	0.1717	2.4432	3.9600e-003		5.2800e-003	5.2800e-003		5.2800e-003	5.2800e-003	0.0000	375.2641	375.2641	0.0225		375.8253
Total	**8.7760**	**0.1717**	**2.4432**	**3.9600e-003**		**5.2800e-003**	**5.2800e-003**		**5.2800e-003**	**5.2800e-003**	**0.0000**	**375.2641**	**375.2641**	**0.0225**		**375.8253**

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	lb/day										lb/day					
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
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
Worker	0.0279	0.0152	0.2088	7.4000e-004	0.0822	4.9000e-004	0.0826	0.0218	4.6000e-004	0.0222		73.3649	73.3649	1.4300e-003		73.4006
Total	**0.0279**	**0.0152**	**0.2088**	**7.4000e-004**	**0.0822**	**4.9000e-004**	**0.0826**	**0.0218**	**4.6000e-004**	**0.0222**		**73.3649**	**73.3649**	**1.4300e-003**		**73.4006**

3.7 Paving - 2023

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	lb/day										lb/day					
Off-Road	0.7265	6.9997	9.8318	0.0152		0.3452	0.3452		0.3188	0.3188		1,455.8849	1,455.8849	0.4598		1,467.3791
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7265**	**6.9997**	**9.8318**	**0.0152**		**0.3452**	**0.3452**		**0.3188**	**0.3188**		**1,455.8849**	**1,455.8849**	**0.4598**		**1,467.3791**

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	lb/day										lb/day					
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
Vendor	6.5000e-003	0.2271	0.0619	7.9000e-004	0.0203	2.6000e-004	0.0206	5.8500e-003	2.5000e-004	6.0900e-003		83.4285	83.4285	3.3200e-003		83.5116
Worker	0.0140	7.5800e-003	0.1044	3.7000e-004	0.0411	2.5000e-004	0.0413	0.0109	2.3000e-004	0.0111		36.6824	36.6824	7.1000e-004		36.7003
Total	**0.0205**	**0.2346**	**0.1663**	**1.1600e-003**	**0.0614**	**5.1000e-004**	**0.0619**	**0.0167**	**4.8000e-004**	**0.0172**		**120.1109**	**120.1109**	**4.0300e-003**		**120.2119**

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	lb/day										lb/day					
Off-Road	0.2857	1.7300	11.2506	0.0152		0.0685	0.0685		0.0659	0.0659	0.0000	1,455.8849	1,455.8849	0.4598		1,467.3791
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2857**	**1.7300**	**11.2506**	**0.0152**		**0.0685**	**0.0685**		**0.0659**	**0.0659**	**0.0000**	**1,455.8849**	**1,455.8849**	**0.4598**		**1,467.3791**

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	lb/day										lb/day					
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
Vendor	6.5000e-003	0.2271	0.0619	7.9000e-004	0.0203	2.6000e-004	0.0206	5.8500e-003	2.5000e-004	6.0900e-003		83.4285	83.4285	3.3200e-003		83.5116
Worker	0.0140	7.5800e-003	0.1044	3.7000e-004	0.0411	2.5000e-004	0.0413	0.0109	2.3000e-004	0.0111		36.6824	36.6824	7.1000e-004		36.7003
Total	**0.0205**	**0.2346**	**0.1663**	**1.1600e-003**	**0.0614**	**5.1000e-004**	**0.0619**	**0.0167**	**4.8000e-004**	**0.0172**		**120.1109**	**120.1109**	**4.0300e-003**		**120.2119**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	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	lb/day										lb/day					
Mitigated	1.7748	6.5188	15.4768	0.0577	5.0811	0.0453	5.1264	1.3592	0.0422	1.4014		5,845.8272	5,845.8272	0.2015		5,850.8655
Unmitigated	1.9061	7.2456	18.8545	0.0730	6.5830	0.0564	6.6394	1.7610	0.0526	1.8136		7,398.1232	7,398.1232	0.2424		7,404.1829

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	967.26	1,145.62	840.35	2,250,966	1,737,426
Enclosed Parking with Elevator	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Strip Mall	294.30	279.15	135.75	415,017	320,334
Total	1,261.56	1,424.77	976.10	2,665,983	2,057,760

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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments High Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Enclosed Parking with Elevator	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Other Non-Asphalt Surfaces	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Parking Lot	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Strip Mall	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

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	lb/day										lb/day					
NaturalGas Mitigated	0.0874	0.7480	0.3259	4.7700e-003		0.0604	0.0604		0.0604	0.0604		953.4435	953.4435	0.0183	0.0175	959.1093
NaturalGas Unmitigated	0.0874	0.7480	0.3259	4.7700e-003		0.0604	0.0604		0.0604	0.0604		953.4435	953.4435	0.0183	0.0175	959.1093

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	lb/day										lb/day					
Apartments High Rise	7916.87	0.0854	0.7296	0.3105	4.6600e-003		0.0590	0.0590		0.0590	0.0590		931.3967	931.3967	0.0179	0.0171	936.9316
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
Other Non-Asphalt Surfaces	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
Parking Lot	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
Strip Mall	187.397	2.0200e-003	0.0184	0.0154	1.1000e-004		1.4000e-003	1.4000e-003		1.4000e-003	1.4000e-003		22.0467	22.0467	4.2000e-004	4.0000e-004	22.1778
Total		**0.0874**	**0.7480**	**0.3259**	**4.7700e-003**		**0.0604**	**0.0604**		**0.0604**	**0.0604**		**953.4435**	**953.4435**	**0.0183**	**0.0175**	**959.1093**

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	lb/day										lb/day					
Apartments High Rise	7.91687	0.0854	0.7296	0.3105	4.6600e-003		0.0590	0.0590		0.0590	0.0590		931.3967	931.3967	0.0179	0.0171	936.9316
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
Other Non-Asphalt Surfaces	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
Parking Lot	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
Strip Mall	0.187397	2.0200e-003	0.0184	0.0154	1.1000e-004		1.4000e-003	1.4000e-003		1.4000e-003	1.4000e-003		22.0467	22.0467	4.2000e-004	4.0000e-004	22.1778
Total		**0.0874**	**0.7480**	**0.3259**	**4.7700e-003**		**0.0604**	**0.0604**		**0.0604**	**0.0604**		**953.4435**	**953.4435**	**0.0183**	**0.0175**	**959.1093**

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	lb/day										lb/day					
Mitigated	8.4701	0.3262	28.3150	1.5000e-003		0.1569	0.1569		0.1569	0.1569	0.0000	51.0155	51.0155	0.0491	0.0000	52.2418
Unmitigated	8.4701	0.3262	28.3150	1.5000e-003		0.1569	0.1569		0.1569	0.1569	0.0000	51.0155	51.0155	0.0491	0.0000	52.2418

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	lb/day										lb/day					
Architectural Coating	0.5697					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.0473					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	0.8532	0.3262	28.3150	1.5000e-003		0.1569	0.1569		0.1569	0.1569		51.0155	51.0155	0.0491		52.2418
Total	**8.4701**	**0.3262**	**28.3150**	**1.5000e-003**		**0.1569**	**0.1569**		**0.1569**	**0.1569**	**0.0000**	**51.0155**	**51.0155**	**0.0491**	**0.0000**	**52.2418**

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	lb/day										lb/day					
Architectural Coating	0.5697					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.0473					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	0.8532	0.3262	28.3150	1.5000e-003		0.1569	0.1569		0.1569	0.1569		51.0155	51.0155	0.0491		52.2418
Total	**8.4701**	**0.3262**	**28.3150**	**1.5000e-003**		**0.1569**	**0.1569**		**0.1569**	**0.1569**	**0.0000**	**51.0155**	**51.0155**	**0.0491**	**0.0000**	**52.2418**

10.0 Stationary Equipment

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	lb/day										lb/day					
Emergency Generator - Diesel (175 - 300 HP)	0.2199	0.6146	0.5607	1.0600e-003		0.0324	0.0324		0.0324	0.0324		112.4949	112.4949	0.0158		112.8892
Total	**0.2199**	**0.6146**	**0.5607**	**1.0600e-003**		**0.0324**	**0.0324**		**0.0324**	**0.0324**		**112.4949**	**112.4949**	**0.0158**		**112.8892**

CalEEMod Version: CalEEMod.2016.3.2

Date: 11/12/2020 11:26 AM

24th and Waverly Project
Bay Area AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	230.00	Space	0.00	101,385.00	0
Other Non-Asphalt Surfaces	33.72	1000sqft	0.00	33,722.00	0
Parking Lot	5.00	Space	0.00	2,000.00	0
Apartments High Rise	343.00	Dwelling Unit	0.00	312,043.00	720
Strip Mall	15.00	1000sqft	0.86	15,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	206	**CH4 Intensity (lb/MWhr)**	0.009	**N2O Intensity (lb/MWhr)**	0.002

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 24th and Waverly Project. BAAQMD. Updated CO2 intensity (PG&E Corporate Responsibility Report).

Land Use - Development of 343 residential units and 15,000 sf in retail on a 0.86 acre site. Number of residents adjusted to meet 2.1/du.

Construction Phase - Construction would begin June 2021.

Off-road Equipment - Default equipment assumed.

Off-road Equipment - Adjusted per applicant.

Off-road Equipment - Adjusted per applicant.

Off-road Equipment - Adjusted per applicant.

Off-road Equipment - Adjusted per applicant.

Off-road Equipment - Adjusted per applicant.

Trips and VMT - Adjusted trips per applicant.

Architectural Coating - Use of low-VOC (50 g/L) coatings.

Vehicle Trips - Updated trip generation rates per Traffic Impact Review.

Woodstoves - No wood burning devices.

Area Coating - Use of low-VOC (50 g/L) coatings.

Energy Use - Adjusted to meet 2019 Title 24 Standards.

Water And Wastewater - Default water use assumed.

Solid Waste - Default solid waste assumed.

Construction Off-road Equipment Mitigation - Assume compliance with BAAQMD BMPs - water twice daily. Use of Tier 4 equipment.

Mobile Land Use Mitigation - Project is located proximate to transit and would improve pedestrian network within project site.

Water Mitigation - Reduce water consumption by 20% per CalGreen.

Waste Mitigation - Assume 50% waste diverted consistent with AB 939.

Stationary Sources - Emergency Generators and Fire Pumps - Assume 200 KW emergency generator.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	50.00
tblArchitecturalCoating	EF_Residential_Interior	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	150	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblAreaCoating	Area_EF_Residential_Exterior	150	50
tblAreaCoating	Area_EF_Residential_Interior	100	50
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
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
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	5.00	238.00
tblConstructionPhase	NumDays	100.00	475.00
tblConstructionPhase	NumDays	10.00	25.00
tblConstructionPhase	NumDays	2.00	25.00
tblConstructionPhase	NumDays	5.00	10.00
tblConstructionPhase	NumDays	1.00	25.00
tblEnergyUse	T24E	426.45	417.92
tblEnergyUse	T24E	3.92	3.50
tblEnergyUse	T24E	2.24	2.00
tblEnergyUse	T24NG	6,115.43	5,809.66
tblEnergyUse	T24NG	3.90	3.86
tblFireplaces	FireplaceDayYear	11.14	0.00
tblFireplaces	FireplaceHourDay	3.50	0.00

tblFireplaces	FireplaceWoodMass	228.80	0.00
tblFireplaces	NumberGas	51.45	171.00
tblFireplaces	NumberNoFireplace	13.72	172.00
tblFireplaces	NumberWood	58.31	0.00
tblLandUse	LandUseSquareFeet	92,000.00	101,385.00
tblLandUse	LandUseSquareFeet	33,720.00	33,722.00
tblLandUse	LandUseSquareFeet	343,000.00	312,043.00
tblLandUse	LotAcreage	2.07	0.00
tblLandUse	LotAcreage	0.77	0.00
tblLandUse	LotAcreage	0.05	0.00
tblLandUse	LotAcreage	5.53	0.00
tblLandUse	LotAcreage	0.34	0.86
tblLandUse	Population	981.00	720.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
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tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Building Construction
tblOffRoadEquipment	PhaseName		Paving
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tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	4.00	8.00

tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.009
tblProjectCharacteristics	CO2IntensityFactor	641.35	206
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.002
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	268.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	0.50
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	HaulingTripNumber	0.00	50.00
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tblTripsAndVMT	HaulingTripNumber	0.00	400.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	62.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripNumber	13.00	8.00
tblTripsAndVMT	WorkerTripNumber	8.00	12.00
tblTripsAndVMT	WorkerTripNumber	15.00	8.00
tblTripsAndVMT	WorkerTripNumber	309.00	40.00
tblTripsAndVMT	WorkerTripNumber	62.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	5.00
tblVehicleTrips	ST_TR	4.98	3.34
tblVehicleTrips	ST_TR	42.04	18.61
tblVehicleTrips	SU_TR	3.65	2.45
tblVehicleTrips	SU_TR	20.43	9.05
tblVehicleTrips	WD_TR	4.20	2.82

tblVehicleTrips	WD_TR	44.32	19.62
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	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	6.86	0.00
tblWoodstoves	NumberNoncatalytic	6.86	0.00
tblWoodstoves	WoodstoveDayYear	14.12	0.00
tblWoodstoves	WoodstoveWoodMass	582.40	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2021	1.3670	13.9583	11.7699	0.0270	0.9041	0.6231	1.3202	0.4554	0.5869	0.8383	0.0000	2,645.6390	2,645.6390	0.7368	0.0000	2,664.0581
2022	10.2794	14.4423	13.0781	0.0303	0.5701	0.6464	1.2164	0.1542	0.6153	0.7695	0.0000	2,978.8751	2,978.8751	0.4174	0.0000	2,989.3104
2023	10.1561	12.9020	12.8335	0.0300	0.5886	0.5645	1.1531	0.1588	0.5372	0.6960	0.0000	2,947.2479	2,947.2479	0.4640	0.0000	2,957.4442
Maximum	**10.2794**	**14.4423**	**13.0781**	**0.0303**	**0.9041**	**0.6464**	**1.3202**	**0.4554**	**0.6153**	**0.8383**	**0.0000**	**2,978.8751**	**2,978.8751**	**0.7368**	**0.0000**	**2,989.3104**

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	lb/day										lb/day					
2021	0.5348	4.3080	14.9462	0.0270	0.5345	0.2032	0.5773	0.2278	0.1954	0.3111	0.0000	2,645.6390	2,645.6390	0.7368	0.0000	2,664.0581
2022	9.1957	3.2959	14.2141	0.0303	0.5701	0.0382	0.6082	0.1542	0.0378	0.1920	0.0000	2,978.8751	2,978.8751	0.4174	0.0000	2,989.3104
2023	9.1684	2.7633	14.0641	0.0300	0.5886	0.0690	0.6242	0.1588	0.0664	0.1940	0.0000	2,947.2479	2,947.2479	0.4640	0.0000	2,957.4442
Maximum	**9.1957**	**4.3080**	**14.9462**	**0.0303**	**0.5886**	**0.2032**	**0.6242**	**0.2278**	**0.1954**	**0.3111**	**0.0000**	**2,978.8751**	**2,978.8751**	**0.7368**	**0.0000**	**2,989.3104**

	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	**13.32**	**74.90**	**-14.71**	**0.00**	**17.92**	**83.07**	**50.95**	**29.62**	**82.78**	**69.74**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	lb/day										lb/day					
Area	8.4701	0.3262	28.3150	1.5000e-003		0.1569	0.1569		0.1569	0.1569	0.0000	51.0155	51.0155	0.0491	0.0000	52.2418
Energy	0.0874	0.7480	0.3259	4.7700e-003		0.0604	0.0604		0.0604	0.0604		953.4435	953.4435	0.0183	0.0175	959.1093
Mobile	1.6317	7.5785	19.0272	0.0684	6.5830	0.0567	6.6397	1.7610	0.0529	1.8139		6,930.8418	6,930.8418	0.2479		6,937.0387
Stationary	0.2199	0.6146	0.5607	1.0600e-003		0.0324	0.0324		0.0324	0.0324		112.4949	112.4949	0.0158		112.8892
Total	**10.4092**	**9.2672**	**48.2288**	**0.0757**	**6.5830**	**0.3063**	**6.8893**	**1.7610**	**0.3025**	**2.0635**	**0.0000**	**8,047.7957**	**8,047.7957**	**0.3310**	**0.0175**	**8,061.2790**

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	lb/day										lb/day					
Area	8.4701	0.3262	28.3150	1.5000e-003		0.1569	0.1569		0.1569	0.1569	0.0000	51.0155	51.0155	0.0491	0.0000	52.2418
Energy	0.0874	0.7480	0.3259	4.7700e-003		0.0604	0.0604		0.0604	0.0604		953.4435	953.4435	0.0183	0.0175	959.1093
Mobile	1.5020	6.7703	16.0197	0.0540	5.0811	0.0456	5.1267	1.3592	0.0425	1.4017		5,473.0119	5,473.0119	0.2087		5,478.2285
Stationary	0.2199	0.6146	0.5607	1.0600e-003		0.0324	0.0324		0.0324	0.0324		112.4949	112.4949	0.0158		112.8892
Total	**10.2794**	**8.4590**	**45.2213**	**0.0613**	**5.0811**	**0.2952**	**5.3763**	**1.3592**	**0.2921**	**1.6513**	**0.0000**	**6,589.9658**	**6,589.9658**	**0.2918**	**0.0175**	**6,602.4688**

	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	**1.25**	**8.72**	**6.24**	**19.02**	**22.81**	**3.63**	**21.96**	**22.81**	**3.44**	**19.97**	**0.00**	**18.11**	**18.11**	**11.85**	**0.00**	**18.10**

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	6/1/2021	7/5/2021	5	25	
2	Shoring	Site Preparation	7/6/2021	8/9/2021	5	25	
3	Grading	Grading	8/10/2021	9/13/2021	5	25	
4	Building Construction	Building Construction	9/14/2021	7/10/2023	5	475	
5	Architectural Coating	Architectural Coating	9/12/2022	8/9/2023	5	238	
6	Paving	Paving	8/10/2023	8/23/2023	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 631,887; Residential Outdoor: 210,629; Non-Residential Indoor: 22,500; Non-Residential Outdoor: 7,500; Striped

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	1	8.00	158	0.38
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Shoring	Bore/Drill Rigs	1	8.00	221	0.50
Grading	Bore/Drill Rigs	1	8.00	221	0.50
Grading	Excavators	2	8.00	158	0.38
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Architectural Coating	Air Compressors	1	8.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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	5	8.00	0.00	50.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Shoring	3	12.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	8.00	8.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	40.00	20.00	400.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	5.00	3.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Demolition - 2021

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	lb/day										lb/day					
Off-Road	0.9886	8.9829	11.4663	0.0176		0.5011	0.5011		0.4749	0.4749		1,694.6568	1,694.6568	0.3908		1,704.4273
Total	**0.9886**	**8.9829**	**11.4663**	**0.0176**		**0.5011**	**0.5011**		**0.4749**	**0.4749**		**1,694.6568**	**1,694.6568**	**0.3908**		**1,704.4273**

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	lb/day										lb/day					
Hauling	0.0160	0.5416	0.1198	1.5400e-003	0.0349	1.6900e-003	0.0366	9.5800e-003	1.6200e-003	0.0112		165.1421	165.1421	8.7400e-003		165.3606
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
Worker	0.0273	0.0186	0.1839	5.9000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		58.3629	58.3629	1.3200e-003		58.3960
Total	**0.0433**	**0.5601**	**0.3036**	**2.1300e-003**	**0.1007**	**2.1000e-003**	**0.1028**	**0.0270**	**2.0000e-003**	**0.0290**		**223.5051**	**223.5051**	**0.0101**		**223.7566**

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	lb/day										lb/day					
Off-Road	0.4916	3.7479	12.2981	0.0176		0.2011	0.2011		0.1934	0.1934	0.0000	1,694.6568	1,694.6568	0.3908		1,704.4273
Total	**0.4916**	**3.7479**	**12.2981**	**0.0176**		**0.2011**	**0.2011**		**0.1934**	**0.1934**	**0.0000**	**1,694.6568**	**1,694.6568**	**0.3908**		**1,704.4273**

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	lb/day										lb/day					
Hauling	0.0160	0.5416	0.1198	1.5400e-003	0.0349	1.6900e-003	0.0366	9.5800e-003	1.6200e-003	0.0112		165.1421	165.1421	8.7400e-003		165.3606
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
Worker	0.0273	0.0186	0.1839	5.9000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		58.3629	58.3629	1.3200e-003		58.3960
Total	**0.0433**	**0.5601**	**0.3036**	**2.1300e-003**	**0.1007**	**2.1000e-003**	**0.1028**	**0.0270**	**2.0000e-003**	**0.0290**		**223.5051**	**223.5051**	**0.0101**		**223.7566**

3.3 Shoring - 2021

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	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.2582	3.0228	2.0740	9.4300e-003		0.0916	0.0916		0.0843	0.0843		912.0624	912.0624	0.2950		919.4369
Total	**0.2582**	**3.0228**	**2.0740**	**9.4300e-003**	**0.5303**	**0.0916**	**0.6219**	**0.0573**	**0.0843**	**0.1416**		**912.0624**	**912.0624**	**0.2950**		**919.4369**

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	lb/day										lb/day					
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
Vendor	6.5700e-003	0.2085	0.0560	5.3000e-004	0.0135	4.6000e-004	0.0140	3.9000e-003	4.4000e-004	4.3400e-003		56.3254	56.3254	2.9300e-003		56.3988
Worker	0.0409	0.0279	0.2758	8.8000e-004	0.0986	6.2000e-004	0.0992	0.0262	5.7000e-004	0.0267		87.5444	87.5444	1.9800e-003		87.5939
Total	**0.0475**	**0.2363**	**0.3318**	**1.4100e-003**	**0.1121**	**1.0800e-003**	**0.1132**	**0.0301**	**1.0100e-003**	**0.0311**		**143.8698**	**143.8698**	**4.9100e-003**		**143.9927**

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	lb/day										lb/day					
Fugitive Dust					0.2386	0.0000	0.2386	0.0258	0.0000	0.0258			0.0000			0.0000
Off-Road	0.1169	0.5067	4.2876	9.4300e-003		0.0156	0.0156		0.0156	0.0156	0.0000	912.0624	912.0624	0.2950		919.4369
Total	**0.1169**	**0.5067**	**4.2876**	**9.4300e-003**	**0.2386**	**0.0156**	**0.2542**	**0.0258**	**0.0156**	**0.0414**	**0.0000**	**912.0624**	**912.0624**	**0.2950**		**919.4369**

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	lb/day										lb/day					
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
Vendor	6.5700e-003	0.2085	0.0560	5.3000e-004	0.0135	4.6000e-004	0.0140	3.9000e-003	4.4000e-004	4.3400e-003		56.3254	56.3254	2.9300e-003		56.3988
Worker	0.0409	0.0279	0.2758	8.8000e-004	0.0986	6.2000e-004	0.0992	0.0262	5.7000e-004	0.0267		87.5444	87.5444	1.9800e-003		87.5939
Total	**0.0475**	**0.2363**	**0.3318**	**1.4100e-003**	**0.1121**	**1.0800e-003**	**0.1132**	**0.0301**	**1.0100e-003**	**0.0311**		**143.8698**	**143.8698**	**4.9100e-003**		**143.9927**

3.4 Grading - 2021

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	lb/day										lb/day					
Fugitive Dust					0.7528	0.0000	0.7528	0.4138	0.0000	0.4138			0.0000			0.0000
Off-Road	0.9038	9.2254	10.8778	0.0229		0.4123	0.4123		0.3793	0.3793		2,213.3464	2,213.3464	0.7158		2,231.2425
Total	**0.9038**	**9.2254**	**10.8778**	**0.0229**	**0.7528**	**0.4123**	**1.1651**	**0.4138**	**0.3793**	**0.7931**		**2,213.3464**	**2,213.3464**	**0.7158**		**2,231.2425**

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	lb/day										lb/day					
Hauling	0.0144	0.4874	0.1078	1.3900e-003	0.0315	1.5200e-003	0.0330	8.6200e-003	1.4500e-003	0.0101		148.6279	148.6279	7.8700e-003		148.8246
Vendor	0.0263	0.8338	0.2241	2.1300e-003	0.0542	1.8500e-003	0.0560	0.0156	1.7700e-003	0.0174		225.3017	225.3017	0.0117		225.5952
Worker	0.0273	0.0186	0.1839	5.9000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		58.3629	58.3629	1.3200e-003		58.3960
Total	**0.0679**	**1.3398**	**0.5157**	**4.1100e-003**	**0.1513**	**3.7800e-003**	**0.1551**	**0.0416**	**3.6000e-003**	**0.0452**		**432.2926**	**432.2926**	**0.0209**		**432.8157**

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	lb/day										lb/day					
Fugitive Dust					0.3387	0.0000	0.3387	0.1862	0.0000	0.1862			0.0000			0.0000
Off-Road	0.3462	1.9664	14.4305	0.0229		0.0835	0.0835		0.0796	0.0796	0.0000	2,213.3464	2,213.3464	0.7158		2,231.2425
Total	**0.3462**	**1.9664**	**14.4305**	**0.0229**	**0.3387**	**0.0835**	**0.4222**	**0.1862**	**0.0796**	**0.2658**	**0.0000**	**2,213.3464**	**2,213.3464**	**0.7158**		**2,231.2425**

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	lb/day										lb/day					
Hauling	0.0144	0.4874	0.1078	1.3900e-003	0.0315	1.5200e-003	0.0330	8.6200e-003	1.4500e-003	0.0101		148.6279	148.6279	7.8700e-003		148.8246
Vendor	0.0263	0.8338	0.2241	2.1300e-003	0.0542	1.8500e-003	0.0560	0.0156	1.7700e-003	0.0174		225.3017	225.3017	0.0117		225.5952
Worker	0.0273	0.0186	0.1839	5.9000e-004	0.0657	4.1000e-004	0.0661	0.0174	3.8000e-004	0.0178		58.3629	58.3629	1.3200e-003		58.3960
Total	**0.0679**	**1.3398**	**0.5157**	**4.1100e-003**	**0.1513**	**3.7800e-003**	**0.1551**	**0.0416**	**3.6000e-003**	**0.0452**		**432.2926**	**432.2926**	**0.0209**		**432.8157**

3.5 Building Construction - 2021

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	lb/day										lb/day					
Off-Road	1.1583	11.5529	9.1711	0.0169		0.6157	0.6157		0.5799	0.5799		1,625.8658	1,625.8658	0.3561		1,634.7691
Total	**1.1583**	**11.5529**	**9.1711**	**0.0169**		**0.6157**	**0.6157**		**0.5799**	**0.5799**		**1,625.8658**	**1,625.8658**	**0.3561**		**1,634.7691**

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	lb/day										lb/day					
Hauling	6.7400e-003	0.2280	0.0504	6.5000e-004	0.0705	7.1000e-004	0.0712	0.0177	6.8000e-004	0.0184		69.5335	69.5335	3.6800e-003		69.6255
Vendor	0.0657	2.0846	0.5602	5.3200e-003	0.1354	4.6300e-003	0.1400	0.0390	4.4300e-003	0.0434		563.2543	563.2543	0.0293		563.9879
Worker	0.1363	0.0928	0.9193	2.9300e-003	0.3286	2.0700e-003	0.3307	0.0872	1.9000e-003	0.0891		291.8147	291.8147	6.6000e-003		291.9797
Total	**0.2087**	**2.4055**	**1.5299**	**8.9000e-003**	**0.5345**	**7.4100e-003**	**0.5419**	**0.1439**	**7.0100e-003**	**0.1509**		**924.6025**	**924.6025**	**0.0396**		**925.5932**

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	lb/day										lb/day					
Off-Road	0.1932	0.8371	10.1404	0.0169		0.0258	0.0258		0.0258	0.0258	0.0000	1,625.8658	1,625.8658	0.3561		1,634.7691
Total	**0.1932**	**0.8371**	**10.1404**	**0.0169**		**0.0258**	**0.0258**		**0.0258**	**0.0258**	**0.0000**	**1,625.8658**	**1,625.8658**	**0.3561**		**1,634.7691**

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	lb/day										lb/day					
Hauling	6.7400e-003	0.2280	0.0504	6.5000e-004	0.0705	7.1000e-004	0.0712	0.0177	6.8000e-004	0.0184		69.5335	69.5335	3.6800e-003		69.6255
Vendor	0.0657	2.0846	0.5602	5.3200e-003	0.1354	4.6300e-003	0.1400	0.0390	4.4300e-003	0.0434		563.2543	563.2543	0.0293		563.9879
Worker	0.1363	0.0928	0.9193	2.9300e-003	0.3286	2.0700e-003	0.3307	0.0872	1.9000e-003	0.0891		291.8147	291.8147	6.6000e-003		291.9797
Total	**0.2087**	**2.4055**	**1.5299**	**8.9000e-003**	**0.5345**	**7.4100e-003**	**0.5419**	**0.1439**	**7.0100e-003**	**0.1509**		**924.6025**	**924.6025**	**0.0396**		**925.5932**

3.5 Building Construction - 2022

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	lb/day										lb/day					
Off-Road	1.0438	10.2772	9.0295	0.0169		0.5303	0.5303		0.4996	0.4996		1,625.9574	1,625.9574	0.3540		1,634.8066
Total	**1.0438**	**10.2772**	**9.0295**	**0.0169**		**0.5303**	**0.5303**		**0.4996**	**0.4996**		**1,625.9574**	**1,625.9574**	**0.3540**		**1,634.8066**

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	lb/day										lb/day					
Hauling	6.3500e-003	0.2095	0.0494	6.4000e-004	0.0239	6.1000e-004	0.0245	6.2900e-003	5.8000e-004	6.8700e-003		68.5798	68.5798	3.5900e-003		68.6696
Vendor	0.0613	1.9736	0.5266	5.2600e-003	0.1354	4.0200e-003	0.1394	0.0390	3.8500e-003	0.0428		557.6778	557.6778	0.0280		558.3786
Worker	0.1272	0.0832	0.8436	2.8200e-003	0.3286	2.0200e-003	0.3306	0.0872	1.8600e-003	0.0890		281.1168	281.1168	5.9100e-003		281.2646
Total	**0.1948**	**2.2663**	**1.4196**	**8.7200e-003**	**0.4879**	**6.6500e-003**	**0.4946**	**0.1324**	**6.2900e-003**	**0.1387**		**907.3745**	**907.3745**	**0.0375**		**908.3128**

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	lb/day										lb/day					
Off-Road	0.1932	0.8371	10.1404	0.0169		0.0258	0.0258		0.0258	0.0258	0.0000	1,625.9574	1,625.9574	0.3540		1,634.8066
Total	**0.1932**	**0.8371**	**10.1404**	**0.0169**		**0.0258**	**0.0258**		**0.0258**	**0.0258**	**0.0000**	**1,625.9574**	**1,625.9574**	**0.3540**		**1,634.8066**

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	lb/day										lb/day					
Hauling	6.3500e-003	0.2095	0.0494	6.4000e-004	0.0239	6.1000e-004	0.0245	6.2900e-003	5.8000e-004	6.8700e-003		68.5798	68.5798	3.5900e-003		68.6696
Vendor	0.0613	1.9736	0.5266	5.2600e-003	0.1354	4.0200e-003	0.1394	0.0390	3.8500e-003	0.0428		557.6778	557.6778	0.0280		558.3786
Worker	0.1272	0.0832	0.8436	2.8200e-003	0.3286	2.0200e-003	0.3306	0.0872	1.8600e-003	0.0890		281.1168	281.1168	5.9100e-003		281.2646
Total	**0.1948**	**2.2663**	**1.4196**	**8.7200e-003**	**0.4879**	**6.6500e-003**	**0.4946**	**0.1324**	**6.2900e-003**	**0.1387**		**907.3745**	**907.3745**	**0.0375**		**908.3128**

3.5 Building Construction - 2023

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	lb/day										lb/day					
Off-Road	0.9649	9.4101	8.9382	0.0169		0.4655	0.4655		0.4385	0.4385		1,625.9463	1,625.9463	0.3518		1,634.7406
Total	**0.9649**	**9.4101**	**8.9382**	**0.0169**		**0.4655**	**0.4655**		**0.4385**	**0.4385**		**1,625.9463**	**1,625.9463**	**0.3518**		**1,634.7406**

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	lb/day										lb/day					
Hauling	4.3400e-003	0.1399	0.0445	6.1000e-004	0.0425	2.5000e-004	0.0427	0.0108	2.4000e-004	0.0111		65.9664	65.9664	3.2200e-003		66.0469
Vendor	0.0461	1.5211	0.4676	5.1100e-003	0.1354	1.8000e-003	0.1372	0.0390	1.7200e-003	0.0407		542.1321	542.1321	0.0238		542.7270
Worker	0.1191	0.0748	0.7747	2.7100e-003	0.3286	1.9800e-003	0.3306	0.0872	1.8200e-003	0.0890		270.3513	270.3513	5.2900e-003		270.4835
Total	**0.1695**	**1.7358**	**1.2868**	**8.4300e-003**	**0.5065**	**4.0300e-003**	**0.5105**	**0.1370**	**3.7800e-003**	**0.1408**		**878.4497**	**878.4497**	**0.0323**		**879.2574**

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	lb/day										lb/day					
Off-Road	0.1932	0.8371	10.1404	0.0169		0.0258	0.0258		0.0258	0.0258	0.0000	1,625.9463	1,625.9463	0.3518		1,634.7406
Total	**0.1932**	**0.8371**	**10.1404**	**0.0169**		**0.0258**	**0.0258**		**0.0258**	**0.0258**	**0.0000**	**1,625.9463**	**1,625.9463**	**0.3518**		**1,634.7406**

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	lb/day										lb/day					
Hauling	4.3400e-003	0.1399	0.0445	6.1000e-004	0.0425	2.5000e-004	0.0427	0.0108	2.4000e-004	0.0111		65.9664	65.9664	3.2200e-003		66.0469
Vendor	0.0461	1.5211	0.4676	5.1100e-003	0.1354	1.8000e-003	0.1372	0.0390	1.7200e-003	0.0407		542.1321	542.1321	0.0238		542.7270
Worker	0.1191	0.0748	0.7747	2.7100e-003	0.3286	1.9800e-003	0.3306	0.0872	1.8200e-003	0.0890		270.3513	270.3513	5.2900e-003		270.4835
Total	**0.1695**	**1.7358**	**1.2868**	**8.4300e-003**	**0.5065**	**4.0300e-003**	**0.5105**	**0.1370**	**3.7800e-003**	**0.1408**		**878.4497**	**878.4497**	**0.0323**		**879.2574**

3.6 Architectural Coating - 2022

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	lb/day										lb/day					
Archit. Coating	8.7363					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2727	1.8780	2.4181	3.9600e-003		0.1090	0.1090		0.1090	0.1090		375.2641	375.2641	0.0244		375.8749
Total	**9.0091**	**1.8780**	**2.4181**	**3.9600e-003**		**0.1090**	**0.1090**		**0.1090**	**0.1090**		**375.2641**	**375.2641**	**0.0244**		**375.8749**

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	lb/day										lb/day					
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
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
Worker	0.0318	0.0208	0.2109	7.0000e-004	0.0822	5.0000e-004	0.0827	0.0218	4.6000e-004	0.0223		70.2792	70.2792	1.4800e-003		70.3162
Total	**0.0318**	**0.0208**	**0.2109**	**7.0000e-004**	**0.0822**	**5.0000e-004**	**0.0827**	**0.0218**	**4.6000e-004**	**0.0223**		**70.2792**	**70.2792**	**1.4800e-003**		**70.3162**

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	lb/day										lb/day					
Archit. Coating	8.7363					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0396	0.1717	2.4432	3.9600e-003		5.2800e-003	5.2800e-003		5.2800e-003	5.2800e-003	0.0000	375.2641	375.2641	0.0244		375.8749
Total	**8.7760**	**0.1717**	**2.4432**	**3.9600e-003**		**5.2800e-003**	**5.2800e-003**		**5.2800e-003**	**5.2800e-003**	**0.0000**	**375.2641**	**375.2641**	**0.0244**		**375.8749**

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	lb/day										lb/day					
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
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
Worker	0.0318	0.0208	0.2109	7.0000e-004	0.0822	5.0000e-004	0.0827	0.0218	4.6000e-004	0.0223		70.2792	70.2792	1.4800e-003		70.3162
Total	**0.0318**	**0.0208**	**0.2109**	**7.0000e-004**	**0.0822**	**5.0000e-004**	**0.0827**	**0.0218**	**4.6000e-004**	**0.0223**		**70.2792**	**70.2792**	**1.4800e-003**		**70.3162**

3.6 Architectural Coating - 2023

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	lb/day										lb/day					
Archit. Coating	8.7363					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2556	1.7373	2.4148	3.9600e-003		0.0944	0.0944		0.0944	0.0944		375.2641	375.2641	0.0225		375.8253
Total	**8.9919**	**1.7373**	**2.4148**	**3.9600e-003**		**0.0944**	**0.0944**		**0.0944**	**0.0944**		**375.2641**	**375.2641**	**0.0225**		**375.8253**

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	lb/day										lb/day					
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
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
Worker	0.0298	0.0187	0.1937	6.8000e-004	0.0822	4.9000e-004	0.0826	0.0218	4.6000e-004	0.0222		67.5878	67.5878	1.3200e-003		67.6209
Total	**0.0298**	**0.0187**	**0.1937**	**6.8000e-004**	**0.0822**	**4.9000e-004**	**0.0826**	**0.0218**	**4.6000e-004**	**0.0222**		**67.5878**	**67.5878**	**1.3200e-003**		**67.6209**

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	lb/day										lb/day					
Archit. Coating	8.7363					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0396	0.1717	2.4432	3.9600e-003		5.2800e-003	5.2800e-003		5.2800e-003	5.2800e-003	0.0000	375.2641	375.2641	0.0225		375.8253
Total	**8.7760**	**0.1717**	**2.4432**	**3.9600e-003**		**5.2800e-003**	**5.2800e-003**		**5.2800e-003**	**5.2800e-003**	**0.0000**	**375.2641**	**375.2641**	**0.0225**		**375.8253**

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	lb/day										lb/day					
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
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
Worker	0.0298	0.0187	0.1937	6.8000e-004	0.0822	4.9000e-004	0.0826	0.0218	4.6000e-004	0.0222		67.5878	67.5878	1.3200e-003		67.6209
Total	**0.0298**	**0.0187**	**0.1937**	**6.8000e-004**	**0.0822**	**4.9000e-004**	**0.0826**	**0.0218**	**4.6000e-004**	**0.0222**		**67.5878**	**67.5878**	**1.3200e-003**		**67.6209**

3.7 Paving - 2023

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	lb/day										lb/day					
Off-Road	0.7265	6.9997	9.8318	0.0152		0.3452	0.3452		0.3188	0.3188		1,455.8849	1,455.8849	0.4598		1,467.3791
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7265**	**6.9997**	**9.8318**	**0.0152**		**0.3452**	**0.3452**		**0.3188**	**0.3188**		**1,455.8849**	**1,455.8849**	**0.4598**		**1,467.3791**

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	lb/day										lb/day					
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
Vendor	6.9100e-003	0.2282	0.0701	7.7000e-004	0.0203	2.7000e-004	0.0206	5.8500e-003	2.6000e-004	6.1000e-003		81.3198	81.3198	3.5700e-003		81.4091
Worker	0.0149	9.3500e-003	0.0968	3.4000e-004	0.0411	2.5000e-004	0.0413	0.0109	2.3000e-004	0.0111		33.7939	33.7939	6.6000e-004		33.8104
Total	**0.0218**	**0.2375**	**0.1670**	**1.1100e-003**	**0.0614**	**5.2000e-004**	**0.0619**	**0.0167**	**4.9000e-004**	**0.0172**		**115.1137**	**115.1137**	**4.2300e-003**		**115.2195**

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	lb/day										lb/day					
Off-Road	0.2857	1.7300	11.2506	0.0152		0.0685	0.0685		0.0659	0.0659	0.0000	1,455.8849	1,455.8849	0.4598		1,467.3791
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.2857**	**1.7300**	**11.2506**	**0.0152**		**0.0685**	**0.0685**		**0.0659**	**0.0659**	**0.0000**	**1,455.8849**	**1,455.8849**	**0.4598**		**1,467.3791**

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	lb/day										lb/day					
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
Vendor	6.9100e-003	0.2282	0.0701	7.7000e-004	0.0203	2.7000e-004	0.0206	5.8500e-003	2.6000e-004	6.1000e-003		81.3198	81.3198	3.5700e-003		81.4091
Worker	0.0149	9.3500e-003	0.0968	3.4000e-004	0.0411	2.5000e-004	0.0413	0.0109	2.3000e-004	0.0111		33.7939	33.7939	6.6000e-004		33.8104
Total	**0.0218**	**0.2375**	**0.1670**	**1.1100e-003**	**0.0614**	**5.2000e-004**	**0.0619**	**0.0167**	**4.9000e-004**	**0.0172**		**115.1137**	**115.1137**	**4.2300e-003**		**115.2195**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	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	lb/day										lb/day					
Mitigated	1.5020	6.7703	16.0197	0.0540	5.0811	0.0456	5.1267	1.3592	0.0425	1.4017		5,473.0119	5,473.0119	0.2087		5,478.2285
Unmitigated	1.6317	7.5785	19.0272	0.0684	6.5830	0.0567	6.6397	1.7610	0.0529	1.8139		6,930.8418	6,930.8418	0.2479		6,937.0387

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	967.26	1,145.62	840.35	2,250,966	1,737,426
Enclosed Parking with Elevator	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Strip Mall	294.30	279.15	135.75	415,017	320,334
Total	1,261.56	1,424.77	976.10	2,665,983	2,057,760

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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments High Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments High Rise	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Enclosed Parking with Elevator	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Other Non-Asphalt Surfaces	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Parking Lot	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732
Strip Mall	0.580272	0.038274	0.193741	0.109917	0.015100	0.005324	0.018491	0.026678	0.002649	0.002134	0.005793	0.000896	0.000732

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	lb/day										lb/day					
NaturalGas Mitigated	0.0874	0.7480	0.3259	4.7700e-003		0.0604	0.0604		0.0604	0.0604		953.4435	953.4435	0.0183	0.0175	959.1093
NaturalGas Unmitigated	0.0874	0.7480	0.3259	4.7700e-003		0.0604	0.0604		0.0604	0.0604		953.4435	953.4435	0.0183	0.0175	959.1093

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	lb/day										lb/day					
Apartments High Rise	7916.87	0.0854	0.7296	0.3105	4.6600e-003		0.0590	0.0590		0.0590	0.0590		931.3967	931.3967	0.0179	0.0171	936.9316
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
Other Non-Asphalt Surfaces	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
Parking Lot	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
Strip Mall	187.397	2.0200e-003	0.0184	0.0154	1.1000e-004		1.4000e-003	1.4000e-003		1.4000e-003	1.4000e-003		22.0467	22.0467	4.2000e-004	4.0000e-004	22.1778
Total		**0.0874**	**0.7480**	**0.3259**	**4.7700e-003**		**0.0604**	**0.0604**		**0.0604**	**0.0604**		**953.4435**	**953.4435**	**0.0183**	**0.0175**	**959.1093**

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	lb/day										lb/day					
Apartments High Rise	7.91687	0.0854	0.7296	0.3105	4.6600e-003		0.0590	0.0590		0.0590	0.0590		931.3967	931.3967	0.0179	0.0171	936.9316
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
Other Non-Asphalt Surfaces	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
Parking Lot	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
Strip Mall	0.187397	2.0200e-003	0.0184	0.0154	1.1000e-004		1.4000e-003	1.4000e-003		1.4000e-003	1.4000e-003		22.0467	22.0467	4.2000e-004	4.0000e-004	22.1778
Total		**0.0874**	**0.7480**	**0.3259**	**4.7700e-003**		**0.0604**	**0.0604**		**0.0604**	**0.0604**		**953.4435**	**953.4435**	**0.0183**	**0.0175**	**959.1093**

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	lb/day										lb/day					
Mitigated	8.4701	0.3262	28.3150	1.5000e-003		0.1569	0.1569		0.1569	0.1569	0.0000	51.0155	51.0155	0.0491	0.0000	52.2418
Unmitigated	8.4701	0.3262	28.3150	1.5000e-003		0.1569	0.1569		0.1569	0.1569	0.0000	51.0155	51.0155	0.0491	0.0000	52.2418

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	lb/day										lb/day					
Architectural Coating	0.5697					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.0473					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	0.8532	0.3262	28.3150	1.5000e-003		0.1569	0.1569		0.1569	0.1569		51.0155	51.0155	0.0491		52.2418
Total	**8.4701**	**0.3262**	**28.3150**	**1.5000e-003**		**0.1569**	**0.1569**		**0.1569**	**0.1569**	**0.0000**	**51.0155**	**51.0155**	**0.0491**	**0.0000**	**52.2418**

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	lb/day										lb/day					
Architectural Coating	0.5697					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.0473					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	0.8532	0.3262	28.3150	1.5000e-003		0.1569	0.1569		0.1569	0.1569		51.0155	51.0155	0.0491		52.2418
Total	**8.4701**	**0.3262**	**28.3150**	**1.5000e-003**		**0.1569**	**0.1569**		**0.1569**	**0.1569**	**0.0000**	**51.0155**	**51.0155**	**0.0491**	**0.0000**	**52.2418**

10.0 Stationary Equipment

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	lb/day										lb/day					
Emergency Generator - Diesel (175 - 300 HP)	0.2199	0.6146	0.5607	1.0600e-003		0.0324	0.0324		0.0324	0.0324		112.4949	112.4949	0.0158		112.8892
Total	**0.2199**	**0.6146**	**0.5607**	**1.0600e-003**		**0.0324**	**0.0324**		**0.0324**	**0.0324**		**112.4949**	**112.4949**	**0.0158**		**112.8892**

CalEEMod Version: CalEEMod.2016.3.2

Date: 11/10/2020 11:01 AM

24th and Waverly Project - Construction HRA
Bay Area AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	230.00	Space	0.00	101,385.00	0
Other Non-Asphalt Surfaces	33.72	1000sqft	0.00	33,722.00	0
Parking Lot	5.00	Space	0.00	2,000.00	0
Apartments High Rise	343.00	Dwelling Unit	0.00	312,043.00	720
Strip Mall	15.00	1000sqft	0.86	15,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2024
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	206	**CH4 Intensity (lb/MWhr)**	0.009	**N2O Intensity (lb/MWhr)**	0.002

1.3 User Entered Comments & Non-Default Data

Project Characteristics - 24th and Waverly Project. BAAQMD.

Land Use - Development of 343 residential units and 15,000 sf in retail on a 0.86 acre site.

Construction Phase - Construction would begin June 2021.

Off-road Equipment - Adjusted per applicant.

Off-road Equipment - Adjusted per applicant.

Off-road Equipment - Adjusted per applicant.

Off-road Equipment - Adjusted per applicant.

Off-road Equipment - Adjusted per applicant.

Off-road Equipment - Adjusted per applicant.

Off-road Equipment - Adjusted per applicant.

Trips and VMT - Adjusted trips per applicant and trip length to 0.19 miles. Only included vendor and haul trips.

Construction Off-road Equipment Mitigation - Use of Tier 4 equipment.

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
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

tblConstructionPhase	NumDays	10.00	25.00
tblConstructionPhase	NumDays	1.00	25.00
tblConstructionPhase	NumDays	2.00	25.00
tblConstructionPhase	NumDays	100.00	475.00
tblConstructionPhase	NumDays	5.00	238.00
tblConstructionPhase	NumDays	5.00	10.00
tblConstructionPhase	PhaseEndDate	6/14/2021	7/5/2021
tblConstructionPhase	PhaseEndDate	6/15/2021	8/9/2021
tblConstructionPhase	PhaseEndDate	6/17/2021	9/13/2021
tblConstructionPhase	PhaseEndDate	11/4/2021	7/10/2023
tblConstructionPhase	PhaseEndDate	11/18/2021	8/9/2023
tblConstructionPhase	PhaseEndDate	11/11/2021	8/23/2023
tblConstructionPhase	PhaseStartDate	6/15/2021	7/6/2021
tblConstructionPhase	PhaseStartDate	6/16/2021	8/10/2021
tblConstructionPhase	PhaseStartDate	6/18/2021	9/14/2021
tblConstructionPhase	PhaseStartDate	11/12/2021	9/12/2022
tblConstructionPhase	PhaseStartDate	11/5/2021	8/10/2023
tblLandUse	LandUseSquareFeet	92,000.00	101,385.00
tblLandUse	LandUseSquareFeet	33,720.00	33,722.00
tblLandUse	LandUseSquareFeet	343,000.00	312,043.00
tblLandUse	LotAcreage	2.07	0.00
tblLandUse	LotAcreage	0.77	0.00
tblLandUse	LotAcreage	0.05	0.00
tblLandUse	LotAcreage	5.53	0.00
tblLandUse	LotAcreage	0.34	0.86
tblLandUse	Population	981.00	720.00
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.36	0.36
tblOffRoadEquipment	LoadFactor	0.37	0.37

tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Paving Equipment
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
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tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.009
tblProjectCharacteristics	CO2IntensityFactor	641.35	206
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.002
tblTripsAndVMT	HaulingTripLength	20.00	0.19
tblTripsAndVMT	HaulingTripLength	20.00	0.19
tblTripsAndVMT	HaulingTripLength	20.00	0.19
tblTripsAndVMT	HaulingTripNumber	0.00	50.00
tblTripsAndVMT	HaulingTripNumber	0.00	45.00

tblTripsAndVMT	HaulingTripNumber	0.00	400.00
tblTripsAndVMT	VendorTripLength	7.30	0.19
tblTripsAndVMT	VendorTripLength	7.30	0.19
tblTripsAndVMT	VendorTripLength	7.30	0.19
tblTripsAndVMT	VendorTripLength	7.30	0.19
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tblTripsAndVMT	VendorTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	62.00	20.00
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	10.00	0.00
tblTripsAndVMT	WorkerTripNumber	309.00	0.00
tblTripsAndVMT	WorkerTripNumber	62.00	0.00
tblTripsAndVMT	WorkerTripNumber	13.00	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					
2021	0.0718	0.7613	0.6544	1.3200e-003	2.1000e-004	0.0355	0.0358	6.0000e-005	0.0334	0.0335	0.0000	115.6351	115.6351	0.0285	0.0000	116.3463
2022	0.9245	1.5738	1.3073	2.5200e-003	5.4000e-004	0.0734	0.0739	1.6000e-004	0.0694	0.0695	0.0000	220.9666	220.9666	0.0447	0.0000	222.0845
2023	1.6201	0.8872	0.8648	1.6200e-003	3.0000e-004	0.0409	0.0412	9.0000e-005	0.0389	0.0390	0.0000	141.7150	141.7150	0.0263	0.0000	142.3713
Maximum	**1.6201**	**1.5738**	**1.3073**	**2.5200e-003**	**5.4000e-004**	**0.0734**	**0.0739**	**1.6000e-004**	**0.0694**	**0.0695**	**0.0000**	**220.9666**	**220.9666**	**0.0447**	**0.0000**	**222.0845**

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					
2021	0.0161	0.1263	0.7770	1.3200e-003	2.1000e-004	1.9900e-003	2.2100e-003	6.0000e-005	1.9900e-003	2.0500e-003	0.0000	115.6350	115.6350	0.0285	0.0000	116.3462
2022	0.8046	0.2783	1.4527	2.5200e-003	5.4000e-004	3.6400e-003	4.1800e-003	1.6000e-004	3.6300e-003	3.8000e-003	0.0000	220.9663	220.9663	0.0447	0.0000	222.0843
2023	1.5481	0.1514	0.9561	1.6200e-003	3.0000e-004	2.3800e-003	2.6800e-003	9.0000e-005	2.3800e-003	2.4700e-003	0.0000	141.7149	141.7149	0.0263	0.0000	142.3712
Maximum	**1.5481**	**0.2783**	**1.4527**	**2.5200e-003**	**5.4000e-004**	**3.6400e-003**	**4.1800e-003**	**1.6000e-004**	**3.6300e-003**	**3.8000e-003**	**0.0000**	**220.9663**	**220.9663**	**0.0447**	**0.0000**	**222.0843**

	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	**9.46**	**82.75**	**-12.71**	**0.00**	**0.00**	**94.65**	**93.99**	**0.00**	**94.35**	**94.14**	**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	6/1/2021	7/5/2021	5	25	
2	Shoring	Site Preparation	7/6/2021	8/9/2021	5	25	
3	Grading	Grading	8/10/2021	9/13/2021	5	25	
4	Building Construction	Building Construction	9/14/2021	7/10/2023	5	475	
5	Architectural Coating	Architectural Coating	9/12/2022	8/9/2023	5	238	
6	Paving	Paving	8/10/2023	8/23/2023	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 631,887; Residential Outdoor: 210,629; Non-Residential Indoor: 22,500; Non-Residential Outdoor: 7,500; Striped

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Generator Sets	1	8.00	84	0.74
Shoring	Bore/Drill Rigs	1	8.00	221	0.50
Grading	Bore/Drill Rigs	1	8.00	221	0.50
Grading	Excavators	2	8.00	158	0.38
Paving	Paving Equipment	1	8.00	132	0.36
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Architectural Coating	Air Compressors	1	8.00	78	0.48
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Paving	Rollers	1	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Demolition	Excavators	1	8.00	158	0.38
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37

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	3	0.00	0.00	50.00	10.80	7.30	0.19	LD_Mix	HDT_Mix	HHDT
Shoring	1	0.00	2.00	0.00	10.80	0.19	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	0.00	8.00	45.00	10.80	0.19	0.19	LD_Mix	HDT_Mix	HHDT
Building Construction	5	0.00	20.00	400.00	10.80	0.19	0.19	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	0.00	3.00	0.00	10.80	0.19	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

3.2 Demolition - 2021

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	0.0100	0.0886	0.1152	1.8000e-004		4.8700e-003	4.8700e-003		4.6500e-003	4.6500e-003	0.0000	15.8195	15.8195	3.3300e-003	0.0000	15.9028
Total	**0.0100**	**0.0886**	**0.1152**	**1.8000e-004**		**4.8700e-003**	**4.8700e-003**		**4.6500e-003**	**4.6500e-003**	**0.0000**	**15.8195**	**15.8195**	**3.3300e-003**	**0.0000**	**15.9028**

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	4.0000e-005	2.3300e-003	3.4000e-004	0.0000	0.0000	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.2536	0.2536	4.0000e-005	0.0000	0.2545
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	0.0000	0.0000	0.0000	0.0000	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	**4.0000e-005**	**2.3300e-003**	**3.4000e-004**	**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2536**	**0.2536**	**4.0000e-005**	**0.0000**	**0.2545**

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	2.0500e-003	8.9000e-003	0.1266	1.8000e-004		2.7000e-004	2.7000e-004		2.7000e-004	2.7000e-004	0.0000	15.8194	15.8194	3.3300e-003	0.0000	15.9028
Total	**2.0500e-003**	**8.9000e-003**	**0.1266**	**1.8000e-004**		**2.7000e-004**	**2.7000e-004**		**2.7000e-004**	**2.7000e-004**	**0.0000**	**15.8194**	**15.8194**	**3.3300e-003**	**0.0000**	**15.9028**

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	4.0000e-005	2.3300e-003	3.4000e-004	0.0000	0.0000	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.2536	0.2536	4.0000e-005	0.0000	0.2545
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	0.0000	0.0000	0.0000	0.0000	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	**4.0000e-005**	**2.3300e-003**	**3.4000e-004**	**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.2536**	**0.2536**	**4.0000e-005**	**0.0000**	**0.2545**

3.3 Shoring - 2021

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	3.2400e-003	0.0380	0.0261	1.2000e-004		1.1500e-003	1.1500e-003		1.0600e-003	1.0600e-003	0.0000	10.3943	10.3943	3.3600e-003	0.0000	10.4784
Total	**3.2400e-003**	**0.0380**	**0.0261**	**1.2000e-004**		**1.1500e-003**	**1.1500e-003**		**1.0600e-003**	**1.0600e-003**	**0.0000**	**10.3943**	**10.3943**	**3.3600e-003**	**0.0000**	**10.4784**

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	4.0000e-005	1.5100e-003	3.7000e-004	0.0000	0.0000	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.1407	0.1407	2.0000e-005	0.0000	0.1411
Worker	0.0000	0.0000	0.0000	0.0000	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	**4.0000e-005**	**1.5100e-003**	**3.7000e-004**	**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1407**	**0.1407**	**2.0000e-005**	**0.0000**	**0.1411**

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	1.4700e-003	6.3700e-003	0.0539	1.2000e-004		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	10.3943	10.3943	3.3600e-003	0.0000	10.4784
Total	**1.4700e-003**	**6.3700e-003**	**0.0539**	**1.2000e-004**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**	**0.0000**	**10.3943**	**10.3943**	**3.3600e-003**	**0.0000**	**10.4784**

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	4.0000e-005	1.5100e-003	3.7000e-004	0.0000	0.0000	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.1407	0.1407	2.0000e-005	0.0000	0.1411
Worker	0.0000	0.0000	0.0000	0.0000	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	**4.0000e-005**	**1.5100e-003**	**3.7000e-004**	**0.0000**	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1407**	**0.1407**	**2.0000e-005**	**0.0000**	**0.1411**

3.4 Grading - 2021

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	0.0113	0.1157	0.1364	2.9000e-004		5.1700e-003	5.1700e-003		4.7500e-003	4.7500e-003	0.0000	25.1935	25.1935	8.1500e-003	0.0000	25.3972
Total	**0.0113**	**0.1157**	**0.1364**	**2.9000e-004**		**5.1700e-003**	**5.1700e-003**		**4.7500e-003**	**4.7500e-003**	**0.0000**	**25.1935**	**25.1935**	**8.1500e-003**	**0.0000**	**25.3972**

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	4.0000e-005	2.1000e-003	3.0000e-004	0.0000	0.0000	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.2282	0.2282	3.0000e-005	0.0000	0.2290
Vendor	1.4000e-004	6.0300e-003	1.4700e-003	1.0000e-005	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.5626	0.5626	8.0000e-005	0.0000	0.5646
Worker	0.0000	0.0000	0.0000	0.0000	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	**1.8000e-004**	**8.1300e-003**	**1.7700e-003**	**1.0000e-005**	**2.0000e-005**	**0.0000**	**3.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.7908**	**0.7908**	**1.1000e-004**	**0.0000**	**0.7936**

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	3.5400e-003	0.0153	0.1815	2.9000e-004		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	25.1935	25.1935	8.1500e-003	0.0000	25.3972
Total	**3.5400e-003**	**0.0153**	**0.1815**	**2.9000e-004**		**4.7000e-004**	**4.7000e-004**		**4.7000e-004**	**4.7000e-004**	**0.0000**	**25.1935**	**25.1935**	**8.1500e-003**	**0.0000**	**25.3972**

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	4.0000e-005	2.1000e-003	3.0000e-004	0.0000	0.0000	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.2282	0.2282	3.0000e-005	0.0000	0.2290
Vendor	1.4000e-004	6.0300e-003	1.4700e-003	1.0000e-005	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.5626	0.5626	8.0000e-005	0.0000	0.5646
Worker	0.0000	0.0000	0.0000	0.0000	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	**1.8000e-004**	**8.1300e-003**	**1.7700e-003**	**1.0000e-005**	**2.0000e-005**	**0.0000**	**3.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.7908**	**0.7908**	**1.1000e-004**	**0.0000**	**0.7936**

3.5 Building Construction - 2021

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	0.0458	0.4563	0.3623	6.7000e-004		0.0243	0.0243		0.0229	0.0229	0.0000	58.2610	58.2610	0.0128	0.0000	58.5800
Total	**0.0458**	**0.4563**	**0.3623**	**6.7000e-004**		**0.0243**	**0.0243**		**0.0229**	**0.0229**	**0.0000**	**58.2610**	**58.2610**	**0.0128**	**0.0000**	**58.5800**

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	6.0000e-005	3.1000e-003	4.5000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.3374	0.3374	5.0000e-005	0.0000	0.3386
Vendor	1.1300e-003	0.0476	0.0116	5.0000e-005	1.6000e-004	3.0000e-005	1.8000e-004	5.0000e-005	2.0000e-005	7.0000e-005	0.0000	4.4445	4.4445	6.3000e-004	0.0000	4.4602
Worker	0.0000	0.0000	0.0000	0.0000	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	**1.1900e-003**	**0.0507**	**0.0121**	**5.0000e-005**	**1.9000e-004**	**3.0000e-005**	**2.1000e-004**	**6.0000e-005**	**2.0000e-005**	**8.0000e-005**	**0.0000**	**4.7818**	**4.7818**	**6.8000e-004**	**0.0000**	**4.7988**

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	7.6300e-003	0.0331	0.4005	6.7000e-004		1.0200e-003	1.0200e-003		1.0200e-003	1.0200e-003	0.0000	58.2609	58.2609	0.0128	0.0000	58.5799
Total	**7.6300e-003**	**0.0331**	**0.4005**	**6.7000e-004**		**1.0200e-003**	**1.0200e-003**		**1.0200e-003**	**1.0200e-003**	**0.0000**	**58.2609**	**58.2609**	**0.0128**	**0.0000**	**58.5799**

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	6.0000e-005	3.1000e-003	4.5000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.3374	0.3374	5.0000e-005	0.0000	0.3386
Vendor	1.1300e-003	0.0476	0.0116	5.0000e-005	1.6000e-004	3.0000e-005	1.8000e-004	5.0000e-005	2.0000e-005	7.0000e-005	0.0000	4.4445	4.4445	6.3000e-004	0.0000	4.4602
Worker	0.0000	0.0000	0.0000	0.0000	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	**1.1900e-003**	**0.0507**	**0.0121**	**5.0000e-005**	**1.9000e-004**	**3.0000e-005**	**2.1000e-004**	**6.0000e-005**	**2.0000e-005**	**8.0000e-005**	**0.0000**	**4.7818**	**4.7818**	**6.8000e-004**	**0.0000**	**4.7988**

3.5 Building Construction - 2022

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	0.1357	1.3360	1.1738	2.2000e-003		0.0689	0.0689		0.0650	0.0650	0.0000	191.7557	191.7557	0.0417	0.0000	192.7993
Total	**0.1357**	**1.3360**	**1.1738**	**2.2000e-003**		**0.0689**	**0.0689**		**0.0650**	**0.0650**	**0.0000**	**191.7557**	**191.7557**	**0.0417**	**0.0000**	**192.7993**

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	1.8000e-004	9.8600e-003	1.4200e-003	1.0000e-005	3.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	1.0994	1.0994	1.5000e-004	0.0000	1.1031
Vendor	3.4200e-003	0.1527	0.0353	1.5000e-004	5.1000e-004	7.0000e-005	5.8000e-004	1.5000e-004	7.0000e-005	2.2000e-004	0.0000	14.4941	14.4941	1.9400e-003	0.0000	14.5426
Worker	0.0000	0.0000	0.0000	0.0000	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	**3.6000e-003**	**0.1626**	**0.0368**	**1.6000e-004**	**5.4000e-004**	**8.0000e-005**	**6.2000e-004**	**1.6000e-004**	**7.0000e-005**	**2.3000e-004**	**0.0000**	**15.5935**	**15.5935**	**2.0900e-003**	**0.0000**	**15.6457**

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	0.0251	0.1088	1.3183	2.2000e-003		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	191.7555	191.7555	0.0417	0.0000	192.7991
Total	**0.0251**	**0.1088**	**1.3183**	**2.2000e-003**		**3.3500e-003**	**3.3500e-003**		**3.3500e-003**	**3.3500e-003**	**0.0000**	**191.7555**	**191.7555**	**0.0417**	**0.0000**	**192.7991**

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	1.8000e-004	9.8600e-003	1.4200e-003	1.0000e-005	3.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	1.0994	1.0994	1.5000e-004	0.0000	1.1031
Vendor	3.4200e-003	0.1527	0.0353	1.5000e-004	5.1000e-004	7.0000e-005	5.8000e-004	1.5000e-004	7.0000e-005	2.2000e-004	0.0000	14.4941	14.4941	1.9400e-003	0.0000	14.5426
Worker	0.0000	0.0000	0.0000	0.0000	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	**3.6000e-003**	**0.1626**	**0.0368**	**1.6000e-004**	**5.4000e-004**	**8.0000e-005**	**6.2000e-004**	**1.6000e-004**	**7.0000e-005**	**2.3000e-004**	**0.0000**	**15.5935**	**15.5935**	**2.0900e-003**	**0.0000**	**15.6457**

3.5 Building Construction - 2023

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	0.0656	0.6399	0.6078	1.1500e-003		0.0317	0.0317		0.0298	0.0298	0.0000	100.3023	100.3023	0.0217	0.0000	100.8448
Total	**0.0656**	**0.6399**	**0.6078**	**1.1500e-003**		**0.0317**	**0.0317**		**0.0298**	**0.0298**	**0.0000**	**100.3023**	**100.3023**	**0.0217**	**0.0000**	**100.8448**

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	7.0000e-005	4.3700e-003	6.4000e-004	1.0000e-005	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.5527	0.5527	6.0000e-005	0.0000	0.5541
Vendor	1.4000e-003	0.0700	0.0165	8.0000e-005	2.7000e-004	2.0000e-005	2.9000e-004	8.0000e-005	2.0000e-005	1.0000e-004	0.0000	7.3058	7.3058	8.0000e-004	0.0000	7.3257
Worker	0.0000	0.0000	0.0000	0.0000	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	**1.4700e-003**	**0.0744**	**0.0171**	**9.0000e-005**	**3.0000e-004**	**2.0000e-005**	**3.2000e-004**	**9.0000e-005**	**2.0000e-005**	**1.1000e-004**	**0.0000**	**7.8585**	**7.8585**	**8.6000e-004**	**0.0000**	**7.8799**

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	0.0131	0.0569	0.6896	1.1500e-003		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003	0.0000	100.3022	100.3022	0.0217	0.0000	100.8447
Total	**0.0131**	**0.0569**	**0.6896**	**1.1500e-003**		**1.7500e-003**	**1.7500e-003**		**1.7500e-003**	**1.7500e-003**	**0.0000**	**100.3022**	**100.3022**	**0.0217**	**0.0000**	**100.8447**

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	7.0000e-005	4.3700e-003	6.4000e-004	1.0000e-005	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.5527	0.5527	6.0000e-005	0.0000	0.5541
Vendor	1.4000e-003	0.0700	0.0165	8.0000e-005	2.7000e-004	2.0000e-005	2.9000e-004	8.0000e-005	2.0000e-005	1.0000e-004	0.0000	7.3058	7.3058	8.0000e-004	0.0000	7.3257
Worker	0.0000	0.0000	0.0000	0.0000	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	**1.4700e-003**	**0.0744**	**0.0171**	**9.0000e-005**	**3.0000e-004**	**2.0000e-005**	**3.2000e-004**	**9.0000e-005**	**2.0000e-005**	**1.1000e-004**	**0.0000**	**7.8585**	**7.8585**	**8.6000e-004**	**0.0000**	**7.8799**

3.6 Architectural Coating - 2022

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	0.7743					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0109	0.0751	0.0967	1.6000e-004		4.3600e-003	4.3600e-003		4.3600e-003	4.3600e-003	0.0000	13.6174	13.6174	8.9000e-004	0.0000	13.6395
Total	**0.7852**	**0.0751**	**0.0967**	**1.6000e-004**		**4.3600e-003**	**4.3600e-003**		**4.3600e-003**	**4.3600e-003**	**0.0000**	**13.6174**	**13.6174**	**8.9000e-004**	**0.0000**	**13.6395**

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	0.0000	0.0000	0.0000	0.0000	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	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.7743					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5800e-003	6.8700e-003	0.0977	1.6000e-004		2.1000e-004	2.1000e-004		2.1000e-004	2.1000e-004	0.0000	13.6173	13.6173	8.9000e-004	0.0000	13.6395
Total	**0.7758**	**6.8700e-003**	**0.0977**	**1.6000e-004**		**2.1000e-004**	**2.1000e-004**		**2.1000e-004**	**2.1000e-004**	**0.0000**	**13.6173**	**13.6173**	**8.9000e-004**	**0.0000**	**13.6395**

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	0.0000	0.0000	0.0000	0.0000	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	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Architectural Coating - 2023

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	1.5292					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0202	0.1373	0.1908	3.1000e-004		7.4600e-003	7.4600e-003		7.4600e-003	7.4600e-003	0.0000	26.8943	26.8943	1.6100e-003	0.0000	26.9345
Total	**1.5493**	**0.1373**	**0.1908**	**3.1000e-004**		**7.4600e-003**	**7.4600e-003**		**7.4600e-003**	**7.4600e-003**	**0.0000**	**26.8943**	**26.8943**	**1.6100e-003**	**0.0000**	**26.9345**

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	0.0000	0.0000	0.0000	0.0000	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	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	1.5292					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1300e-003	0.0136	0.1930	3.1000e-004		4.2000e-004	4.2000e-004		4.2000e-004	4.2000e-004	0.0000	26.8942	26.8942	1.6100e-003	0.0000	26.9345
Total	**1.5323**	**0.0136**	**0.1930**	**3.1000e-004**		**4.2000e-004**	**4.2000e-004**		**4.2000e-004**	**4.2000e-004**	**0.0000**	**26.8942**	**26.8942**	**1.6100e-003**	**0.0000**	**26.9345**

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	0.0000	0.0000	0.0000	0.0000	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	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Paving - 2023

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	3.6200e-003	0.0349	0.0490	8.0000e-005		1.7200e-003	1.7200e-003		1.5900e-003	1.5900e-003	0.0000	6.5794	6.5794	2.0800e-003	0.0000	6.6314
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.6200e-003**	**0.0349**	**0.0490**	**8.0000e-005**		**1.7200e-003**	**1.7200e-003**		**1.5900e-003**	**1.5900e-003**	**0.0000**	**6.5794**	**6.5794**	**2.0800e-003**	**0.0000**	**6.6314**

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	2.0000e-005	7.7000e-004	1.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0806	0.0806	1.0000e-005	0.0000	0.0808
Worker	0.0000	0.0000	0.0000	0.0000	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	**2.0000e-005**	**7.7000e-004**	**1.8000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0806**	**0.0806**	**1.0000e-005**	**0.0000**	**0.0808**

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	1.1800e-003	5.6900e-003	0.0563	8.0000e-005		1.9000e-004	1.9000e-004		1.9000e-004	1.9000e-004	0.0000	6.5794	6.5794	2.0800e-003	0.0000	6.6314
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.1800e-003**	**5.6900e-003**	**0.0563**	**8.0000e-005**		**1.9000e-004**	**1.9000e-004**		**1.9000e-004**	**1.9000e-004**	**0.0000**	**6.5794**	**6.5794**	**2.0800e-003**	**0.0000**	**6.6314**

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	2.0000e-005	7.7000e-004	1.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0806	0.0806	1.0000e-005	0.0000	0.0808
Worker	0.0000	0.0000	0.0000	0.0000	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	**2.0000e-005**	**7.7000e-004**	**1.8000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0806**	**0.0806**	**1.0000e-005**	**0.0000**	**0.0808**

24th and Waverly

Construction HRA

Project Construction Emissions

	Unmitigated	Mitigated
Year	**DPM tons/year**	**DPM tons/year**
2021	0.0355	0.0020
2022	0.0734	0.0036
2023	0.0409	0.0024
Total	**0.150**	**0.008**
Total Lbs	**299.600**	**16.020**
Lbs/year	**134.871**	**7.212**
Lbs/hour	**0.06**	**0.003**

Conversions:

1 ton =	2,000	lb		
Construction =	8	hours/day	Project Construction:	582 days
	2096	hours/year		2.22 years
	262	days/year		
	12	months		

AERMOD Assumptions

Source Name	Description	No. of Vol. Sources	Emission Rate g/s	Release Height m	Plume Height m	Plume Width m
SLINE1	Construction	40	1.00	5.00	2.33	11.63

Receptor Grid

Name	Grid Size	Spacing
UCART1	1 km x 1 km	20 m

Meteorological Data

Station Name	Years	Lat	Long	Elev (m)
OAKLAND/WSO AP (23230)	2010-2014	37.75	122.2	1.8

Population

County	2010 Population
City of Oakland	390,765

Source: https://www.census.gov/quickfacts/santaclaracountycalifornia

Other Model Assumption

Terrain Data	NED 1/3
Lakes Version	9.6.5
AERMOD Version	18081

Results

	Maximally Exposed Individual Receptor - RECEPTOR 1677	
Cancer	69.30	5.31
Chronic	0.040	0.003
Acute	0.000	0.000

24th and Waverly Project

Operational HRA

Natural Gas Generator Parameters	Series	Power Rating (kW)	Power Rating (HP)	Fuel Consumption (ft3/hr)	Source Type	Building Height (feet)	Length (feet)	Width (feet)	Emission Rate (g/s)
Natural Gas Generator 1	C200D6D	200	268	111	Point	160	240	190	1

Notes:
Generator is located in east portion of project site in parking garage. Fuel consumption assumes 73% of rated load, similar to CalEEMod assumption

Project Operational Emissions

	Unmitigated
Year	**DPM tons/year**
Stationary Source	0.0016
Total	**0.002**
Total Lbs	**3.240**
Lbs/year	**3.240**
Lbs/hour	**0.06**

Conversions:

1 ton =	2,000	lb
Operations	50	hours/year

Maximally Exposed Resident	Cancer	Chronic
Receptor 1928 (277 27th Street Oakland, CA 94612)	2.59E+00	5.86E-04

Maximally Exposed Resident (Onsite)	Cancer	Chronic
Receptor 2779	7.23E-01	1.64E-04

Stationary Source Risk & Hazards Screening Report

Area of Interest (AOI) Information

Area : 3,134,508.78 ft²

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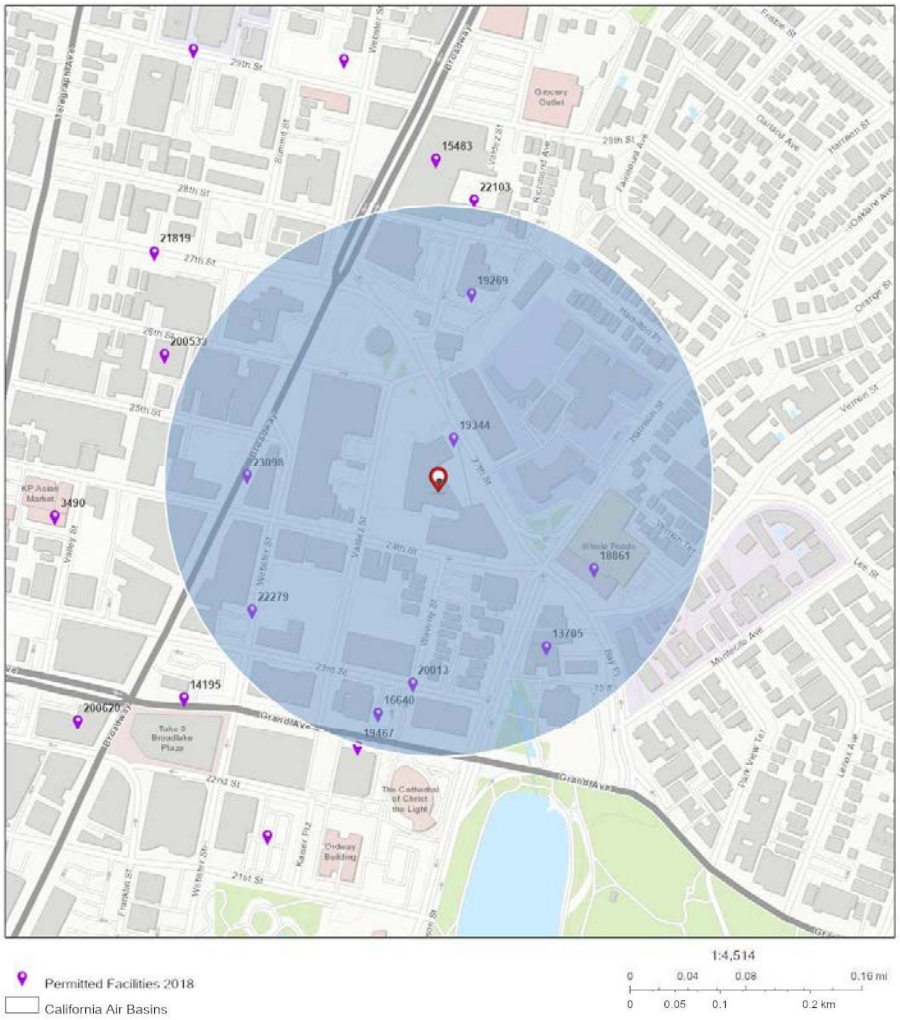

Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Facilities 2018	8	N/A	N/A

Permitted Facilities 2018

#	FACID	Name	Address	City	St
1	13705	Saint Pauls Tower	100 Bay Place	Oakland	CA
2	16640	Mach II 180 Grand LLC	180 Grand Avenue	Oakland	CA
3	18861	Whole Foods Market California	230 Bay Place	Oakland	CA
4	19269	West Lake Christian Terrace	275 28th Street	Oakland	CA
5	19344	VIP Auto Collision Repair	293 27th St	Oakland	CA
6	20013	Mpower Communications / Telepacific	23rd & Waverly St	Oakland	CA
7	22279	Verizon Wireless (Broadway & 29th)	2923 Webster Street	Oakland	CA
8	23098	Royal Coffee Company	2523 Broadway	Oakland	CA

#	Zip	County	Cancer	Hazard	PM_25	Type	Count
1	94610	Alameda	0.370	0.000	0.000	Generators	1
2	94612	Alameda	10.350	0.020	0.020	Generators	1
3	94612	Alameda	0.000	0.000	0.000	Generators	1
4	94611	Alameda	0.920	0.000	0.000	Generators	1
5	94612	Alameda	0.000	0.000	0.000	Contact BAAQMD	1
6	94612	Alameda	2.460	0.000	0.000	Generators	1
7	94609	Alameda	0.000	0.000	0.000	Contact BAAQMD	1
8	94612	Alameda	0.110	0.000	0.180	Contact BAAQMD	1

Note: The estimated risk and hazard impacts from these sources would be expected to be substantially lower when site specific Health Risk Screening Assessments are conducted.

The screening level map is not recommended for evaluating sensitive land uses such as schools, senior centers, day cares, and health facilities.

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Stationary Source Risk & Hazards Screening Report

Area of Interest (AOI) Information

Area : 4,290,755 ft²

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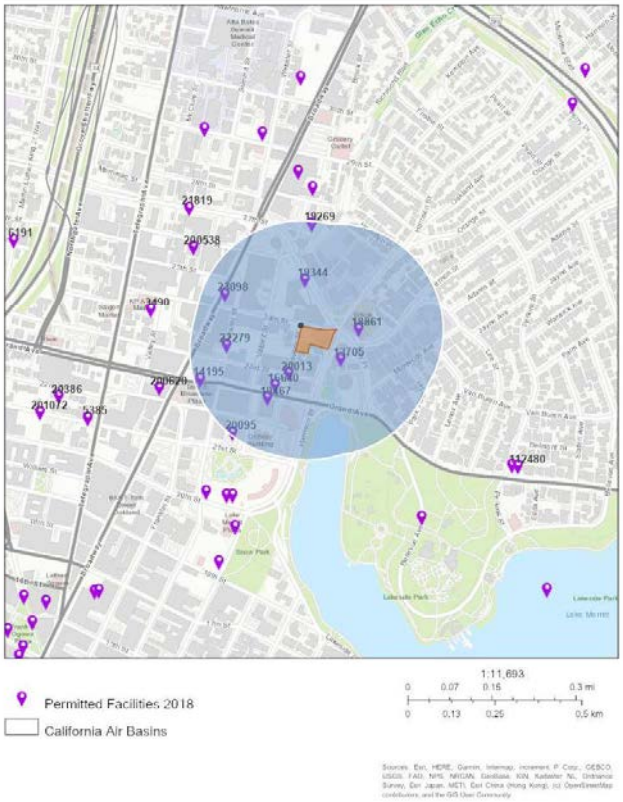


Summary

Name	Count	Area(ft²)	Length(ft)
Permitted Facilities 2018	11	N/A	N/A

Permitted Facilities 2018

#	FACID	Name	Address	City	St
1	13705	Saint Pauls Tower	100 Bay Place	Oakland	CA
2	14195	State of California Department of Transportation	111 Grand Avenue	Oakland	CA
3	16640	Mach II 180 Grand LLC	180 Grand Avenue	Oakland	CA
4	18861	Whole Foods Market California	230 Bay Place	Oakland	CA
5	19269	West Lake Christian Terrace	275 28th Street	Oakland	CA
6	19344	VIP Auto Collision Repair	293 27th St	Oakland	CA
7	19467	Lake Merritt Management, LLC	155 Grand Avenue	Oakland	CA
8	20013	Mpower Communications / Telepacific	23rd & Waverly St	Oakland	CA
9	20095	CIM Group/Ordway	One Kaiser Plaza	Oakland	CA
10	22279	Verizon Wireless (Broadway & 29th)	2923 Webster Street	Oakland	CA
11	23098	Royal Coffee Company	2523 Broadway	Oakland	CA

#	Zip	County	Cancer	Hazard	PM_25	Type	Count
1	94610	Alameda	0.370	0.000	0.000	Generators	1
2	94623	Alameda	14.720	0.020	0.020	Contact BAAQMD	1
3	94612	Alameda	10.350	0.020	0.020	Generators	1
4	94612	Alameda	0.000	0.000	0.000	Generators	1
5	94611	Alameda	0.920	0.000	0.000	Generators	1
6	94612	Alameda	0.000	0.000	0.000	Contact BAAQMD	1
7	94612	Alameda	9.850	0.020	0.040	Contact BAAQMD	1
8	94612	Alameda	2.460	0.000	0.000	Generators	1
9	94612	Alameda	10.330	0.020	0.310	Contact BAAQMD	1
10	94609	Alameda	0.000	0.000	0.000	Contact BAAQMD	1
11	94612	Alameda	0.110	0.000	0.180	Contact BAAQMD	1

Note: The estimated risk and hazard impacts from these sources would be expected to be substantially lower when site specific Health Risk Screening Assessments are conducted.

The screening level map is not recommended for evaluating sensitive land uses such as schools, senior centers, day cares, and health facilities.

Attachment I

Noise Model

24th & Webster Project Construction Noise Estimates Analysis - Unmitigated Case

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/12/2020
Case Description: 24th and Waverly project - Demolition - with SCA

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - Nearest - nearest work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	10	12
Concrete Saw	No	20		89.6	20	12
Backhoe	No	40		77.6	20	12
Front End Loader	No	40		79.1	30	12

		Results					
		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		82.7	78.7	N/A	N/A	N/A	N/A
Concrete Saw		85.5	78.5	N/A	N/A	N/A	N/A
Backhoe		73.5	69.5	N/A	N/A	N/A	N/A
Front End Loader		71.5	67.6	N/A	N/A	N/A	N/A
	Total	85.5	82.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - 2nd nearest - nearest work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	40	13
Concrete Saw	No	20		89.6	50	13
Backhoe	No	40		77.6	50	13
Front End Loader	No	40		79.1	60	13

	Results					
	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	69.6	65.7	N/A	N/A	N/A	N/A
Concrete Saw	76.6	69.6	N/A	N/A	N/A	N/A

Backhoe		64.6	60.6	N/A	N/A	N/A	N/A
Front End Loader		64.5	60.5	N/A	N/A	N/A	N/A
	Total	76.6	71.8	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - Nearest - typical work	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Excavator	No	40		80.7	45	13
Concrete Saw	No	20		89.6	45	13
Backhoe	No	40		77.6	45	13
Front End Loader	No	40		79.1	45	13

			Results			
	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	68.6	64.6	N/A	N/A	N/A	N/A
Concrete Saw	77.5	70.5	N/A	N/A	N/A	N/A
Backhoe	65.5	61.5	N/A	N/A	N/A	N/A
Front End Loader	67	63	N/A	N/A	N/A	N/A
Total	77.5	72.4	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - 2nd nearest - typical work	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Excavator	No	40		80.7	100	13
Concrete Saw	No	20		89.6	100	13
Backhoe	No	40		77.6	100	13
Front End Loader	No	40		79.1	100	13

			Results			
	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	61.7	57.7	N/A	N/A	N/A	N/A
Concrete Saw	70.6	63.6	N/A	N/A	N/A	N/A
Backhoe	58.5	54.6	N/A	N/A	N/A	N/A
Front End Loader	60.1	56.1	N/A	N/A	N/A	N/A

	Total	70.6	65.5	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 10/12/2020
Case Description: 24th and Waverly project - Shoring - with SCA

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - Nearest - nearest work	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Drill Rig Truck	No	20		79.1	10	12

		Results			
	Calculated (dBA)		Noise Limits (dBA)		
		Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Drill Rig Truck	81.1	74.1	N/A	N/A	N/A	N/A
Total	81.1	74.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - 2nd nearest - nearest work	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Drill Rig Truck	No	20		79.1	40	13

		Results			
	Calculated (dBA)		Noise Limits (dBA)		
		Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Drill Rig Truck	68.1	61.1	N/A	N/A	N/A	N/A
Total	68.1	61.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night

Residence - Nearest - typical work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Drill Rig Truck	No	20		79.1	45	13

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Drill Rig Truck	67.1	60.1	N/A	N/A	N/A	N/A
Total	67.1	60.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - 2nd nearest - typical work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Drill Rig Truck	No	20		79.1	100	13

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Drill Rig Truck	60.1	53.1	N/A	N/A	N/A	N/A
Total	60.1	53.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Report date: 10/12/2020
Case Description: 24th and Waverly project - Grading_Ground Improvement

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - Nearest - nearest work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)

Backhoe	No	40		77.6	10	12	
Excavator	No	40		80.7	20	12	
Excavator	No	40		80.7	30	12	
Auger Drill Rig	No	20	85		20	12	

			Results			
	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	79.5	75.6	N/A	N/A	N/A	N/A
Excavator	76.7	72.7	N/A	N/A	N/A	N/A
Excavator	73.1	69.2	N/A	N/A	N/A	N/A
Auger Drill Rig	81	74	N/A	N/A	N/A	N/A
Total	81	79.4	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

			---- Receptor #2 ----		
		Baselines (dBA)			
Description	Land Use	Daytime	Evening	Night	
Residence - 2nd nearest - nearest work	Residential	65	60	55	

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Backhoe	No	40		77.6	40	13
Excavator	No	40		80.7	50	13
Excavator	No	40		80.7	60	13
Auger Drill Rig	No	20	85		50	13

			Results			
	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	66.5	62.5	N/A	N/A	N/A	N/A
Excavator	67.7	63.7	N/A	N/A	N/A	N/A
Excavator	66.1	62.1	N/A	N/A	N/A	N/A
Auger Drill Rig	72	65	N/A	N/A	N/A	N/A
Total	72	69.5	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

			---- Receptor #3 ----		
		Baselines (dBA)			
Description	Land Use	Daytime	Evening	Night	
Residence - Nearest - typical work	Residential	65	60	55	

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Backhoe	No	40		77.6	45	13
Excavator	No	40		80.7	45	13

Excavator	No	40		80.7	45	13
Auger Drill Rig	No	20	85		45	13

			Results			
	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	65.5	61.5	N/A	N/A	N/A	N/A
Excavator	68.6	64.6	N/A	N/A	N/A	N/A
Excavator	68.6	64.6	N/A	N/A	N/A	N/A
Auger Drill Rig	72.9	65.9	N/A	N/A	N/A	N/A
Total	72.9	70.5	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - 2nd nearest - typical work	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Backhoe	No	40		77.6	100	13
Excavator	No	40		80.7	100	13
Excavator	No	40		80.7	100	13
Auger Drill Rig	No	20	85		100	13

			Results			
	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	58.5	54.6	N/A	N/A	N/A	N/A
Excavator	61.7	57.7	N/A	N/A	N/A	N/A
Excavator	61.7	57.7	N/A	N/A	N/A	N/A
Auger Drill Rig	66	59	N/A	N/A	N/A	N/A
Total	66	63.5	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Report date: 10/12/2020
Case Description: 24th and Waverly project - Bldg Cnstrctn_Mtgtd

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - Nearest - nearest work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Man Lift	No	20		74.7	10	10
Crane	No	16		80.6	20	10
Man Lift	No	20		74.7	30	10
Man Lift	No	20		74.7	20	10
Generator	No	50		80.6	30	10

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Man Lift	78.7	71.7	N/A	N/A	N/A	N/A
Crane	78.5	70.6	N/A	N/A	N/A	N/A
Man Lift	69.1	62.1	N/A	N/A	N/A	N/A
Man Lift	72.7	65.7	N/A	N/A	N/A	N/A
Generator	75.1	72.1	N/A	N/A	N/A	N/A
Total	78.7	76.8	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - 2nd nearest - nearest work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Man Lift	No	20		74.7	40	10
Crane	No	16		80.6	50	10
Man Lift	No	20		74.7	60	10
Man Lift	No	20		74.7	50	10
Generator	No	50		80.6	60	10

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Man Lift	66.6	59.6	N/A	N/A	N/A	N/A
Crane	70.6	62.6	N/A	N/A	N/A	N/A
Man Lift	63.1	56.1	N/A	N/A	N/A	N/A
Man Lift	64.7	57.7	N/A	N/A	N/A	N/A
Generator	69	66	N/A	N/A	N/A	N/A
Total	70.6	68.9	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night

Residence - Nearest - typical work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Man Lift	No	20		74.7	45	10
Crane	No	16		80.6	45	10
Man Lift	No	20		74.7	45	10
Man Lift	No	20		74.7	45	10
Generator	No	50		80.6	45	10

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Man Lift	65.6	58.6	N/A	N/A	N/A	N/A
Crane	71.5	63.5	N/A	N/A	N/A	N/A
Man Lift	65.6	58.6	N/A	N/A	N/A	N/A
Man Lift	65.6	58.6	N/A	N/A	N/A	N/A
Generator	71.5	68.5	N/A	N/A	N/A	N/A
Total	71.5	70.6	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - 2nd nearest - typical work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Man Lift	No	20		74.7	100	10
Crane	No	16		80.6	100	10
Man Lift	No	20		74.7	100	10
Man Lift	No	20		74.7	100	10
Generator	No	50		80.6	100	10

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Man Lift	58.7	51.7	N/A	N/A	N/A	N/A
Crane	64.5	56.6	N/A	N/A	N/A	N/A
Man Lift	58.7	51.7	N/A	N/A	N/A	N/A
Man Lift	58.7	51.7	N/A	N/A	N/A	N/A
Generator	64.6	61.6	N/A	N/A	N/A	N/A
Total	64.6	63.7	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Report date: 10/12/2020
Case Description: 24th and Waverly project - Paving - with SCA

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residence - Nearest - nearest work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	10	12
Concrete Mixer Truck	No	40		78.8	20	12
Roller	No	20		80	30	12
Backhoe	No	40		77.6	20	12
Concrete Pump Truck	No	20		81.4	30	12

Equipment	Calculated (dBA) *Lmax	Leq	Results Day Lmax	Noise Limits (dBA) Day Leq	Evening Lmax	Evening Leq
Paver	79.2	76.2	N/A	N/A	N/A	N/A
Concrete Mixer Truck	74.8	70.8	N/A	N/A	N/A	N/A
Roller	72.4	65.4	N/A	N/A	N/A	N/A
Backhoe	73.5	69.5	N/A	N/A	N/A	N/A
Concrete Pump Truck	73.8	66.8	N/A	N/A	N/A	N/A
Total	79.2	78.5	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residence - 2nd nearest - nearest work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	40	13
Concrete Mixer Truck	No	40		78.8	50	13
Roller	No	20		80	60	13
Backhoe	No	40		77.6	50	13
Concrete Pump Truck	No	20		81.4	60	13

Calculated (dBA)	Results	Noise Limits (dBA)	
	Day		Evening

Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		66.2	63.1	N/A	N/A	N/A	N/A
Concrete Mixer Truck		65.8	61.8	N/A	N/A	N/A	N/A
Roller		65.4	58.4	N/A	N/A	N/A	N/A
Backhoe		64.6	60.6	N/A	N/A	N/A	N/A
Concrete Pump Truck		66.8	59.8	N/A	N/A	N/A	N/A
	Total	66.8	68.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - Nearest - typical work	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver	No	50		77.2	45	13
Concrete Mixer Truck	No	40		78.8	45	13
Roller	No	20		80	45	13
Backhoe	No	40		77.6	45	13
Concrete Pump Truck	No	20		81.4	45	13

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	65.1	62.1	N/A	N/A	N/A	N/A
Concrete Mixer Truck	66.7	62.7	N/A	N/A	N/A	N/A
Roller	67.9	60.9	N/A	N/A	N/A	N/A
Backhoe	65.5	61.5	N/A	N/A	N/A	N/A
Concrete Pump Truck	69.3	62.3	N/A	N/A	N/A	N/A
Total	69.3	69	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - 2nd nearest - typical work	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver	No	50		77.2	100	13
Concrete Mixer Truck	No	40		78.8	100	13
Roller	No	20		80	100	13
Backhoe	No	40		77.6	100	13
Concrete Pump Truck	No	20		81.4	100	13

Results

		Calculated (dBA)		Noise Limits (dBA)			
				Day		Evening	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		58.2	55.2	N/A	N/A	N/A	N/A
Concrete Mixer Truck		59.8	55.8	N/A	N/A	N/A	N/A
Roller		61	54	N/A	N/A	N/A	N/A
Backhoe		58.5	54.6	N/A	N/A	N/A	N/A
Concrete Pump Truck		62.4	55.4	N/A	N/A	N/A	N/A
	Total	62.4	62	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

24th & Webster Project Construction Noise Estimates Analysis - Unmitigated Case

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/10/2020
Case Description: 24th and Waverly project - Demolition

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - Nearest - nearest work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	10	0
Concrete Saw	No	20		89.6	20	0
Backhoe	No	40		77.6	20	0
Front End Loader	No	40		79.1	30	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	94.7	90.7	N/A	N/A	N/A	N/A
Concrete Saw	97.5	90.5	N/A	N/A	N/A	N/A
Backhoe	85.5	81.5	N/A	N/A	N/A	N/A
Front End Loader	83.5	79.6	N/A	N/A	N/A	N/A
Total	97.5	94.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - 2nd nearest - nearest work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	40	0
Concrete Saw	No	20		89.6	50	0
Backhoe	No	40		77.6	50	0
Front End Loader	No	40		79.1	60	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	82.6	78.7	N/A	N/A	N/A	N/A
Concrete Saw	89.6	82.6	N/A	N/A	N/A	N/A
Backhoe	77.6	73.6	N/A	N/A	N/A	N/A
Front End Loader	77.5	73.5	N/A	N/A	N/A	N/A
Total	89.6	84.8	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - Nearest - typical work	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Excavator	No	40		80.7	45	0
Concrete Saw	No	20		89.6	45	0
Backhoe	No	40		77.6	45	0
Front End Loader	No	40		79.1	45	0

			Results			
	Calculated (dBA)			Noise Limits (dBA)		
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	81.6	77.6	N/A	N/A	N/A	N/A
Concrete Saw	90.5	83.5	N/A	N/A	N/A	N/A
Backhoe	78.5	74.5	N/A	N/A	N/A	N/A
Front End Loader	80	76	N/A	N/A	N/A	N/A
Total	90.5	85.4	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - 2nd nearest - typical work	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Excavator	No	40		80.7	100	0
Concrete Saw	No	20		89.6	100	0
Backhoe	No	40		77.6	100	0
Front End Loader	No	40		79.1	100	0

			Results			
	Calculated (dBA)			Noise Limits (dBA)		
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator	74.7	70.7	N/A	N/A	N/A	N/A
Concrete Saw	83.6	76.6	N/A	N/A	N/A	N/A
Backhoe	71.5	67.6	N/A	N/A	N/A	N/A
Front End Loader	73.1	69.1	N/A	N/A	N/A	N/A
Total	83.6	78.5	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Report date: 8/10/2020
Case Description: 24th and Waverly project - Shoring

---- Receptor #1 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residence - Nearest - nearest work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Drill Rig Truck	No	20		79.1	10	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Drill Rig Truck	93.1	86.1	N/A	N/A	N/A	N/A
Total	93.1	86.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residence - 2nd nearest - nearest work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Drill Rig Truck	No	20		79.1	40	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Drill Rig Truck	81.1	74.1	N/A	N/A	N/A	N/A
Total	81.1	74.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residence - Nearest - typical work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Drill Rig Truck	No	20		79.1	45	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Drill Rig Truck	80.1	73.1	N/A	N/A	N/A	N/A
Total	80.1	73.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night

Residence - 2nd nearest - typical work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Drill Rig Truck	No	20		79.1	100	0

		Results					
	Calculated (dBA)		Noise Limits (dBA)				
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Drill Rig Truck	73.1	66.1	N/A	N/A	N/A	N/A
Total	73.1	66.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date:	8/10/2020
Case Description:	24th and Waverly project - Grading_Ground Improvement

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - Nearest - nearest work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	10	0
Excavator	No	40		80.7	20	0
Excavator	No	40		80.7	30	0
Auger Drill Rig	No	20		84.4	20	0

		Results					
	Calculated (dBA)		Noise Limits (dBA)				
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	91.5	87.6	N/A	N/A	N/A	N/A
Excavator	88.7	84.7	N/A	N/A	N/A	N/A
Excavator	85.1	81.2	N/A	N/A	N/A	N/A
Auger Drill Rig	92.3	85.3	N/A	N/A	N/A	N/A
Total	92.3	91.3	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - 2nd nearest - nearest work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	40	0

Excavator	No	40	80.7	50	0
Excavator	No	40	80.7	60	0
Auger Drill Rig	No	20	84.4	50	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	79.5	75.5	N/A	N/A	N/A	N/A
Excavator	80.7	76.7	N/A	N/A	N/A	N/A
Excavator	79.1	75.1	N/A	N/A	N/A	N/A
Auger Drill Rig	84.4	77.4	N/A	N/A	N/A	N/A
Total	84.4	82.3	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - Nearest - typical work	Residential	65	60	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	45	0
Excavator	No	40		80.7	45	0
Excavator	No	40		80.7	45	0
Auger Drill Rig	No	20		84.4	45	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Backhoe	78.5	74.5	N/A	N/A	N/A	N/A
Excavator	81.6	77.6	N/A	N/A	N/A	N/A
Excavator	81.6	77.6	N/A	N/A	N/A	N/A
Auger Drill Rig	85.3	78.3	N/A	N/A	N/A	N/A
Total	85.3	83.3	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - 2nd nearest - typical work	Residential	65	60	55

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Backhoe	No	40		77.6	100	0
Excavator	No	40		80.7	100	0
Excavator	No	40		80.7	100	0
Auger Drill Rig	No	20		84.4	100	0

Results

	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq

Backhoe		71.5	67.6	N/A	N/A	N/A	N/A
Excavator		74.7	70.7	N/A	N/A	N/A	N/A
Excavator		74.7	70.7	N/A	N/A	N/A	N/A
Auger Drill Rig		78.3	71.3	N/A	N/A	N/A	N/A
	Total	78.3	76.3	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/10/2020
Case Description: 24th and Waverly project - Building Construction

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - Nearest - nearest work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Man Lift	No	20		74.7	10	0
Crane	No	16		80.6	20	0
Man Lift	No	20		74.7	30	0
Man Lift	No	20		74.7	20	0
Generator	No	50		80.6	30	0

			Results			
	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Man Lift	88.7	81.7	N/A	N/A	N/A	N/A
Crane	88.5	80.6	N/A	N/A	N/A	N/A
Man Lift	79.1	72.1	N/A	N/A	N/A	N/A
Man Lift	82.7	75.7	N/A	N/A	N/A	N/A
Generator	85.1	82.1	N/A	N/A	N/A	N/A
Total	88.7	86.8	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - 2nd nearest - nearest work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Man Lift	No	20		74.7	40	0
Crane	No	16		80.6	50	0
Man Lift	No	20		74.7	60	0
Man Lift	No	20		74.7	50	0
Generator	No	50		80.6	60	0

			Results	
	Calculated (dBA)		Noise Limits (dBA)	

Equipment		*Lmax	Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq
Man Lift		76.6	69.6	N/A	N/A	N/A	N/A
Crane		80.6	72.6	N/A	N/A	N/A	N/A
Man Lift		73.1	66.1	N/A	N/A	N/A	N/A
Man Lift		74.7	67.7	N/A	N/A	N/A	N/A
Generator		79	76	N/A	N/A	N/A	N/A
	Total	80.6	78.9	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residence - Nearest - typical work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Man Lift	No	20		74.7	45	0
Crane	No	16		80.6	45	0
Man Lift	No	20		74.7	45	0
Man Lift	No	20		74.7	45	0
Generator	No	50		80.6	45	0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Man Lift	75.6	68.6	N/A	N/A	N/A	N/A
Crane	81.5	73.5	N/A	N/A	N/A	N/A
Man Lift	75.6	68.6	N/A	N/A	N/A	N/A
Man Lift	75.6	68.6	N/A	N/A	N/A	N/A
Generator	81.5	78.5	N/A	N/A	N/A	N/A
Total	81.5	80.6	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residence - 2nd nearest - typical work	Residential	65	60	55

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Man Lift	No	20		74.7	100	0
Crane	No	16		80.6	100	0
Man Lift	No	20		74.7	100	0
Man Lift	No	20		74.7	100	0
Generator	No	50		80.6	100	0

Results

	Calculated (dBA)		Noise Limits (dBA) Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Man Lift	68.7	61.7	N/A	N/A	N/A	N/A
Crane	74.5	66.6	N/A	N/A	N/A	N/A

Man Lift		68.7	61.7	N/A	N/A	N/A	N/A
Man Lift		68.7	61.7	N/A	N/A	N/A	N/A
Generator		74.6	71.6	N/A	N/A	N/A	N/A
	Total	74.6	73.7	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/10/2020
Case Description: 24th and Waverly project - Paving

---- Receptor #1 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - Nearest - nearest work	Residential	65	60	55

			Equipment			
	Impact		Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver	No	50		77.2	10	0
Concrete Mixer Truck	No	40		78.8	20	0
Roller	No	20		80	30	0
Backhoe	No	40		77.6	20	0
Concrete Pump Truck	No	20		81.4	30	0

			Results			
	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	91.2	88.2	N/A	N/A	N/A	N/A
Concrete Mixer Truck	86.8	82.8	N/A	N/A	N/A	N/A
Roller	84.4	77.4	N/A	N/A	N/A	N/A
Backhoe	85.5	81.5	N/A	N/A	N/A	N/A
Concrete Pump Truck	85.8	78.8	N/A	N/A	N/A	N/A
Total	91.2	90.5	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - 2nd nearest - nearest work	Residential	65	60	55

			Equipment			
	Impact		Spec Lmax	Actual Lmax	Receptor Distance	Estimated Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver	No	50		77.2	40	0
Concrete Mixer Truck	No	40		78.8	50	0
Roller	No	20		80	60	0
Backhoe	No	40		77.6	50	0
Concrete Pump Truck	No	20		81.4	60	0

			Results			
	Calculated (dBA)		Noise Limits (dBA)			
			Day		Evening	

Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver		79.2	76.1	N/A	N/A	N/A	N/A
Concrete Mixer Truck		78.8	74.8	N/A	N/A	N/A	N/A
Roller		78.4	71.4	N/A	N/A	N/A	N/A
Backhoe		77.6	73.6	N/A	N/A	N/A	N/A
Concrete Pump Truck		79.8	72.8	N/A	N/A	N/A	N/A
	Total	79.8	81.1	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - Nearest - typical work	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver	No	50		77.2	45	0
Concrete Mixer Truck	No	40		78.8	45	0
Roller	No	20		80	45	0
Backhoe	No	40		77.6	45	0
Concrete Pump Truck	No	20		81.4	45	0

			Results			
	Calculated (dBA)			Noise Limits (dBA)		
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	78.1	75.1	N/A	N/A	N/A	N/A
Concrete Mixer Truck	79.7	75.7	N/A	N/A	N/A	N/A
Roller	80.9	73.9	N/A	N/A	N/A	N/A
Backhoe	78.5	74.5	N/A	N/A	N/A	N/A
Concrete Pump Truck	82.3	75.3	N/A	N/A	N/A	N/A
Total	82.3	82	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence - 2nd nearest - typical work	Residential	65	60	55

			Equipment			
			Spec	Actual	Receptor	Estimated
	Impact		Lmax	Lmax	Distance	Shielding
Description	Device	Usage(%)	(dBA)	(dBA)	(feet)	(dBA)
Paver	No	50		77.2	100	0
Concrete Mixer Truck	No	40		78.8	100	0
Roller	No	20		80	100	0
Backhoe	No	40		77.6	100	0
Concrete Pump Truck	No	20		81.4	100	0

			Results			
	Calculated (dBA)			Noise Limits (dBA)		
			Day		Evening	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq
Paver	71.2	68.2	N/A	N/A	N/A	N/A
Concrete Mixer Truck	72.8	68.8	N/A	N/A	N/A	N/A
Roller	74	67	N/A	N/A	N/A	N/A

Backhoe		71.5	67.6	N/A	N/A	N/A	N/A
Concrete Pump Truck		75.4	68.4	N/A	N/A	N/A	N/A
	Total	75.4	75	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Attachment J

Trip Generation Analysis Memorandum

FEHR PEERS

Draft Memorandum

Date: December 17, 2020

To: Hannah Young, Dudek

From: Sam Tabibnia, Fehr & Peers

Subject: 24th & Waverly Project – Transportation Impact Review (Non-CEQA)

OK20-0359

This memorandum discusses transportation-related topics for the proposed 24th and Waverly development that are not considerations under the California Environmental Quality Act (CEQA) but are evaluated to inform decision makers and the public. Some information in the CEQA document is repeated in this memorandum to provide context for the non-CEQA analysis. The information provided in this memorandum is based on the City of Oakland's *Transportation Impact Review Guidelines* (TIRG) published in April 2017. Sections in this memorandum include:

Project Description

The project is located in the Broadway Valdez District of Oakland on the south side of 24th Street between Harrison and Waverly Streets with frontages along 24th, Harrison, and Waverly Streets.

The 16-level building would consist of approximately 330 multi-family residential units and approximately 13,200 square feet of ground-level retail space along the 24th Street and Harrison Street frontages.

Based on the project site plan dated November 13, 2020, the project would provide 215 parking spaces consisting of the following:

- 187 spaces on Levels 2 through 4 of the building for project residents

- 28 spaces on Level 1 for the commercial uses of the project open to the public

Both the residential and commercial parking spaces would be accessed through a driveway located on Waverly Street at the southwest corner of the building.

A back-in ground-level loading space would be provided on Waverly Street, about 80 feet south of 24th Street. Proposed bicycle parking would include a secure bicycle room on Level 4 that would accommodate up to 168 bicycles, secure long-term bicycle parking for two bicycles on Level 1, as well as bicycle racks accommodating 30 bicycles on the sidewalks along the project frontage and the plaza along 24th Street.

A public plaza would be constructed as part of the project along the project frontage on 24th Street between Harrison and Waverly Streets. The 7,400 square-foot plaza would provide seating, landscaping, and bicycle parking. 24th Street between Harrison and Waverly Streets would remain a one-way westbound street similar to current conditions; however, vehicles would only be able to access 24th Street by turning right from 27th Street. 24th Street would also provide five parallel parking spaces adjacent to the public plaza.

The project would demolish 15 existing residential units, a vacant former auto-repair facility, and a surface pay parking lot.

Trip Generation and Distribution

Automobile Trip Generation

Trip generation is the process of estimating the number of vehicles that would likely access the project on a typical day. Since the project site includes existing uses that would be demolished, the trip generation accounts for the trips generated by the current site that would be eliminated. **Table 1** summarizes the trip generation for the project. The trip generation presented in Table 1 assumes a larger project than proposed to present a more conservative analysis of the potential impacts of the proposed project. Trip generation data published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual* (Tenth Edition) was used as a starting point to estimate the vehicle trip generation.

ITE's *Trip Generation Manual* (Tenth Edition) is primarily based on data collected at 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 between 0.5 and 1.0 miles of the 19th Street BART Station, this analysis reduces the ITE based trip generation by about 37 percent to account for non-automobile trips. This reduction is consistent with the City of Oakland's TIRG and is based on US Census commute data for Alameda County from the 2014 5-Year Estimates of the American Community Survey (ACS), which shows

that the non-automobile mode share for areas between 0.5 and 1.0 miles from a BART Station is about 37 percent.

As summarized in Table 1, the net automobile trip generation for the project is approximately 1,260 daily, 68 AM peak hour, and 105 PM peak hour automobile trips.

Table 1: Vehicle Trip Generation

Land Use	Size	Units[1]	Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Proposed Project[2]									
Residential[3]	343	DU	1,870	32	91	123	92	59	151
Retail [4]	15.0	KSF	570	9	5	14	27	30	57
		Subtotal	2,440	41	96	137	119	89	208
City of Oakland Trip Generation Adjustment[5]			-900	-15	-35	-50	-44	-33	-76
Proposed Project Vehicle Trip Generation			**1,540**	**26**	**61**	**87**	**75**	**56**	**132**
Existing									
Residential[3]	15	DU	-80	-1	-4	-5	-4	-3	-7
Auto Repair[6]	11.1	KSF	-360	-17	-8	-25	-17	-18	-35
		Subtotal	-440	-18	-12	-30	-21	-21	-42
City of Oakland Trip Generation Adjustment[5]			160	7	4	11	8	8	15
Total Existing			**-280**	**-11**	**-8**	**-19**	**-13**	**-13**	**-27**
Net New Project Trips			**1,260**	**15**	**53**	**68**	**62**	**43**	**105**

Notes:
1. DU = Dwelling units, KSF = 1,000 square feet
2. The project evaluated in this analysis is larger than the proposed project to provide a more conservative evaluation of the project's impacts.
3. ITE *Trip Generation* (10th Edition) land use category 221 (Multi-Family [Mid-Rise]):
   Daily: T = 5.44*(X)
   AM Peak Hour: T = 0.36*(X) (26% in, 74% out)
   PM Peak Hour: T = 0.44*(X) (61% in, 39% out)
4. ITE *Trip Generation* (10th Edition) land use category 820 (Shopping Center):
   Daily: T = 37.75*(X)
   AM Peak Hour: T = 0.94*(X) (62% in, 38% out)
   PM Peak Hour: T = 3.81*(X) (48% in, 52% out)
5. The 36.7% reduction is based on the City of Oakland's Transportation Impact Review Guidelines for development between 0.5 and 1.0 miles of a BART Station.
6. ITE *Trip Generation* (10th Edition) land use category 942 (Automobile Care Center):
   Daily: T = 32.2*(X)
   AM Peak Hour: T = 2.25*(X) (68% in, 32% out)
   PM Peak Hour: T = 3.11*(X) (48% in, 52% out)

Source: Fehr & Peers, 2020

Non-Vehicular Trip Generation

Consistent with the City of Oakland TIRG, **Table 2** presents estimates of project trip generation for all travel modes.

Table 2: Trip Generation by Travel Mode

Mode	Mode Share Adjustment Factors[1]	Daily	AM Peak Hour	PM Peak Hour
Automobile	0.63	1,260	68	105
Transit	0.24	470	25	39
Bike	0.05	100	5	8
Walk	0.06	120	7	10
	Total Trips	**1,950**	**105**	**162**

Notes:
1. Based on the City of Oakland *Transportation Impact Review Guidelines* assuming project site is in an urban environment between 0.5 and 1.0 miles of a BART Station.

Source: Fehr & Peers, 2020

Trip Distribution

The trip distribution and assignment process is used to estimate how the vehicle trips generated by the project would be distributed across the roadway network. Based on existing travel patterns, locations of complementary land uses, and the street network in the project area, Fehr & Peers determined directions of approach to and departure from the project site. **Figure 1** shows the resulting trip distribution.

Study Intersection Selection

According to the City of Oakland's TIRG, the criteria for the intersections to be studied in a TIR include the following:

- All intersection(s) of streets adjacent to project site
- All signalized intersections, all-way stop-controlled intersections, or roundabouts where 100 or more peak hour trips are added by the project
- All signalized intersections with 50 or more peak-hour trips and the existing intersection operations are at Level of Service D, E, or F
- Side-street stop-controlled intersection(s) where 50 or more peak hour trips are added by the project to any individual movement other than the major-street through movement

Following these criteria, the following two study intersections are selected because they are adjacent to the project site:

1. 27th Street/Bay Street/24th Street/Harrison Street
2. 24th Street/Waverly Street

The project would not add 50 or more peak hour trips trip to any signalized or all-way stop-controlled intersection or to the stop-controlled movement of a side-street stop-controlled intersection. Thus, no additional intersections would meet the study intersection selection criteria.

Due to the ongoing COVID-19 pandemic and the mandatory shelter-in-place orders for the Bay Are region that started on March 16, 2020, current turning movement counts could not be collected at the two study intersections because counts would not accurately reflect typical conditions due to changes in travel patterns during this time. The TIRG allows the use of counts collected within the last five years. Thus, turning movement counts collected in October 2018 at the 27th Street/Bay Street/24th Street/Harrison Street intersection for the *Kaiser Center Project Addendum* (published in April 2019) are used for this analysis.

No recent count data is available for the 24th Street/Waverly Street intersection. Fehr & Peers explored purchasing StreetLight data (which is based on anonymized cell phone data) to estimate recent traffic volumes at the intersection. However, StreetLight data would not be accurate at this intersection due to relatively low vehicle volumes and high pedestrian and cyclist volumes. Both 24th and Waverly Streets are local-serving streets. In addition, 24th Street is one-way westbound between 27th and Valdez Streets and Waverly Street is only one block long. As a result, both streets are expected to have minimal through traffic, with low volumes at the 24th Street/Waverly Street intersection. Considering the existing low volumes at the intersection and that the project would add 21 AM peak hour vehicles and 25 PM peak hour vehicles to any approach at the intersection, which would not meet the volume thresholds for study intersections, it is expected that the project would have minimal effect on traffic operations at this intersection. Thus, the next section of this memorandum does not quantitively discuss traffic operations at the 24th Street/ Waverly Street intersection. However, the subsequent sections of this memorandum evaluate access, circulation, and safety for various modes at this intersection.

Intersection Operations

The following scenarios are evaluated:

- **Existing Conditions**: Represents existing traffic volumes based on 2018 counts. The analysis also accounts for the planned roadway modifications adjacent to the project.
- **Existing Plus Project Conditions**: Represents the existing conditions plus traffic generated after completion of the project.

Figure 2 presents the Existing and Existing plus Project intersection lane configuration, traffic control, and peak hour traffic volumes at the study intersection. Based on the volumes and

roadway configuration presented on Figure 2, Fehr & Peers calculated the LOS at the study intersection using the 2000 *Highway Capacity Manual* (HCM) methodologies. **Appendix A** provides the detailed LOS calculation sheets.

The analysis accounts for the following planned modifications at the 27th Street/Bay Street/24th Street/Harrison Street intersection, which are consistent with the recommendations at this intersection in the *Broadway Valdez District Specific Plan* (2014):

- Modification to the existing intersection geometry to restrict vehicle access to 24th Street, with access only provided via right-turns from eastbound 27th Street
- Modification of the eastbound 27th Street approach to provide two left-turn lanes and a shared thru/right lane
- Modification of the northbound Harrison Street approach to provide two left-turn lanes, one thru lane, and a shared thru/right lane
- Installation of dual directional curb ramps with truncated domes at all crosswalks
- Installation of high-visibility crosswalk and bicycle crossing markings and at all crossings
- Installing protected bicycle areas on the west side of the intersection
- Removal of the channelized island between Harrison and 24th Streets
- Removal of the channelized island between 24th and 27th Streets
- Reducing the size of the intersection to improve the pedestrian crossing times across intersection approaches and reducing the overall signal cycle length for the intersection

Table 3 summarizes the Existing and Existing Plus Project intersection analysis results. The 27th Street/Bay Street/24th Street/Harrison Street intersection is expected to operate at LOS C during the AM peak hour and LOS D during the PM peak hour regardless of the project.

Table 3: Intersection Level of Service Summary

Intersection	Traffic Control[1]	Peak Hour	Existing Conditions		Existing Plus Project	
			Delay[2] (seconds)	LOS	Delay[2] (seconds)	LOS
27th Street/Bay Street/ 24th Street/Harrison Street	Signal	AM PM	29 35	C D	29 36	C D

Notes:
1. Signal = intersection controlled by traffic signal.
2. Delay calculated using HCM 2000 methodologies. Average intersection delay presented for signalized.

Source: Fehr & Peers, 2020

Site Plan Review

An evaluation of access and circulation for all travel modes, based on the site plan dated November 13, 2020, is summarized below.

Motor Vehicle Access and Circulation

The project building would provide 215 automobile parking spaces on Levels 1 through 4 of the building. All parking spaces would be accessed through a driveway on Waverly Street located at the southwest corner of the project, about 200 feet south of 24th Street. The project's parking facilities would consist of the following:

- 187 parking spaces on Levels 2 through 4 of the building for project residents, including four ADA-accessible parking spaces on Level 2
- 28 parking spaces on Level 1 for the commercial uses of the project and open to the public, including two ADA-accessible spaces

The project driveway on Waverly Street would be 21-feet wide and provide one inbound and one outbound lane separated by a two-foot wide median. Motor vehicles accessing the residential parking spaces would enter the garage at the driveway on Waverly Street and proceed straight through an internal gate, which would restrict access to project residents only, and use ramps to access the residential parking spaces on Levels 2 through 4. Motor vehicles accessing the commercial parking spaces would enter the garage at the driveway on Waverly Street and turn left prior to the residential garage gate to access the commercial parking area.

Figure 3 shows passenger vehicles turning into and out of the project driveway on Waverly Street and accessing the commercial and residential parking components of the garage. As shown on the figure, passenger vehicles would be able turn into and out of the driveway to and from both directions on Waverly Street. However, larger vehicles may not be able to turn into the project driveway if another large vehicle is waiting to turn out of the driveway. Considering the low traffic volumes on Waverly Street and the distance between the project driveway and adjacent intersections, vehicles wishing to turn into the project driveway can wait on Waverly Street while the vehicles exiting the garage complete their turn without blocking through traffic on Waverly Street.

As shown on Figure 3, motor vehicles turning right out of the commercial area of the garage may not be able to clear the center median in the project main driveway. In addition, larger motor vehicles may not be able to simultaneously enter and exit the commercial or residential components of the garage. However, the garage provides adequate sight distance which allows one vehicle to wait while the other vehicle completes its maneuver. Considering the number of spaces in the garage and the expected uses of the building, minimal internal queueing is

expected within the project garage and vehicular queues are not expected to spill back to the adjacent sidewalk on Waverly Street.

The project driveway may not provide adequate sight distance[1] between exiting motorists and pedestrians on the sidewalk on the north side of the driveway. Motor vehicles parked along Waverly Street north or south of the project driveway may limit sight lines between exiting motorists and cyclists or motorists on southbound and northbound Waverly Street, respectively.

The building trash room would be located adjacent and just to the north of the project driveway. Thus, the project driveway curb-cut can also be used to access the trash room.

The project would include four levels of parking. Ramps would connect the parking levels. All parking spaces would be perpendicular spaces along two-way drive aisles. Based on a review of the site plan, the garage would provide adequate sight distance throughout the upper levels of the garage, the garage drive aisles and parking spaces would meet the minimum dimension requirements, passenger vehicles would be able to maneuver through the parking garage and into and out of all parking spaces.

> **Recommendation 1:** While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following should be considered as part of the final design for the project:
>
> - Provide adequate sight distance between exiting vehicles and pedestrians on the adjacent sidewalk at the project parking driveway on Waverly Street. If adequate sight distance cannot be achieved, provide audio and visual warning devices at the driveway.
> - Designate 20 feet of red curb on the north and south sides of the project driveway on Waverly Street to ensure adequate sight distance between vehicles exiting the driveways and vehicles in both direction of Waverly Street.
> - Reduce the length of the median within the project driveway to accommodate vehicles turning right from the commercial component of the garage into the main project driveway. The median should extend no more than approximately 15 feet into the garage from the garage gate.

The curbs along the streets adjacent to the project are described below:

- 24th Street - a 40-foot yellow commercial loading zone is provided just west of Harrison Street with unrestricted parallel on-street parking along the remainder of the block. The planned improvements at the 27th Street/Bay Street/24th Street/Harrison Street intersection and the proposed public plaza would replace the existing parallel parking

[1] Adequate sight distance is defined as a clear line-of-sight between a motorist ten feet back from the sidewalk and a pedestrian 10 feet away on each side of the driveway.

spaces along the south side of 24th Street with five parallel parking spaces. Three curb-cuts are currently provided along this segment of 24th Street, which the project would eliminate.

- Waverly Street - this segment of Waverly Street provides on-street parking with a two-hour time restriction from 8:00 AM to 6:00 PM. Two curb-cuts are currently provided along this segment of Waverly Street, which the project would replace with two different curb-cuts, one for the project driveway and one for the loading space.
- Harrison Street - the existing project frontage along Harrison Street consists of one large curb-cut and no designated on-street parking; although, the frontage is currently used for on-street parking since the uses along the frontage are vacant. The project would not have any driveways along Harrison Street and would not provide on-street parking along the project frontage on Harrison Street to accommodate a planned Class 4 bicycle facility. However, on-street parking would be provided on Harrison Street just south of the project frontage.

  Recommendation 2: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following should be considered as part of the final design for the project:

  - Designate 25 feet of passenger loading space (white curb) on Harrison Street just south of the project or along the project frontage on 24th Street for passenger pick-up/drop off.
  - Designate the remaining parking spaces along Harrison Street and/or the parking spaces along the project frontage on 24th Street with two-hour time restrictions during the weekday business hours.

Automobile Parking Requirements

The City of Oakland Municipal Code establishes minimum parking requirements for residential and commercial activities. **Table 4** presents the off-street automobile parking requirements for the project per City Code. The project proposes 215 new parking spaces, which exceeds the City of Oakland Municipal Code minimum requirements. No maximum requirements apply to the project.

Table 4: Automobile Parking Requirements

Land Use	Size [1]	Minimum Required Parking	Parking Supply	Meets Requirement?
Residential	330 DU	165 [2]	187	Yes
Retail	13.2 KSF	22 [3]	28	Yes
Total		***187***	***206***	***Yes***

Notes:
1. DU = dwelling units, KSF = 1,000 square-feet
2. Per Oakland Planning Code Section 17.116.060 for D-BV zone; Residential: minimum 0.5 space per DU.
3. Per Oakland Planning Code Section 17.116.080 for D-BV zone; Commercial: minimum 1 space per 0.6 KSF ground floor area, 1 space per 1.0 ksf non-ground floor.

Source: Fehr & Peers, 2020.

Loading Requirements

City Municipal Code Section 17.116.120 requires one off-street loading space with minimum dimensions of 23 feet long, 10 feet wide, and 12 feet high for residential uses larger than 50,000 square feet. No off-street loading is required for retail uses less than 25,000 square feet per section 17.116.140 of the Code. The project would include one loading berth, approximately 32 feet long, 12 feet wide, and at least 12 feet high which satisfies the City's loading requirements.

The loading space would be near the northwest corner of the project and accessed through a curb-cut on Waverly Street about 80 feet south of 24th Street. Trucks would back into and head out of the loading berth. The loading berth would have access to the project's commercial components on the ground level and the project's residential units through the ground-level lobby and elevator.

Bicycle Access and Bicycle Parking

Existing bicycle facilities in the project vicinity include:

- Harrison Street provides Class 2 bicycle lanes between 27th Street and Grand Avenue. North of 27th Street, Harrison Street is designated as a Class 3 arterial bicycle route. South of Grand Avenue, Harrison Street provides a southbound Class 2 buffered bicycle lane and a northbound Class 4 protected bikeway.
- 27th Street provides Class 2 buffered bicycle lanes west of Harrison Street
- Bay Place is designated as a Class 3 arterial bicycle route east of Harrison Street
- Grand Avenue provides Class 2 bicycle lanes

The nearest Bay Wheels bikeshare station is located one block east of the project site on Bay Place, just south of Vernon Street.

The City's 2019 Oakland Bike Plan (*Let's Bike Oakland*, May 2019) proposes the following in the vicinity of the project:

- Protected Class 4 bicycle lanes on 27th Street, Bay Place, Grand Avenue, and Harrison Street south of 27th Street
- Class 2 buffered bicycle lanes on Harrison Street north of 27th Street
- Class 3 neighborhood bicycle route on 24th Street

Currently, there is no existing bicycle parking along the project frontage.

The project would provide long-term bicycle parking for two bicycles in the Level 1 garage and for 176 bicycles in a secure bicycle room on the northeast corner of Level 4 of the building. The bicycle room would be accessed through the elevators in the residential lobby or the stairs. However, using stairs or elevators to access bicycle parking on Level 4 may be inconvenient for bicyclists, especially since the bicycle room is located away from the elevators. Short-term bicycle parking would be provided in the form of bicycle racks for eight bicycles along the project frontage on 24th Street.

Table 5 compares the required and provided quantity of bicycle parking spaces for the project. The City of Oakland Planning Code Sections 17.117.90 and 17.117.110 require the project to provide a minimum of 167 long-term and 29 short-term bicycle parking spaces. The project would meet the minimum required quantity of long-term and short-term bicycle parking.

Table 5: Bicycle Parking Requirements

Land Use	Size[1]	Long-Term Bicycle Parking		Short-Term Bicycle Parking	
		Spaces per Unit[2]	Spaces	Spaces per Unit[2]	Spaces
Residential	330 DU	1:2 DU	165	1:15 DU	22
Retail	13.2 KSF	1:8 KSF	2	1:2 KSF	7
Minimum Required Bicycle Parking			***167***		***29***
Proposed Parking Spaces			***178***		***30***
Meets Minimum Parking Requirement?			***Yes***		***Yes***

Notes:
1. DU = dwelling units, KSF = 1,000 square-feet
2. Per Oakland Planning Code Section 17.117.090 and 17.117.110 for D-BV zones.

Source: Fehr & Peers, 2020.

Recommendation 3: Consider relocating the proposed bicycle room on Level 4 to a more convenient location on the ground level or closer to the elevators on Level 4. If the bicycle room cannot be relocated, ensure that at least one building elevator can accommodate a cargo bike.

Recommendation 4: Ensure that the short-term bicycle parking is placed within 50 feet of the building's main entrance and no further than the closest car parking space, per the City's bicycle ordinance.

Pedestrian Access and Circulation

The main residential lobby for the project would be on the north side of the building along 24th Street east of Waverly Street. Elevators and stairs at the residential lobby would connect to the residential levels of the building. Secondary stairs would be located near the northeast and southeast corners of the building. The retail components of the project would be along the project frontage on 24th and Harrison Streets. The project would also include two townhomes with direct access on Waverly Street.

Pedestrian facilities at the intersections adjacent to the site include:

- The 27th Street/Bay Street/24th Street/Harrison Street intersection is signalized and provides directional curb ramps at all crosswalk entry points except the northeast corner at Harrison Street and Bay Place, which provides a diagonal curb ramp. Truncated domes are provided on all but two curb ramps. High-visibility yellow crosswalk markings are present at the south approach across Harrison Street, with standard yellow crosswalk markings present at all other crossings. Pedestrian median refuges are provided on all approaches, except the 24th Street approach. Pedestrian countdown signal heads and pushbuttons are provided in all directions of marked crossings, except for the slip lane crossings. The 27th Street and southbound Harrison Street approaches each have a right-turn slip lane and pork chop island.
- The 24th Street/Waverly Street intersection is side-street stop controlled with a stop sign on the northbound Waverly Street approach. The intersection provides diagonal curb ramps without truncated domes on the southwest and southeast corners. Standard crosswalks markings are present on the west approach. There are no crosswalk markings on the south or east approach. As of August 2020, the north side of the intersection is under construction and the sidewalk along the northside of the intersection is closed.

As previously described, the planned 27th Street/Bay Street/24th Street/Harrison Street intersection improvements project would make several modifications that would improve pedestrian access and circulation including eliminating the two slip right-turn lanes, providing directional curb ramps with truncated domes at all crosswalks, and reducing the size of the

intersection to improve crossing times for pedestrian crossing the intersection approaches and reducing the overall signal cycle length for the intersection.

Although the project would maintain the segment of 24th Street adjacent to the project between Harrison and Waverly Streets as one-way westbound, the segment between Waverly and Valdez Streets can be converted to two-way circulation, consistent with the recommendation in the *Broadway Valdez District Specific Plan*.

The proposed project would provide a 7,400 square-foot public plaza along the project frontage on 24th Street between Harrison and Waverly Streets, which would include seating and landscaping. However, the project site plan does not show any pedestrian-scale lighting in the plaza.

After the completion of the project, the sidewalks along Waverly and Harrison Streets would be 13.5 feet wide. The sidewalk along 24th Street would be a minimum of 10 feet, and as much as 20 feet as part of the proposed public plaza.

> **Recommendation 5:** While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following should be considered as part of the final design for the project:
>
> - Consistent with the *Broadway Valdez District Specific Plan*, convert the segment of 24th Street between Waverly and Valdez Streets from one-way westbound to two-way circulation and convert the 24th Street/Waverly Street intersection to all-way stop-controlled.
> - Provide marked crosswalks an all three approaches of the 24th Street/Waverly Street intersection and ensure all intersection corners provide dual directional curb ramps
> - Provide pedestrian-scale lighting in the public plaza along the project frontage on 24th Street.

Transit Access

Transit service providers in the project vicinity include BART and AC Transit. BART provides regional rail service throughout the East Bay and across the Bay. The project is located approximately 0.5 miles from the 19th Street BART Station. The nearest station portal is on the north side of Thomas L Berkeley Way, just east of Broadway.

AC Transit is the primary bus service provider in the City of Oakland. The City of Oakland Free Broadway Shuttle ("Free B") also operates in the project vicinity. **Table 6** summarizes the AC Transit service in the project vicinity. The nearest bus stops to the project site are located on Harrison Street, just south of Bay Place in the northbound direction and adjacent to the West Lake Middle School in the southbound direction.

Table 6: AC Transit and Broadway Shuttle Stops

Stop Location	Distance to Project Site[1]	Lines Served	Stop Amenities
Harrison Street at Bay Place	<0.1 miles	33	No amenities
Harrison Street at West Lake Middle School	0.1 miles	33	Trash receptacle
Harrison Street at Grand Avenue	0.1 miles	33	Southbound: bench Northbound: bench, trash receptacle
Grand Avenue at Harrison Street	0.1 miles	12	Eastbound: trash receptacle Westbound: shelter, bench, trash receptacle
Broadway at 25th Street	0.2 miles	51A, 851, Broadway Shuttle (night service only)	Southbound: no amenities Northbound: trash receptacle
Grand Avenue at Valdez Street	0.2 miles	12	No amenities
Grand Avenue at Webster Street	0.2 miles	12, Oakland Free Broadway Shuttle (day service only)	Near-side: no amenities Far-side: Bench

Notes:
1. Distance shown is walking distance between bus stop and the project.

Source: Fehr & Peers, 2020.

Recommendation 6: While not required to address a CEQA impact, and at the discretion of City of Oakland staff and AC Transit staff, the following should be considered as part of the final design for the project:

- Explore the feasibility and, if determined feasible by City of Oakland and AC Transit staff, relocate either one or both of the existing bus stops on Harrison Street from the near-side to the far-side of the intersection with Bay Street (The bus stop on northbound Harrison Street from south of Bay Street to north of Bay Street and the bus stop on southbound Harrison from north of 27th Street to south of 24th Street).
- If the bus stops on Harrison Street are maintained at the current locations, explore the feasibility and, if determined feasible by City of Oakland and AC Transit staff, provide amenities, such as bus shelter, seating, trash receptacle, and/or pedestrian-scale lighting.

Collision History

A five-year history (January 1, 2015 to December 31, 2019) of collision data in the project vicinity was obtained from the Statewide Integrated Traffic Records System (SWITRS) and was evaluated for this collision analysis. **Table 7** summarizes the collision data by type and location and **Table 8** summarizes the collision data by severity and location.

As shown in Table 7, approximately 14 collisions were reported during this five-year timeframe at the study intersections and study roadway segments. The top collision type was rear end collisions (50 percent). Of the 14 reported collisions, seven (50 percent) resulted in injuries and none resulted in a fatality.

At the 27th Street/Bay Street/24th Street/Harrison Street, five of 11 collisions were rear end collisions with unsafe speed reported as the primary collision factor. Of these five speeding-involved rear end collisions, two involved the speeding driver traveling north, two involved the speeding driver travelling east, and one involved the speeding driver travelling south.

The Highway Safety Manual (HSM, Predictive Method - Volume 2, Part C) provides a methodology to predict the number of collisions for intersections and street segments based on their specific characteristics, such as vehicle and pedestrian volume, number of lanes, signal phasing, on-street parking, and number of driveways. **Table 9** presents the predicted collision frequencies for the three study intersections and one study segment using the HSM Predictive Method for Urban and Suburban Arterials and compares the predicted collision frequencies with the actual reported collision frequencies. **Appendix B** provides the detailed predicted collision frequency calculation sheets based on the HSM methodology. Intersections or roadway segments with collision frequencies greater than the predicted frequency are identified as locations that should be evaluated in greater detail for collision trends and potential modifications.

As shown in Table 9, all study locations have a reported collision frequency lower than or equal to the predicted crash frequency.

Table 7: Collisions by Type

Location	Head-on	Sideswipe	Rear-End	Broadside	Hit Object	Pedestrian-Involved	Bicycle-Involved	Total
Intersection								
27th Street/Bay Street/24th Street/Harrison Street	0	1	5	1	2	1	1	11
24th Street/Waverly Street	0	0	1	0	0	0	0	1
Roadway Segment								
Harrison Street (between 23rd and 27th/24th Streets)	0	1	1	0	0	0	0	2
Waverly Street (between 23rd and 24th Streets)	0	0	0	0	0	0	0	0
24th Street (between Waverly and Harrison Streets)	0	0	0	0	0	0	0	0
Total	**0**	**2**	**7**	**1**	**2**	**1**	**1**	**14**

Notes:
1. Based on SWITRS five-year collision data reported from January 1, 2015 to December 31, 2019

Source: Fehr & Peers, 2020

Table 8: Summary of Injuries

Location	Property Damage Only Collisions	Injury Collisions	Fatality Collisions	Total	Person-Injuries			
					Bike	Ped	Driver/ Passenger	Total
Intersection								
27th Street/Bay Street/24th Street/Harrison Street	5	6	0	11	2	0	4	6
24th Street/Waverly Street	0	1	0	1	1	0	0	1
Roadway Segment								
Harrison Street (between 23rd and 27th/24th Streets)	2	0	0	2	0	0	0	0
Waverly Street (between 23rd and 24th Streets)	0	0	0	0	0	0	0	0
24th Street (between Waverly and Harrison Streets)	0	0	0	0	0	0	0	0
Total	**7**	**7**	**0**	**14**	**3**	**0**	**4**	**7**

Notes:

1. Based on SWITRS five-year collision data reported from January 1, 2015 to December 31, 2019

Source: Fehr & Peers, 2020

Table 9: Predicted and Actual Crash Frequencies

Location	Predicted Crash Frequency[1] (per year)	Actual Crash Frequency[2] (per year)	Difference	Higher Than Predicted?
Intersection				
27th Street/Bay Street/24th Street/Harrison Street	2.7	2.2	-0.5	No
24th Street/Waverly Street	0.2	0.2	0.0	No
Roadway Segment				
Harrison Street (between 23rd and 27th/24th Streets)	0.4	0.4	0.0	No
Waverly Street (between 23rd and 24th Streets)	NA	0.0	NA	No
24th Street (between Waverly and Harrison Streets)	NA	0.0	NA	No

Notes:
1. Based on the Highway Safety Manual Predictive Method (Volume 2, Part C)
2. Based on SWITRS five-year collision data reported from January 1, 2015 to December 31, 2019

Source: Fehr & Peers, 2020

Conclusion and Summary of Recommendations

Based on our review of the project site plan and conditions on the surrounding streets, the project would have adequate automobile, bicycle, pedestrian, and transit access and circulation with the inclusion of the following recommendations:

Recommendation 1: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following should be considered as part of the final design for the project:

- Provide adequate sight distance between exiting vehicles and pedestrians on the adjacent sidewalk at the project parking driveway on Waverly Street. If adequate sight distance cannot be achieved, provide audio and visual warning devices at the driveway.
- Designate 20 feet of red curb on the north and south sides of the project driveway on Waverly Street to ensure adequate sight distance between vehicles exiting the driveways and vehicles in both direction of Waverly Street.
- Reduce the length of the median within the project driveway to accommodate vehicles turning right from the commercial component of the garage into the main project driveway. The median should extend no more than approximately 15 feet into the garage from the garage gate.

Recommendation 2: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following should be considered as part of the final design for the project:

- Designate 25 feet of passenger loading space (white curb) on Harrison Street just south of the project or along the project frontage on 24th Street for passenger pick-up/drop off.
- Designate the remaining parking spaces along Harrison Street and/or the parking spaces along the project frontage on 24th Street with two-hour time restrictions during the weekday business hours.

Recommendation 3: Consider relocating the proposed bicycle room on Level 4 to a more convenient location on the ground level or closer to the elevators on Level 4. If the bicycle room cannot be relocated, ensure that at least one building elevator can accommodate a cargo bike.

Recommendation 4: Ensure that the short-term bicycle parking is placed within 50 feet of the building's main entrance and no further than the closest car parking space, per the City's bicycle ordinance.

Recommendation 5: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following should be considered as part of the final design for the project:

- Consistent with the *Broadway Valdez District Specific Plan*, convert the segment of 24th Street between Waverly and Valdez Streets from one-way westbound to two-way circulation and convert the 24th Street/Waverly Street intersection to all-way stop-controlled.
- Provide marked crosswalks an all three approaches of the 24th Street/Waverly Street intersection and ensure all intersection corners provide dual directional curb ramps
- Provide pedestrian-scale lighting in the public plaza along the project frontage on 24th Street.

Recommendation 6: While not required to address a CEQA impact, and at the discretion of City of Oakland staff and AC Transit staff, the following should be considered as part of the final design for the project:

- Explore the feasibility and, if determined feasible by City of Oakland and AC Transit staff, relocate either one or both of the existing bus stops on Harrison Street from the near-side to the far-side of the intersection with Bay Street (The bus stop on northbound Harrison Street from south of Bay Street to north of Bay Street and the bus stop on southbound Harrison from north of 27th Street to south of 24th Street).

- If the bus stops on Harrison Street are maintained at the current locations, explore the feasibility and, if determined feasible by City of Oakland and AC Transit staff, provide amenities, such as bus shelter, seating, trash receptacle, and/or pedestrian-scale lighting.

Please contact Sam Tabibnia (stabibnia@fehrandpeers.com or 510-835-1943) with questions or comments.

ATTACHMENTS

Figure 1 – Project Vehicle Trip Distribution

Figure 2 – Existing and Existing Plus Project Peak Hour Intersection Volumes, Lane Configurations, and Traffic Controls

Figure 3 - Passenger Vehicles Entering and Exiting Project Driveway via Waverly Street

Appendix A – Intersection LOS Calculation Sheets

Appendix B – Predicted Crash Frequency Calculation Sheets

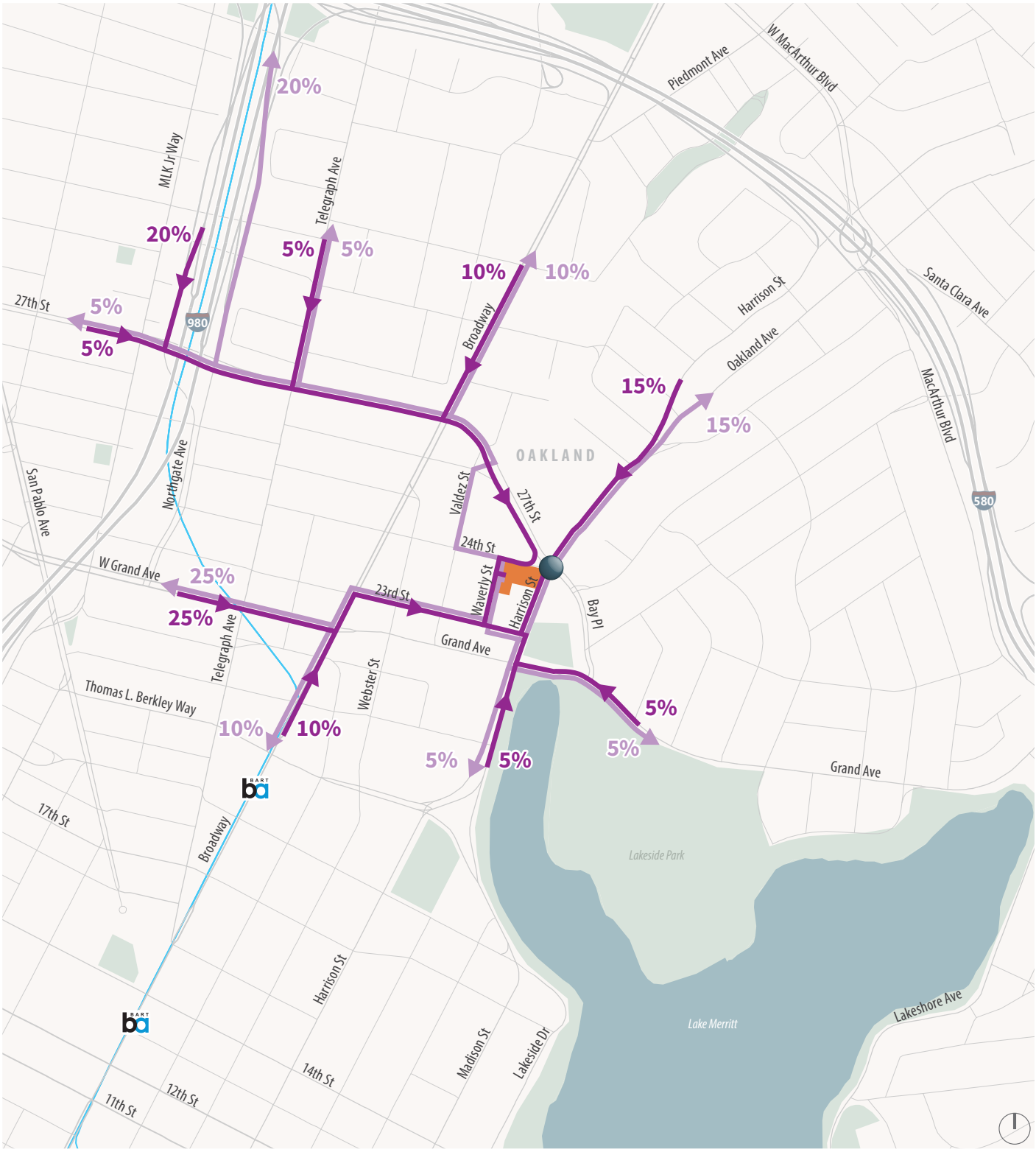
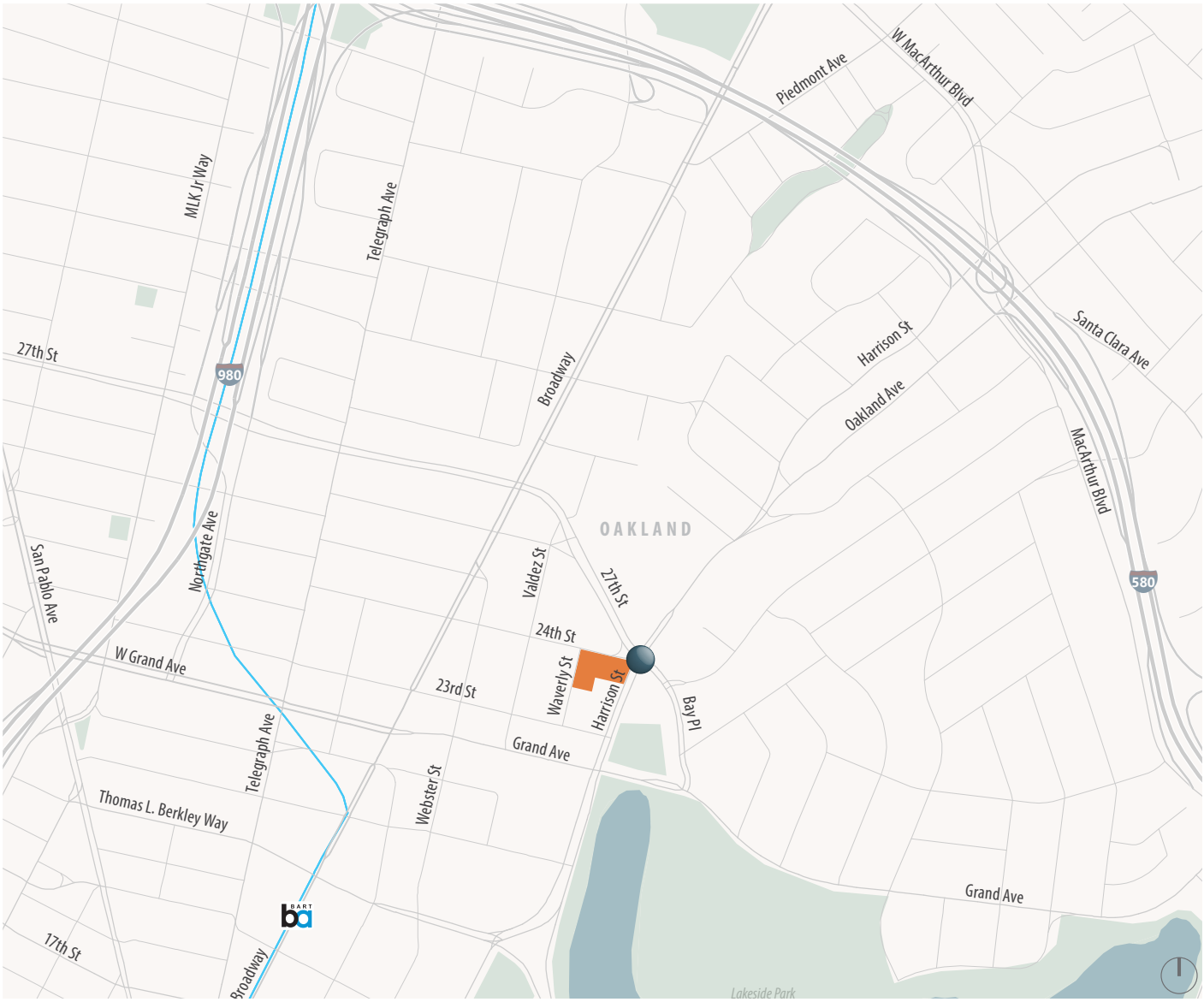
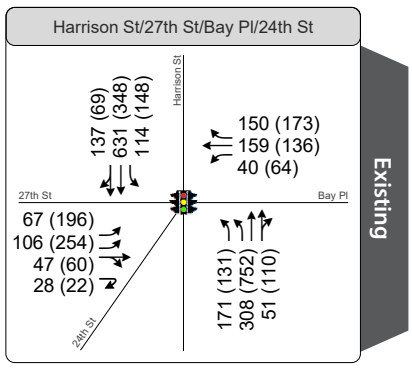
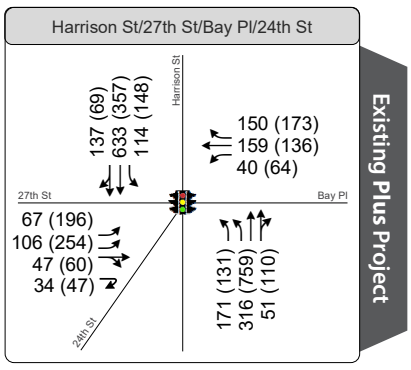


Figure 1

Project Trip Distribution







XX (YY) AM (PM) Peak Hour Traffic Volumes

Signalized Intersection

Project Site

Study Intersection

Figure 2

Existing and Existing Plus Project Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

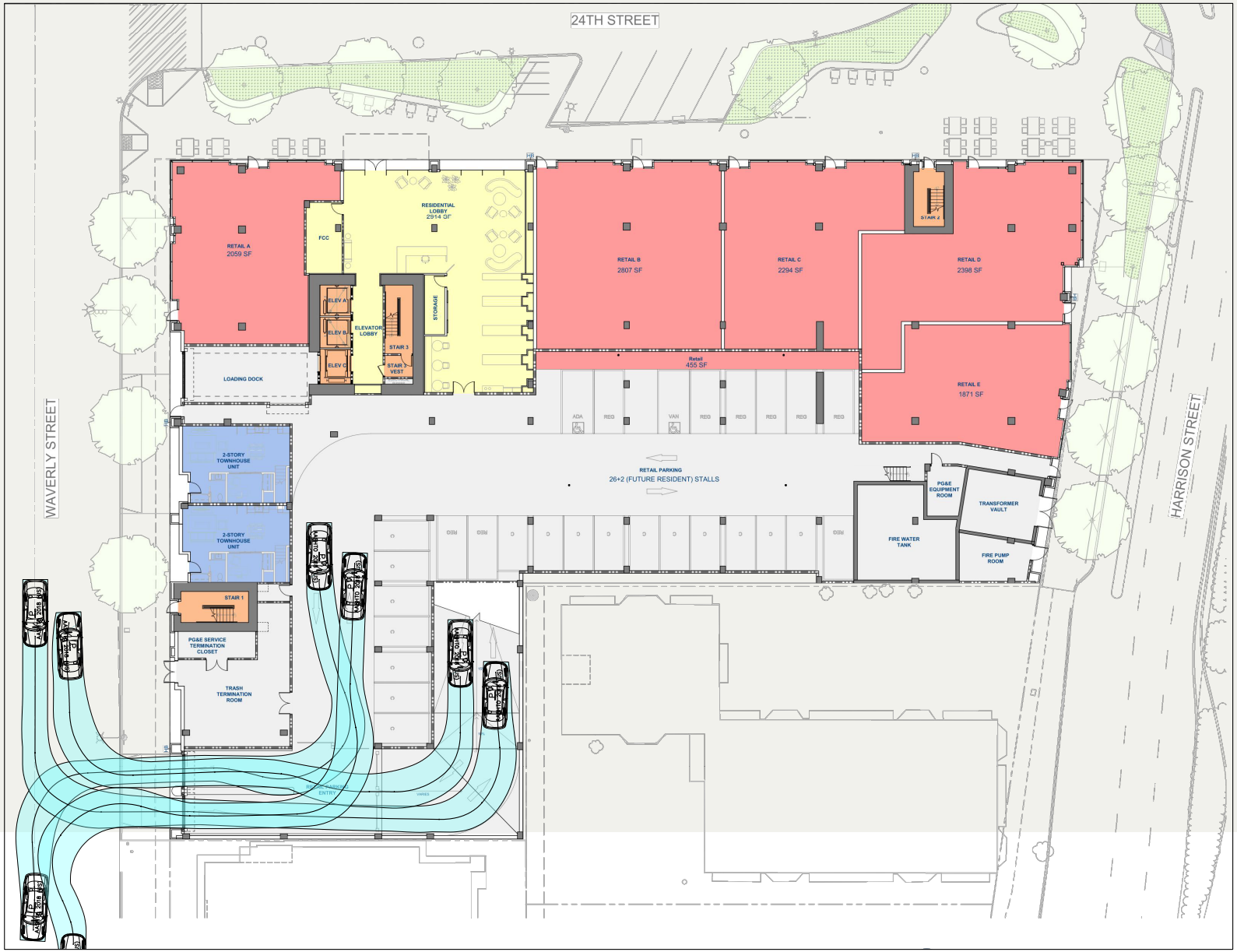


Figure 3

Passenger Vehicles Entering and Exiting Project Driveway via Waverly Street

Appendix A:
Intersection LOS Calculation Sheets

Movement	EBL	EBT	EBR	EBR2	WBL2	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	67	106	47	28	40	159	150	171	308	51	114	631
Future Volume (vph)	67	106	47	28	40	159	150	171	308	51	114	631
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Lane Util. Factor	0.97	0.95		0.95	1.00	1.00	1.00	0.97	0.95		1.00	0.95
Frpb, ped/bikes	1.00	0.95		0.92	1.00	1.00	0.92	1.00	0.95		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.95		0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.97
Flt Protected	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (prot)	3433	1608		1389	1770	1863	1458	3433	3305		1770	3378
Flt Permitted	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (perm)	3433	1608		1389	1770	1863	1458	3433	3305		1770	3378
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)	67	106	47	28	40	159	150	171	308	51	114	631
RTOR Reduction (vph)	0	1	0	17	0	0	104	0	16	0	0	103
Lane Group Flow (vph)	67	155	0	8	40	159	46	171	343	0	114	665
Confl. Peds. (#/hr)			65	65			66			172		
Confl. Bikes (#/hr)			4	4			2			4		
Turn Type	Prot	NA		Perm	Prot	NA	Perm	Prot	NA		Prot	NA
Protected Phases	5	2			1	6		3	8		7	4
Permitted Phases				2			6					
Actuated Green, G (s)	5.0	28.0		28.0	3.0	26.0	26.0	6.0	26.0		8.0	28.0
Effective Green, g (s)	5.0	28.0		28.0	3.0	26.0	26.0	6.0	26.0		8.0	28.0
Actuated g/C Ratio	0.06	0.33		0.33	0.04	0.31	0.31	0.07	0.31		0.09	0.33
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	201	529		457	62	569	445	242	1010		166	1112
v/s Ratio Prot	0.02	c0.10			c0.02	0.09		0.05	0.10		c0.06	c0.20
v/s Ratio Perm				0.01			0.03					
v/c Ratio	0.33	0.29		0.02	0.65	0.28	0.10	0.71	0.34		0.69	0.60
Uniform Delay, d1	38.4	21.2		19.2	40.5	22.4	21.1	38.6	22.9		37.3	23.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.4	1.4		0.1	15.9	1.2	0.5	7.5	0.9		9.0	2.4
Delay (s)	38.8	22.6		19.3	56.4	23.6	21.6	46.1	23.8		46.3	26.2
Level of Service	D	C		B	E	C	C	D	C		D	C
Approach Delay (s)		26.6				26.5			31.0			28.8
Approach LOS		C				C			C			C

Intersection Summary			
HCM 2000 Control Delay	28.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR2
Lane Configurations	
Traffic Volume (vph)	137
Future Volume (vph)	137
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)	137
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	93
Confl. Bikes (#/hr)	23
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	EBR2	WBL2	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	196	254	60	22	64	136	173	131	752	110	148	348
Future Volume (vph)	196	254	60	22	64	136	173	131	752	110	148	348
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Lane Util. Factor	0.97	0.95		0.95	1.00	1.00	1.00	0.97	0.95		1.00	0.95
Frpb, ped/bikes	1.00	0.96		0.90	1.00	1.00	0.91	1.00	0.95		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.97		0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.98
Flt Protected	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (prot)	3433	1656		1357	1770	1863	1443	3433	3291		1770	3393
Flt Permitted	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (perm)	3433	1656		1357	1770	1863	1443	3433	3291		1770	3393
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)	196	254	60	22	64	136	173	131	752	110	148	348
RTOR Reduction (vph)	0	0	0	14	0	0	124	0	13	0	0	103
Lane Group Flow (vph)	196	316	0	6	64	136	49	131	849	0	148	314
Confl. Peds. (#/hr)			87	87			75			221		
Confl. Bikes (#/hr)			4	4			2			4		
Turn Type	Prot	NA		Perm	Prot	NA	Perm	Prot	NA		Prot	NA
Protected Phases	5	2			1	6		3	8		7	4
Permitted Phases				2			6					
Actuated Green, G (s)	7.0	27.1		27.1	4.0	24.1	24.1	5.9	25.0		8.9	28.0
Effective Green, g (s)	7.0	27.1		27.1	4.0	24.1	24.1	5.9	25.0		8.9	28.0
Actuated g/C Ratio	0.08	0.32		0.32	0.05	0.28	0.28	0.07	0.29		0.10	0.33
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	282	527		432	83	528	409	238	967		185	1117
v/s Ratio Prot	c0.06	c0.19			0.04	0.07		0.04	c0.26		c0.08	0.09
v/s Ratio Perm				0.00			0.03					
v/c Ratio	0.70	0.60		0.01	0.77	0.26	0.12	0.55	0.88		0.80	0.28
Uniform Delay, d1	38.0	24.4		19.8	40.0	23.5	22.6	38.3	28.5		37.2	21.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.9	5.0		0.1	32.3	1.2	0.6	1.6	11.1		20.3	0.6
Delay (s)	43.8	29.4		19.9	72.3	24.7	23.2	39.8	39.6		57.5	21.7
Level of Service	D	C		B	E	C	C	D	D		E	C
Approach Delay (s)		34.3				32.2			39.7			31.1
Approach LOS		C				C			D			C

Intersection Summary			
HCM 2000 Control Delay	35.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR2
Lane Configurations	
Traffic Volume (vph)	69
Future Volume (vph)	69
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)	69
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	85
Confl. Bikes (#/hr)	23
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	EBR2	WBL2	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	67	106	47	34	40	159	150	171	316	51	114	633
Future Volume (vph)	67	106	47	34	40	159	150	171	316	51	114	633
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Lane Util. Factor	0.97	0.95		0.95	1.00	1.00	1.00	0.97	0.95		1.00	0.95
Frpb, ped/bikes	1.00	0.95		0.92	1.00	1.00	0.92	1.00	0.96		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.95		0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.97
Flt Protected	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (prot)	3433	1608		1389	1770	1863	1458	3433	3310		1770	3378
Flt Permitted	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (perm)	3433	1608		1389	1770	1863	1458	3433	3310		1770	3378
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)	67	106	47	34	40	159	150	171	316	51	114	633
RTOR Reduction (vph)	0	1	0	21	0	0	104	0	15	0	0	103
Lane Group Flow (vph)	67	155	0	10	40	159	46	171	352	0	114	667
Confl. Peds. (#/hr)			65	65			66			172		
Confl. Bikes (#/hr)			4	4			2			4		
Turn Type	Prot	NA		Perm	Prot	NA	Perm	Prot	NA		Prot	NA
Protected Phases	5	2			1	6		3	8		7	4
Permitted Phases				2			6					
Actuated Green, G (s)	5.0	28.0		28.0	3.0	26.0	26.0	6.0	26.0		8.0	28.0
Effective Green, g (s)	5.0	28.0		28.0	3.0	26.0	26.0	6.0	26.0		8.0	28.0
Actuated g/C Ratio	0.06	0.33		0.33	0.04	0.31	0.31	0.07	0.31		0.09	0.33
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	201	529		457	62	569	445	242	1012		166	1112
v/s Ratio Prot	0.02	c0.10			c0.02	0.09		0.05	0.11		c0.06	c0.20
v/s Ratio Perm				0.01			0.03					
v/c Ratio	0.33	0.29		0.02	0.65	0.28	0.10	0.71	0.35		0.69	0.60
Uniform Delay, d1	38.4	21.2		19.3	40.5	22.4	21.1	38.6	22.9		37.3	23.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.4	1.4		0.1	15.9	1.2	0.5	7.5	0.9		9.0	2.4
Delay (s)	38.8	22.6		19.3	56.4	23.6	21.6	46.1	23.9		46.3	26.2
Level of Service	D	C		B	E	C	C	D	C		D	C
Approach Delay (s)		26.4				26.5			30.9			28.8
Approach LOS		C				C			C			C

Intersection Summary			
HCM 2000 Control Delay	28.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR2
Lane Configurations	
Traffic Volume (vph)	137
Future Volume (vph)	137
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)	137
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	93
Confl. Bikes (#/hr)	23
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	EBR2	WBL2	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	196	254	60	47	64	136	173	131	759	110	148	357
Future Volume (vph)	196	254	60	47	64	136	173	131	759	110	148	357
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Lane Util. Factor	0.97	0.95		0.95	1.00	1.00	1.00	0.97	0.95		1.00	0.95
Frpb, ped/bikes	1.00	0.96		0.90	1.00	1.00	0.91	1.00	0.95		1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.97		0.85	1.00	1.00	0.85	1.00	0.98		1.00	0.98
Flt Protected	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (prot)	3433	1651		1357	1770	1863	1443	3433	3293		1770	3397
Flt Permitted	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00
Satd. Flow (perm)	3433	1651		1357	1770	1863	1443	3433	3293		1770	3397
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)	196	254	60	47	64	136	173	131	759	110	148	357
RTOR Reduction (vph)	0	1	0	29	0	0	124	0	13	0	0	103
Lane Group Flow (vph)	196	318	0	13	64	136	49	131	856	0	148	323
Confl. Peds. (#/hr)			87	87			75			221		
Confl. Bikes (#/hr)			4	4			2			4		
Turn Type	Prot	NA		Perm	Prot	NA	Perm	Prot	NA		Prot	NA
Protected Phases	5	2			1	6		3	8		7	4
Permitted Phases				2			6					
Actuated Green, G (s)	7.0	27.1		27.1	4.0	24.1	24.1	5.9	25.0		8.9	28.0
Effective Green, g (s)	7.0	27.1		27.1	4.0	24.1	24.1	5.9	25.0		8.9	28.0
Actuated g/C Ratio	0.08	0.32		0.32	0.05	0.28	0.28	0.07	0.29		0.10	0.33
Clearance Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	282	526		432	83	528	409	238	968		185	1119
v/s Ratio Prot	c0.06	c0.19			0.04	0.07		0.04	c0.26		c0.08	0.10
v/s Ratio Perm				0.01			0.03					
v/c Ratio	0.70	0.61		0.03	0.77	0.26	0.12	0.55	0.88		0.80	0.29
Uniform Delay, d1	38.0	24.4		19.9	40.0	23.5	22.6	38.3	28.6		37.2	21.1
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.9	5.1		0.1	32.3	1.2	0.6	1.6	11.6		20.3	0.7
Delay (s)	43.8	29.5		20.1	72.3	24.7	23.2	39.8	40.2		57.5	21.8
Level of Service	D	C		C	E	C	C	D	D		E	C
Approach Delay (s)		33.9				32.2			40.2			31.0
Approach LOS		C				C			D			C

Intersection Summary			
HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR2
Lane Configurations	
Traffic Volume (vph)	69
Future Volume (vph)	69
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)	69
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Confl. Peds. (#/hr)	85
Confl. Bikes (#/hr)	23
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

Appendix B:
Predicted Crash Frequency Calculation Sheets

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections

General Information		Location Information	
Analyst	Sam Inoue-Alexander	Roadway	
Agency or Company	Fehr & Peers	Intersection	27th Street/Harrison Street/24 Street/Bay Pl
Date Performed	08/21/20	Jurisdiction	Oakland, CA
		Analysis Year	2020

Input Data		Base Conditions	Site Conditions
Intersection type (3ST, 3SG, 4ST, 4SG)		--	4SG
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ = 67,700 (veh/day)	--	15,890
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ = 33,400 (veh/day)	--	8,520
Intersection lighting (present/not present)		Not Present	Present
Calibration factor, C_i		1.00	1.00
Data for unsignalized intersections only:		--	--
Number of major-road approaches with left-turn lanes (0,1,2)		0	0
Number of major-road approaches with right-turn lanes (0,1,2)		0	0
Data for signalized intersections only:		--	--
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		0	4
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		0	3
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]		--	4
Type of left-turn signal phasing for Leg #1		Permissive	Protected
Type of left-turn signal phasing for Leg #2		--	Protected
Type of left-turn signal phasing for Leg #3		--	Protected
Type of left-turn signal phasing for Leg #4 (if applicable)		--	Protected
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]		0	0
Intersection red light cameras (present/not present)		Not Present	Not Present
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only			4,020
Maximum number of lanes crossed by a pedestrian (n_{lanesx})		--	5
Number of bus stops within 300 m (1,000 ft) of the intersection		0	2
Schools within 300 m (1,000 ft) of the intersection (present/not present)		Not Present	Present
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection		0	3

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
0.66	0.78	0.88	1.00	0.91	1.00	0.42

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.99	1.07	0.23	0.39	4.230	1.000	4.230	0.42	1.00	1.756
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	1.304	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.320	1.354	0.42	1.00	0.562
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	2.770	$(5)_{TOTAL}-(5)_{FI}$ = 0.680	2.876	0.42	1.00	1.194

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	0.562	1.000	1.194	1.756
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.253	0.483	0.577	0.830
Head-on collision	0.049	0.028	0.030	0.036	0.063
Angle collision	0.347	0.195	0.244	0.291	0.486
Sideswipe	0.099	0.056	0.032	0.038	0.094
Other multiple-vehicle collision	0.055	0.031	0.211	0.252	0.283

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-10.21	0.68	0.27	0.36	0.305	1.000	0.305	0.42	1.00	0.126
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.085	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.282	0.086	0.42	1.00	0.036
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.216	$(5)_{TOTAL}-(5)_{FI}$ = 0.718	0.219	0.42	1.00	0.091

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.036	1.000	0.091	0.126
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.002	0.000	0.002	0.000	0.000
Collision with fixed object	0.744	0.027	0.870	0.079	0.106
Collision with other object	0.072	0.003	0.070	0.006	0.009
Other single-vehicle collision	0.040	0.001	0.023	0.002	0.004
Single-vehicle noncollision	0.141	0.005	0.034	0.003	0.008

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16		(4)*(5)*(6)
Total	--	--	--	--	1.00	--
Fatal and injury (FI)	--	--	--	--	1.00	--

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
2.78	1.35	1.12	4.20

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	-9.53	0.40	0.26	0.45	0.04	0.24	0.180	4.20	1.00	0.755
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.755

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Calibration factor, C_i**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17		(4)*(5)*(6)
Total	1.756	0.126	1.883	0.015	1.00	0.028
Fatal and injury (FI)	--	--	--	--	1.00	0.028

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.253	0.577	0.830
Head-on collisions (from Worksheet 2D)	0.028	0.036	0.063
Angle collisions (from Worksheet 2D)	0.195	0.291	0.486
Sideswipe (from Worksheet 2D)	0.056	0.038	0.094
Other multiple-vehicle collision (from Worksheet 2D)	0.031	0.252	0.283
Subtotal	0.562	1.194	1.756
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 2F)	0.027	0.079	0.106
Collision with other object (from Worksheet 2F)	0.003	0.006	0.009
Other single-vehicle collision (from Worksheet 2F)	0.001	0.002	0.004
Single-vehicle noncollision (from Worksheet 2F)	0.005	0.003	0.008
Collision with pedestrian (from Worksheet 2G or 2I)	0.755	0.000	0.755
Collision with bicycle (from Worksheet 2J)	0.028	0.000	0.028
Subtotal	0.819	0.091	0.910
Total	1.381	1.285	2.666

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	2.7
Fatal and injury (FI)	1.4
Property damage only (PDO)	1.3

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections

General Information		Location Information	
Analyst	Sam Inoue-Alexander	Roadway	
Agency or Company	Fehr & Peers	Intersection	24th Street/Waverly Street
Date Performed	08/21/20	Jurisdiction	Oakland, CA
		Analysis Year	2020

Input Data		Base Conditions	Site Conditions
Intersection type (3ST, 3SG, 4ST, 4SG)		--	3ST
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ = 45,700 (veh/day)	--	1,100
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ = 9,300 (veh/day)	--	1,100
Intersection lighting (present/not present)		Not Present	Present
Calibration factor, C_i		1.00	1.00
Data for unsignalized intersections only:		--	--
Number of major-road approaches with left-turn lanes (0,1,2)		0	0
Number of major-road approaches with right-turn lanes (0,1,2)		0	0
Data for signalized intersections only:		--	--
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		0	0
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		0	0
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]		--	0
Type of left-turn signal phasing for Leg #1		Permissive	Not Applicable
Type of left-turn signal phasing for Leg #2		--	Not Applicable
Type of left-turn signal phasing for Leg #3		--	Not Applicable
Type of left-turn signal phasing for Leg #4 (if applicable)		--	Not Applicable
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]		0	0
Intersection red light cameras (present/not present)		Not Present	Not Present
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only			
Maximum number of lanes crossed by a pedestrian (n_{lanesx})		--	2
Number of bus stops within 300 m (1,000 ft) of the intersection		0	3
Schools within 300 m (1,000 ft) of the intersection (present/not present)		Not Present	Present
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection		0	6

Worksheet 2B -- Crash Modification Factors for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)	(7)
CMF for Left-Turn Lanes	CMF for Left-Turn Signal Phasing	CMF for Right-Turn Lanes	CMF for Right Turn on Red	CMF for Lighting	CMF for Red Light Cameras	Combined CMF
CMF 1i	*CMF 2i*	*CMF 3i*	*CMF 4i*	*CMF 5i*	*CMF 6i*	*CMF $_{COMB}$*
from Table 12-24	from Table 12-25	from Table 12-26	from Equation 12-35	from Equation 12-36	from Equation 12-37	(1)*(2)*(3)*(4)*(5)*(6)
1.00	1.00	1.00	1.00	0.91	1.00	0.91

Worksheet 2C -- Multiple-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bimv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bimv}**
	from Table 12-10			from Table 12-10	from Equation 12-21		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-13.36	1.11	0.41	0.80	0.066	1.000	0.066	0.91	1.00	0.060
Fatal and Injury (FI)	-14.01	1.16	0.30	0.69	0.023	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.406	0.027	0.91	1.00	0.024
Property Damage Only (PDO)	-15.38	1.20	0.51	0.77	0.033	$(5)_{TOTAL}-(5)_{FI}$ = 0.594	0.039	0.91	1.00	0.036

Worksheet 2D -- Multiple-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bimv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bimv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bimv\ (TOTAL)}$ (crashes/year)**
	from Table 12-11	$(9)_{FI}$ from Worksheet 2C	from Table 12-11	$(9)_{PDO}$ from Worksheet 2C	$(9)_{PDO}$ from Worksheet 2C
Total	1.000	0.024	1.000	0.036	0.060
		(2)*$(3)_{FI}$		(4)*$(5)_{PDO}$	(3)+(5)
Rear-end collision	0.421	0.010	0.440	0.016	0.026
Head-on collision	0.045	0.001	0.023	0.001	0.002
Angle collision	0.343	0.008	0.262	0.009	0.018
Sideswipe	0.126	0.003	0.040	0.001	0.005
Other multiple-vehicle collision	0.065	0.002	0.235	0.008	0.010

Worksheet 2E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Arterial Intersections

(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**			**Overdispersion Parameter, k**	**Initial N_{bisv}**	**Proportion of Total Crashes**	**Adjusted N_{bimv}**	**Combined CMFs**	**Calibration Factor, C_i**	**Predicted N_{bisv}**
	from Table 12-12			from Table 12-12	from Eqn. 12-24; (FI) from Eqn. 12-24 or 12-27		$(4)_{TOTAL}$*(5)	(7) from Worksheet 2B		(6)*(7)*(8)
	a	b	c							
Total	-6.81	0.16	0.51	1.14	0.120	1.000	0.120	0.91	1.00	0.109
Fatal and Injury (FI)	--	--	--	--	0.037	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.370	0.045	0.91	1.00	0.040
Property Damage Only (PDO)	-8.36	0.25	0.55	1.29	0.063	$(5)_{TOTAL}-(5)_{FI}$ = 0.630	0.076	0.91	1.00	0.069

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.040	1.000	0.069	0.109
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.003	0.000	0.000
Collision with animal	0.003	0.000	0.018	0.001	0.001
Collision with fixed object	0.762	0.031	0.834	0.057	0.088
Collision with other object	0.090	0.004	0.092	0.006	0.010
Other single-vehicle collision	0.039	0.002	0.023	0.002	0.003
Single-vehicle noncollision	0.105	0.004	0.030	0.002	0.006

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16		(4)*(5)*(6)
Total	0.060	0.109	0.170	0.021	1.00	0.004
Fatal and injury (FI)	--	--	--	--	1.00	0.004

Worksheet 2H -- Crash Modification Factors for Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)	(3)	(4)
CMF for Bus Stops	CMF for Schools	CMF for Alcohol Sales Establishments	Combined CMF
CMF_{1p}	CMF_{2p}	CMF_{3p}	
from Table 12-28	from Table 12-29	from Table 12-30	(1)*(2)*(3)
--	--	--	--

Worksheet 2I -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Signalized Intersections

(1)	(2)					(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**SPF Coefficients**					**Overdispersion Parameter, k**	**$N_{pedbase}$**	**Combined CMF**	**Calibration factor, C_i**	**Predicted N_{pedi}**
	from Table 12-14						from Equation 12-29	(4) from Worksheet 2H		(4)*(5)*(6)
	a	b	c	d	e					
Total	--	--	--	--	--	--	--	--	1.00	--
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	--

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Calibration factor, C_i**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17		(4)*(5)*(6)
Total	0.060	0.109	0.170	0.016	1.00	0.003
Fatal and injury (FI)	--	--	--	--	1.00	0.003

Worksheet 2K -- Crash Severity Distribution for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J	(5) from Worksheet 2D and 2F	(6) from Worksheet 2D and 2F; (7) from 2G or 2I and 2J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 2D)	0.010	0.016	0.026
Head-on collisions (from Worksheet 2D)	0.001	0.001	0.002
Angle collisions (from Worksheet 2D)	0.008	0.009	0.018
Sideswipe (from Worksheet 2D)	0.003	0.001	0.005
Other multiple-vehicle collision (from Worksheet 2D)	0.002	0.008	0.010
Subtotal	0.024	0.036	0.060
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.001	0.001
Collision with fixed object (from Worksheet 2F)	0.031	0.057	0.088
Collision with other object (from Worksheet 2F)	0.004	0.006	0.010
Other single-vehicle collision (from Worksheet 2F)	0.002	0.002	0.003
Single-vehicle noncollision (from Worksheet 2F)	0.004	0.002	0.006
Collision with pedestrian (from Worksheet 2G or 2I)	0.004	0.000	0.004
Collision with bicycle (from Worksheet 2J)	0.003	0.000	0.003
Subtotal	0.047	0.069	0.116
Total	0.071	0.105	0.176

Worksheet 2L -- Summary Results for Urban and Suburban Arterial Intersections

(1)	(2)
Crash severity level	**Predicted average crash frequency, $N_{predicted\ int}$ (crashes/year)**
	(Total) from Worksheet 2K
Total	0.2
Fatal and injury (FI)	0.1
Property damage only (PDO)	0.1