Oakland City Planning Commission STAFF REPORT

Case File Number: PLN18490, PLN18521 **February 6, 2019**

Location:	**West Oakland BART 1451 7th St (APNs 004 007700300, 004 007100300).**
Proposal:	Preliminary Development Permit (PDP) and related permits, including 762 residential units, 382,460 square feet of office space, and up to 75,000 square feet of retail. Project includes two midrise buildings (80-100' tall), a high-rise building (320' tall), potential retail under the BART tracks, and public plazas. Includes Vesting TPM 10940 to merge parcels. Utilizing 35% State Affordable Housing Bonus.
Applicant:	China Harbour Engineering (CHEC), Ronnie Turner ((510) 395-2766.
Owner:	San Francisco Bay Area Rapid Transit District (BART)
Case File Number:	PLN18490 and PLN18521
Planning Permits Required:	PDP, Minor variance for open space, compliance with CEQA, Vesting Tentative Parcel Map.
General and Estuary Plan:	Community Commercial.
Zoning:	Transit-Oriented Development Commercial Zone (S-15W)
Environmental Determination:	A CEQA Analysis was prepared for this project which concluded that the proposed project satisfies the following CEQA Guideline provision: 15164 – Addendum (to West Oakland Specific Plan EIR). The CEQA Analysis document may be reviewed at the Bureau of Planning offices at 250 Frank Ogawa Plaza, 2nd Floor or on-line at http://www2.oaklandnet.com/Government/o/PBN/OurServices/Application/DOWD009157 (see #22).
Historic Status:	Non-Historic Property
Service Delivery District:	1
City Council District:	3 – Lynette Gibson McElhaney
Action to be Taken:	Consider approval of PDP, Minor Variance, and Vesting TPM 10940 based on attached findings.
Finality of Decision:	Appealable to City Council.
For further information:	Contact case planner **Dara O'Byrne** at **510-238-6983** or by e-mail at dobyrne@oaklandca.gov

SUMMARY

The proposed project is a Preliminary Development Permit (PDP) for construction of a transit-oriented development (TOD) at the West Oakland Bay Area Rapid Transit (BART) station. The project includes 762 residential units (of which 240 units are affordable), 382,460 square feet of office space, and up to 75,000 square feet of retail. The project includes an 80-foot tall affordable housing building, a 100-foot tall office building, a 320-foot tall residential tower, and retail under the BART tracks. The project includes 400 parking spaces and public plazas.

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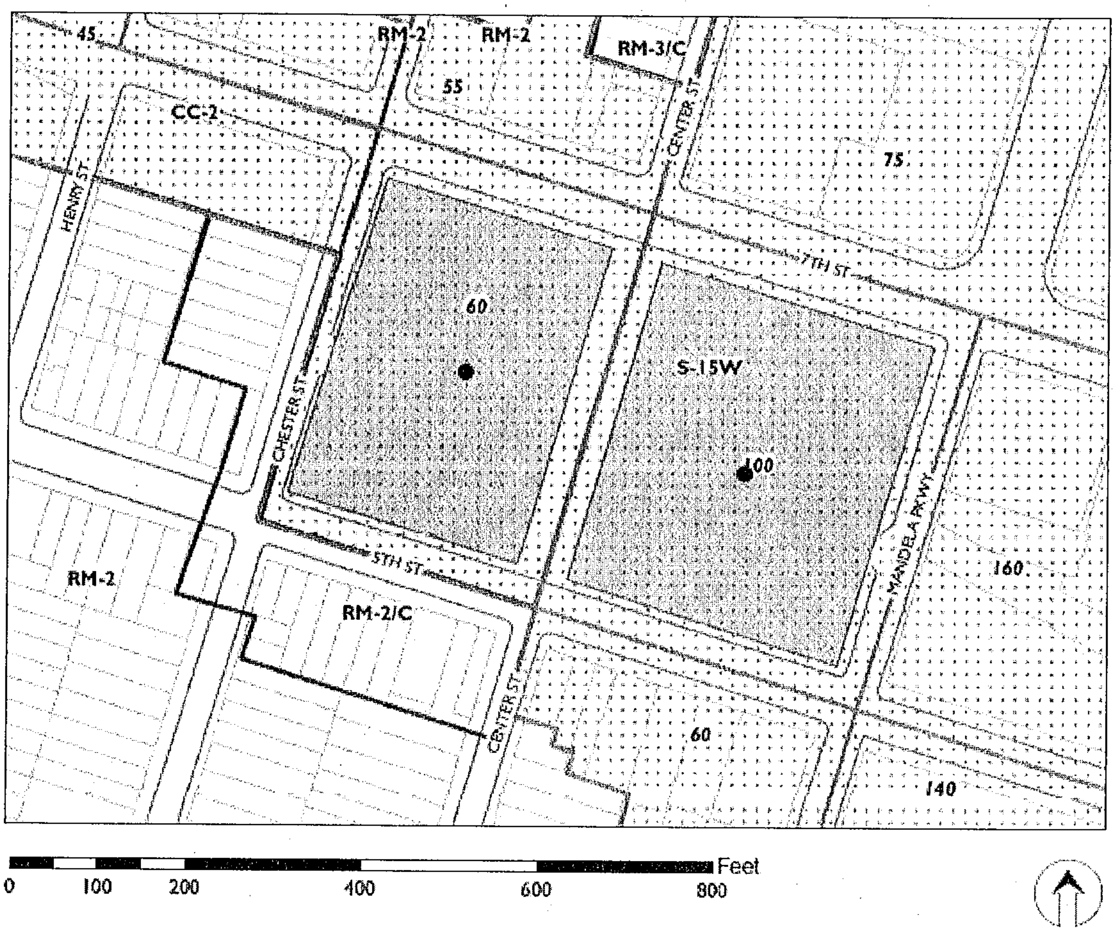
CITY OF OAKLAND PLANNING COMMISSION



Case Files: PLN18490 and PLN18521
Applicant: China Harbour Engineering (CHEC), Ronnie Turner
Address: West Oakland BART 1451 7th St
Zone: S-15W
Height Areas: 60ft and 100 ft

PROJECT SITE AND SURROUNDING AREA

The West Oakland BART TOD site encompasses 5.58-acres and is bounded by 7th Street to the north, 5th Street to the south, Chester Street to the west, and Mandela Parkway to the east. The project site consists of two parcels at 1451 7th Street (Assessor's Parcel Number: 004-007-700-300 and 004-007-100-300).

PROJECT BACKGROUND

Project History

The project applicant first submitted a pre-application to the City of Oakland in October 2017 to receive initial feedback on preliminary site layout and design. For approximately two years, the project applicant has been working with the community, through an established Community Advisory Council and through community meetings, to receive input on the proposed project.

The proposed project has not previously been subject to City of Oakland public hearings. Because the project has been subject to a robust community participation process and is subject to an imminent entitlement deadline in order to compete for a significant Affordable Housing Sustainable Communities (AHSC) funding award, the Bureau of Planning is bringing the project directly to the Planning Commission for consideration of approval.

PROJECT DESCRIPTION

The proposed West Oakland BART TOD project is a preliminary development plan for a mixed-use project surrounding the West Oakland BART station. The project is located at the approximately 5.58-acre site encompassing the West Oakland BART station bounded by 7th Street to the north, 5th Street to the south, Chester Street to the west, and Mandela Parkway to the east. The project site consists of two parcels at 1451 7th Street (Assessor's Parcel Number: 004-007-700-300 and 004-007-100-300).

Existing Conditions and Surrounding Land Uses
The project site is a rectangular lot occupied by the West Oakland BART station and associated surface parking and circulation. Vegetation onsite is currently limited to some street and parking lot landscaping and trees. Existing land uses in the vicinity include multi-story commercial and residential development to the north, parking/fuel station/vacant lot to the east, light industrial and low-rise residential to the south, and low-rise residential to the west.

General Plan and Zoning Designations
The Oakland General Plan and West Oakland Specific Plan (WOSP) designate the project site as Community Commercial. This designation seeks to encourage neighborhood center uses and larger scale retail and commercial uses, which can be complemented by the addition of urban residential development and compatible mixed use development. The project site is zoned as Transit-Oriented Development Commercial Zone (S-15W), which is intended to feature high-density residential, commercial, and mixed-use developments to encourage a balance of pedestrian-oriented activities, transit opportunities, and concentrated development near transit stations. The proposed uses (mixed-use multi-family residential, office, and retail) are allowable under the General Plan designation and zoning.

Proposed Project
The applicant is proposing to demolish the existing 451-space West Oakland BART station surface parking lot and associated circulation, and in its place construct three new mid-rise and high-rise buildings, retail under the BART tracks, and a row of residential duplexes for a total of 762 residential units, 382,460 square feet of office space, and up to 75,000 square feet of ground-floor retail uses. The project also includes a 400-space underground parking lot, a surface plaza, and circulation elements. The BART station and tracks will remain. The project represents establishment of the transit-oriented development (TOD) contemplated in the West Oakland Specific Plan on the site surrounding the West Oakland BART station.

The proposed project would consist of the following development, split into four development areas labeled T1 through T4 as shown below:

- T1: 30-story, 320-foot tall high-rise building with 500 residential units, 82,460 square feet of office, and 17,185 square feet of ground-floor retail
- T2: surface plaza with 7,670 square feet of retail under the BART tracks
- T3: 7-story, 80-foot tall mid-rise residential building of 240 multi-family units and 22 3-story residential duplex units and 15,200 square feet of ground-floor retail
- T4: 8-story, 100-foot tall mid-rise commercial office building with 300,000 square feet of office and 30,800 square feet of ground-floor retail

	Development Areas				
Uses	T1	T2	T3	T4	Total
Office	82,460 sf			300,000 sf	382,460 sf
Retail	17,185 sf	7,670 sf	15,200 sf	30,800 sf	up to 75,000 sf [1]
Residential	500 units		240 affordable units +22 duplexes		762 units
Parking			286 stalls	114 stalls	400 stalls

[1] Total retail square footage has been increased from the proposed 70,855 square feet to allow some flexibility in ground level design tweaks for up to 75,000 square feet of retail, which is what has been analyzed in this document.

The proposed residential units would include market-rate units but also 240 affordable units amounting to more than 20% of the base units (at least 152 units) and would rely upon the State Affordable Housing Density Bonus Law (Government Code Section 65915 et seq.), which is locally enacted through City of Oakland Municipal Code Chapter 17.107, to allow for the increased density and heights.

The project would be substantially consistent with the development density established by existing zoning, community plan, or General Plan policies and the State Affordable Housing Density Bonus Law, which requires that the City grant a density bonus if the project meets affordable housing requirements. Requested variations from base zoning, community plan or General Plan requirements are allowable under the applicable local and State regulations and would therefore not represent conflicts with applicable plans.

The proposed 400-space parking area would be accessed through Development Area T3 via Chester Street and includes 129 stalls within the first and second levels of Development Area T3, with 143 stalls in the basement of Development Area T3 and 128 stalls in the basement of Development Area T4.

Retail space is proposed at the ground level under the BART tracks and along the ground level of proposed high- and mid-rise buildings and is intended to include smaller local retail spaces and food options as well as a larger food market and co-working maker lab space. Also on the ground floor would be ancillary areas for on-site uses including lobby/office areas, trash/recycling areas, loading areas, utility areas, and bicycle parking. The BART station, a surface plaza, and pedestrian circulation elements take up the remainder of the ground level.

The project would include public ground level open space consisting of plaza and pedestrian circulation areas totaling 89,073 square feet. Additionally, the two buildings containing residential uses also provide common open space, including in Development Area T1: a 7,830 square foot landscaped terrace on level 5 and 1,100 square feet of private decks, a 5,712 square foot landscaped terrace on level 28, and 3,360 square feet of other common use decks; and in Development Area T3: a 8,380 square foot landscaped courtyard on level 3 with 17,584 square feet of private open space, and on level 7 a 1,673 square foot landscaped terrace and 15,000 square feet of common use terrace space.

The following horizontal (both public and private) improvements will be implemented throughout the phasing of the project:

- Plaza at 7th and Chester St (Mandela Plaza)
- Pedestrian walkways along the south side of the BART tracks (Art Alley)
- Plaza at 5th St and Center St (Makers Square)

Streetscape Improvements

- 7th Street Improvements
    - Raised Class IV one-way separated bikeways on both sides of 7th Street between Chester St and Mandela Pkwy
    - Minimum 8 ft pedestrian through zone on the sidewalk between Chester St and Mandela Pkwy. 7th St sidewalk to provide adequate width to accommodate high level of pedestrians with pedestrian amenities such as seating, real-time bus arrival information, trash receptacles, and pedestrian-lighting
    - Approximately 270-foot extended bus stop on eastbound 7th St at Mandela Pkwy
    - Approximately 130-foot bus stop on westbound 7th St just west of Center St
    - Approximately 250-feet of linear curb designated for passenger loading and unloading on eastbound 7th St between Chester St and Center St, with about 50 feet of curb on eastbound 7th St just west of Center St designated as blue accessible loading zone.
- Mandela Parkway Improvements
    - Class IV one-way separated bikeways on both sides of Mandela Pkwy between 7th St and 5th St
    - Minimum 8 ft pedestrian through zone on the sidewalk between 7th St and 5th St
    - Prohibit parking on the west side of Mandela Parkway between 5th St and 7th St
- 5th Street Improvements
    - Minimum 8 ft pedestrian through zone on the sidewalk between Chester Street and Mandela Parkway
    - Approximately 170-foot long bus stop and layover zone with a concrete bus pad on 5th Street just west of Mandela Pkwy.
    - Approximately 100-feet of linear curb designated for passenger loading and unloading east of Center St and about 200 feet west of Center St
- Chester Street Improvements
    - Minimum 8 ft pedestrian through zone on the sidewalk between 7th St and 5th St
    - Centerline redesigned to facilitate northbound bus turning movements.
    - Prohibit parking on the east side of Chester St between 5th St and 7th St and on the west side of Chester St for about 100 feet south of 7th St.

Intersection Improvements

- 5th St and Center St
  - High-visibility crosswalks and directional ramps
  - Curb extensions
- 5th St and Chester St
  - High-visibility crosswalks and directional ramps
- 5th St and Mandela Pkwy
  - High-visibility crosswalks and directional ramps
- Mandela Pkwy between 5th St and 7th St
  - High-visibility, mid-block pedestrian crossing

Other:

- Bike station on the east side of the existing BART station, accommodating at least 500 bicycles.

Plans, elevations and illustrations are provided in Attachment A to this report.

Phasing Plan

The project phasing is as follows:

- Phase I (submitted within 1 year of approved PDP)
  - FDP for all horizontal and off-site improvements and infrastructure (within one year after the approval of PDP), including but not limited to the following improvements:
    - Final design for all public plazas and walkways
    - Final design for streetscape improvements
    - Detailed phasing plan for implementation of all horizontal improvements, ensuring continuous AC Transit service, access to the BART station, and adequate emergency access throughout all phases, to the satisfaction of the City of Oakland, BART, and AC Transit.
  - PX/PZ Permit for horizontal improvements, with phasing (to be approved prior to issuance of any building permit)
  - FDP Residential/Retail and plaza (Development Areas T2 and T3):
    - 240 multifamily housing units and 22 duplex residential units (Development Area T3);
    - 15,200 square feet of retail along 5th St (Development AreaT3);
    - 7,670 square feet of retail under the BART tracks (Development Area T2)
    - 272 parking spaces (Development Area T3); and
    - 60,221 square feet of open space (in private and group configurations).
  - Building Permits for Development Areas T2 and T3, including grading permit
    - Building permits for Development Areas T2 and T3 will not be granted until the PX/PZ Permit is approved
- Phase II (submitted and application deemed complete within two years of Phase I FDP approval)
  - FDP for residential Tower with office and retail (Development Area T1):
    - 500 dwelling units;

        - 82,460 square feet of office
        - 17,185 square feet of retail;
        - 18,002 square feet of group open space (in private and group configurations), and
        - 600 space bike station with retail under the tracks (between Development Areas T1 and T4)
    - Building Permits for Development Area T1.
- Phase III (submitted and application deemed complete within two years of Phase II FDP)
    - FDP for office and retail (Development Area T4):
        - 300,000 square feet of office;
        - 30,800 square feet of retail; and
        - 128 parking spaces.
    - Building Permits for Development Area T4

GENERAL PLAN ANALYSIS

The West Oakland BART TOD project site is located in the Community Commercial (CC) General Plan (GP) land use designation. The intent of the CC land use designation is to "identify, create, maintain, and enhance areas suitable for a wide variety of commercial and institutional operations along the City's major corridors and in shopping districts or centers." In terms of desired character, future development may include "neighborhood center uses and larger scale retail and commercial uses, such as auto related businesses, business and personal services, health services and medical uses, educational facilities, and entertainment uses. Community Commercial areas can be complemented by the addition of urban residential development and compatible mixed use development." The maximum allowed intensity is 125 residential units per gross acre and the maximum FAR for this classification is 5.0. At this time, the total count of residential units considered under the Preliminary Development Permit is 762 units, within the General Plan allowance. The proposed commercial FAR is within the General Plan maximum FAR.

The West Oakland BART site is also designated as a Transit-oriented district, which are "designated to take advantage of the opportunities presented by Oakland's eight BART stations..." "Easy pedestrian and transit access to mixed use development characterize these areas. A strong identity is to be created through careful design and mix of activity." West Oakland BART is "uniquely situated as the first station linking San Francisco and Oakland, and the only station serving four BART routes."

The following is an analysis of how the proposed project meets applicable General Plan objectives (staff analysis in indented, italicized text below each objective):

- Policy T2.1 Encouraging Transit-Oriented Development
    - *The proposed project is a transit-oriented development with a mix of office, residential, and ground floor, pedestrian-oriented retail.*
- Policy T2.3 Promoting Neighborhood Services

  - *The proposed project includes up to 75,000 square feet of neighborhood-serving commercial, including a proposed food market, pharmacy, and other local retail.*
- Policy N1.1 Concentrating Commercial Development
  - *The proposed project concentrates neighborhood-oriented retail around the West Oakland BART station. There are many smaller scale retail locations that will serve residents and BART riders alike. The project also includes a Fab Lab co-working space that will be available to residents.*
- Policy N3.1 Facilitating Housing Construction
  - *The proposed project includes the creation of 762 new housing units, of which 240 are affordable units. It should be noted that the project states that 240 affordable units will be provided, and therefore the entitlement request includes 240 affordable units. However, only 152 affordable units are required to meet the 20 percent requirement for the state affordable density bonus.*
- Policy N3.2 Encouraging Infill Development
  - *The proposed project converts an existing parking lot into a mixed-use infill development, consistent with the General Plan.*
- N6.1 Mixing Housing Types
  - *The proposed project includes a mix of housing types and unit sizes, which are available to households with a range of incomes. The project includes duplexes, 1-bedroom, 2-bedroom, 3-bedroom types.*
- Policy N8.1 Developing Transit Villages
  - *The proposed project creates a Transit Village at the West Oakland BART station.*
- Policy N8.2 Making Compatible Interfaces Between Densities
  - *The proposed project includes 3-story duplexes along Chester Street, with a height of 38 feet, as the project transitions to the South Prescott neighborhood.*
- Policy N9.5 Marking Significant Sites
  - *The proposed project will work to incorporate public art and installations that identify locations of interest and historic significance, including the Blues Walk of Fame.*

WEST OAKLAND SPECIFIC PLAN ANALYSIS

The proposed project is located in the West Oakland Specific Plan (WOSP) area. The WOSP provides specific land use scenarios and policies for West Oakland BART, as follows:

- Intent: Implement the City's long-term vision for a Transit-Oriented Development (TOD) project at the West Oakland BART station, in the area generally coinciding with the boundaries of the City's existing S-15 Transit Oriented Development Zone.
  - *The proposed project implements the vision for a TOD project at the West Oakland BART station.*
- 7th Street TOD Land Use-1: Select a site with immediate proximity to the West Oakland BART Station which can serve as the catalyst, first-phase development of the TOD.
  - *The proposed project will serve as a catalyst for future development in West Oakland. The proposed project will be developed in phases.*

- Intent: Ensure a mix of land uses in the BART Station TOD to ensure the site becomes an integral and fully integrated component of West Oakland.
  - *The proposed project includes residential, office, and retail land uses. The project proposes neighborhood serving retail and flexible commercial spaces for small scale retail so it becomes an integral component in West Oakland.*
- 7th Street TOD Land Use-6: Plazas and open space should contribute to a secure and aesthetically pleasing pedestrian experience at and around the BART Station TOD.
  - *The proposed project includes a public plaza at 7th St and Chester St. as well as pedestrian walkways and a 'Makers Square' that provides public access to the BART station.*
- 7th Street TOD Env-2: The new buildings envisioned to surround the West Oakland BART station as part of the TOD project are expected to provide a noticeable and significant noise buffer between portions of both the freeway and the BART tracks, and existing residential neighborhoods. The noise attenuation benefits from the proposed new buildings should be fully considered in final designs for these structures.
  - *The proposed conditions of approval ensure that this project will support noise attenuation for the surrounding neighborhood and not aggravate noise conditions for the community.*
- TOD-2: Create a high-density residential, commercial, and mixed-use development which might also include the artistic economic enterprises within the West Oakland district with creative working space for technology, innovative science activities drawing upon the desires of some in those industries for creative space with room for innovative production.
  - *The proposed project provides a high-density mixed-use development at the West Oakland BART site. A Makers Fab Lab, and Innovation Hub, art space, and local retail spaces are proposed as part of the project, all providing opportunities for creating working space.*
- TOD-3: Ensure a safe and pleasant pedestrian environment near the West Oakland BART Station.
  - *The proposed project provides safe and pleasant pedestrian connections both along the streets surrounding the project, but also through the site to connect to the BART station.*
- TOD-5: Provide amenities such as benches, kiosks, lighting, public art, high quality pavement materials, drought tolerant landscaping, and specialty uses such as outdoor cafes.
  - *The proposed project includes conceptual designs for improved streetscapes and public plazas with high quality pavement materials, pedestrian-scaled lighting, and pedestrian-oriented retail with outdoor seating throughout the site.*
- TOD-6: Limit conflicts between vehicles and pedestrians, and add urban infrastructure as demonstrations of the best of the new industry standards.
  - *The proposed project removes all vehicular access on the site (except emergency vehicles and service vehicles), creating pedestrian walkways that are separated from vehicular travel. The project also proposes improved pedestrian crossings at the surrounding intersections.*

- TOD-7: New residential and commercial development along the perimeter of the TOD site, nearest to the South Prescott neighborhood, should include a gradual transition in height and density to the surrounding lower-density residential neighborhoods, with building heights stepping down to as low as 2-stories immediately adjacent to existing homes
    - *The proposed project includes three-story duplex residential units along Chester Street adjacent to the South Prescott neighborhood, providing a transition to the residential units across the street.*

<u>Circulation</u>

- Streetscape-4: Prioritize the development of local streetscape improvement plans, including lights, trees, bulb outs, sidewalks, etc., on: Mandela Parkway from 7th to 8th Street;
    - *The project team developed an Access Study for the proposed project, which includes recommendations for improvements to the intersection at 7th Street and Mandela Parkway.*
- Pedestrian-1: Promote street right-of-way design standards that make walking convenient and enjoyable.
    - *The proposed project incorporates streetscape designs that will improve the pedestrian environment and improve pedestrian connections to and from the BART station. Improvements include improved sidewalks, improved crosswalks, and internal walkways, connecting pedestrians to the development and the BART station.*
- Bicycle-3: Make bicycle riding more safe, secure and convenient.
    - *The proposed project incorporates Class IV separated bikeways along 7th Street and Mandela Parkway, creating safer bicycle access to the development and to the BART station. In addition, the project is providing a 600-space bike station with valet surface on site. The project is also providing long-term bike parking within the buildings and short-term bike parking around the site.*
- Existing Transit Enhance-1: Seek and identify funding mechanisms to increase the frequency of AC Transit bus service and make other transit improvements in and through West Oakland.
    - *The proposed TDM plan provides an option for the developer to invest in increased AC Transit service to the project site by funding the implementation of AC Transit's ACgo plan. In particular, lines 14, 29, 36 and 62 serve to connect West Oakland BART and nearby destinations. Operations investments should serve to increase frequency of these routes to meet ACgo full implementation goals (weekday peak and off peak: 15 minute headways for lines 14 and 62, and 20 minute headways for lines 29 and 36; weekend: 20 minute headways for lines 14, 29, 36 and 62).*

<u>Neighborhood-Serving Retail & Services</u>

- Intent: Support community-based efforts to improve West Oakland residents' access to everyday goods and services.
    - *The proposed project would greatly increase the amount of neighborhood-serving retail, including retail along 7th St, 5th St, and at the interior of the site with up to*

75,000 square feet of retail proposed. The project proposes the potential for uses such as a food market, a pharmacy, convenience store, a brew pub, cafes, and numerous local retail spaces.

- EED-13: Support the expansion of an existing grocery store and/or the establishment of new grocery stores in West Oakland.
  - *The proposed project includes space for a small food market on 7th St. near Mandela Parkway.*
- EED-14: Promote the development of community-based, neighborhood-serving retail and service businesses.
  - *The proposed project includes local retail spaces, local food and beverage spaces, retail kiosks, as well as creative retail spaces under the BART tracks. Overall, there is up to 75,000 square feet of retail proposed on the site.*

DESIGN GUIDELINES

The West Oakland Specific Plan (WOSP) includes design guidelines to be applied to development projects in the area. The proposed project is specifically subject to the following design guidelines:

<u>Site Planning</u>

- Site Planning 1: *Pedestrian Circulation.* Active street edges with entrances from city sidewalks should directly face streets, maximizing the utilization of city sidewalks by users of the buildings.
  - *The proposed project has created active street edges on all four streets the project faces.*
    - *7th St has a proposed food market and lobby with pedestrian entrances facing the street as well as a pedestrian plaza at the corner of Chester St.*
    - *5th St has proposed ground floor retail with pedestrian entrances facing the street.*
    - *Chester St has residential duplexes at the ground floor with pedestrian entrances facing the street.*
    - *Mandela Parkway has fewer retail spaces along the street, but does have entrances to the Makers Fab Lab and to the Bike Station facing Mandela Pkwy.*
- Site Planning 2: *Vehicular Circulation.* Vehicular entrances and garages should be less prominent than pedestrian entrances.
  - *The proposed project has limited vehicular entrances on the site. There is one parking garage entry off of Chester St and then each building has a loading area. These entrances are less prominent than the pedestrian entrances.*
- Site Planning 3: *Service Circulation.* Service areas should be hidden from view from sidewalks whenever possible.
  - *The proposed project has created a service entrance that is accessed off of Mandela Pkwy that provides BART service vehicles access without interfering with the pedestrian realm. The area also serves as an EVA and is gated off to pedestrians.*

- Site Planning 4: *Building Footprint.* New construction should be built to the edge of sidewalks to maintain the continuity of the area's street walls. Small ground-level inset bays for entrances, outdoor seating, and special corner features are appropriate variations within the street wall. In addition, an occasional plaza may be also appropriate.
  - *The proposed project provides a small setback for buildings from the property line to improve the pedestrian realm and increase the sidewalk width. Besides this setback, the buildings are built to the edge of the sidewalk. The building along 7^{th} St (Development Area T1) provides interesting variations in the façade to create an dynamic pedestrian environment. In addition, the corner of Mandela Pkwy and 7^{th} St provides unique awning feature. The area of 7^{th} St and Chester St (Development Area T2) contains a pedestrian plaza with retail setback from the street, located under the BART tracks. This creates an active use under the tracks and helps to activate the proposed pedestrian plaza.*

Neighborhood Commercial

- Neighborhood Commercial 1: *Site Planning*. Buildings should be built immediately fronting 7th St and San Pablo to emphasize and re-establish where necessary the continuity of the neighborhood commercial street.
  - *The proposed project provides a building fronting 7^{th} St at Mandela (Development Area T1), with a proposed food market and lobby. The building includes publically accessible uses and does not contain driveways or vehicular entrances along 7^{th} St. A pedestrian plaza is proposed at 7^{th} St and Chester St (Development Area T2), replacing the 7^{th} St and Mandela Pkwy plaza that was recommended in the WOSP.*
- Neighborhood Commercial 4: *Fenestration.* Ground floors should have as many openings as possible with as few blank wall sections as possible. Awnings and canopies are encouraged.
  - *The proposed project includes significant transparency and openings along the ground floors of the buildings fronting the public streets and fronting the public pedestrian walkways. The proposed design guidelines for the project provide a guideline of 75% transparency along the 7^{th} St edge, 60% transparency along the 5^{th} St edge, and 75% transparency along the Maker Square (pedestrian plaza/walkway along 5^{th} St).*
- Neighborhood Commercial 5: *Materials*: Buildings should have a variety of high quality materials that will define an interesting character when viewed up close and from a distance.
  - *The proposed project includes three different buildings with a combination of high performance glass, pre-cast concrete, and corrugated metal.*
- Neighborhood Commercial 8: Landscape. Publicly accessible outdoor space areas should be comprehensively designed with high quality pavement, landscaping, and seating, and are encouraged at the following locations: Mandela and 7th Street
  - *The proposed project incorporates the pedestrian plaza at 7^{th} St and Chester St instead of at Mandela to maximize the prominence of the Mandela corner with the residential tower. The 7^{th} St and Chester St plaza (Development Area T2)*

proposes high quality pavement, seating, and landscaping, but further detailed design will be required as part of the Final Development Permit.

Adjacent to Residential Areas

- Residential Area 1*: Site Planning*. Create active entry points facing the street to roughly match porches and entrances on historic housing elsewhere on the street.
    - *The proposed residential duplexes along Chester St include individual residential entrances at the ground floor.*
- Residential Area 2: *Massing* Modulate front facades facing streets into segments to roughly match the scale of historic housing elsewhere on the street. Bay windows and porches are encouraged. Building heights and setbacks should transition from neighborhood commercial arterials to residential side streets. Buildings that are taller and built to the lot line should be located near the commercial street and have setbacks closer to the adjacent lower-scale residential buildings.
    - *The proposed residential duplexes along Chester Street are setback from the property line to provide a transition from private space to public space on the ground floor. The duplexes are shorter than the rest of the project, at 3 stories or approximately 38 feet tall so that they are in harmony with the nearby existing residences.*
- Residential Area 3*: Height.* Buildings directly facing residential side streets should be appropriately massed to best relate to the residential scale within the immediate context.
- Residential Area 5*: Landscape.* Establish landscaped front yards between the sidewalk and the face of the building that reflect the landscaping context in the immediate area.
    - *The proposed residential duplexes along Chester Street include a 5-foot setback with some landscaping to transition from the sidewalk to the private residential entry.*

Mandela/7th

- Mandela/7th 1*: Site Planning*. Close to the West Oakland BART station, a large civic plaza should be created near the intersection of Mandela Parkway and 7th St that is surrounded by ground floors that include publicly accessible uses such as restaurants, retail, building lobbies, galleries, and studios.
    - *The proposed project has shifted the large civic plaza to be located at 7th Street and Chester Street in front of the West Oakland BART station. The civic plaza is surrounded by ground floor uses that include publicly accessible retail spaces located under the BART tracks and in adjacent building.*
- Mandela /7th -4*: Fenestration.* Ground floors should have large openings and a high degree of transparency in the blocks adjacent to the West Oakland BART station.
    - *The proposed project includes a high degree of transparency facing public streets, public plazas, and public walkways.*

ZONING ANALYSIS

The West Oakland BART TOD project is located within the Transit-Oriented Development Commercial Zone (S-15W). The intent of the S-15W Zone is to create, preserve and enhance areas devoted primarily to serve multiple nodes of transportation and to feature high-density residential, commercial, and mixed-use developments to encourage a balance of pedestrian-oriented activities, transit opportunities, and concentrated development; and encourage a safe and pleasant pedestrian environment near transit stations by allowing a mixture of Residential, Civic, Commercial, and Light Industrial Activities, allowing for amenities such as benches, kiosks, lighting, and outdoor cafes; and by limiting conflicts between vehicles and pedestrians, and is typically appropriate around transit centers such as Bay Area Rapid Transit (BART) stations, AC Transit centers, and other transportation nodes. The following discussion outlines the purpose of the S-15W zone, with staff analysis provided below in indented, italicized text:

- Create, preserve, and enhance areas devoted primarily to serve multiple nodes of transportation and to feature high-density residential, commercial, and mixed-use developments.
  - *The proposed project is a mixed-use project at the West Oakland BART station, with high-density residential, office, and retail.*
- Encourage a balance of pedestrian-oriented activities, transit opportunities, and concentrated development
  - *The proposed project provides pedestrian-oriented retail along the ground floor of the development as well as a series of pedestrian-oriented public plazas and walkways. The proposed project integrates the BART station and AC Transit bus stops into the overall development. The proposed project incorporates concentrated development at the site with 762 residential units, 382,460 square feet of office, and up to 75,000 square feet of retail.*
- Encourage a safe and pleasant pedestrian environment near transit stations by allowing a mixture of Residential, Civic, Commercial, and Light Industrial Activities, allowing for amenities such as benches, kiosks, lighting, and outdoor cafes.
  - *The proposed project provides a safe and pleasant pedestrian environment by improving sidewalks along the perimeter of the site as well as creating pedestrian walkways through the site to the BART station. The pedestrian walkways include pedestrian-scaled lighting, kiosks, and cafes.*
- Limit conflicts between vehicles and pedestrians
  - *The proposed project removes vehicles (except Emergency Vehicles and Service Vehicles) from the site and creates a pedestrian-oriented environment.*

Residential Land Use and Density Analysis

The applicable zoning regulations include land use and density allowances. The project size is split into two zoning designations:

- Development Areas T2, T3 have a height limit of 60 ft, Commercial FAR maximum of 3.0, and a maximum residential density of 375 square feet of lot area required per dwelling unit.
- Development Areas T1, T4 have a height limit of 100 ft, commercial FAR maximum of 5.0, and a maximum residential density of 225 square feet of lot area required per dwelling unit.

With a total developable area of 243,130 square feet, the following calculations show the allowable density based on the proposed project.

Commercial FAR	
T2, T3: 3.0 FAR allowed	333,690 sf
T1, T4: 5.0 FAR allowed	659,500 sf
Total Commercial Allowed:	993,190 sf
Total Commercial Proposed:	457,460 sf
Percent of development capacity	46%

Residential Density	
T2, T3: 375 sf of lot area allowed	296 units
T1, T4: 225 sf of lot area allowed	586 units
Total Allowed Residential Density	882 units
Percent of development capacity remaining	54%
Residential Units Allowed	476 units
Allowed With PUD Bonus 25%	595 units
Allowed with State AH Bonus 35%	803 units

The commercial development is approximately 457,460 square feet, which is approximately 46% of the development capacity allowed though the base FAR, leave 54% of the development capacity for residential density. Under the base density, that would result in a maximum 476 residential units. The allowable units, including the Planned Unit Area 25 percent density bonus would be 595. The State Affordable Housing Density Bonus increase of 35 percent would allow up to 803 residential units, which is more than the 762 units proposed.

The project proposes 240 affordable dwelling units, more than the 152 minimum affordable housing units required for the 20% state density bonus. Currently, the project proposes 11% very low income units (84 units) and 20% low income units (156 units), qualifying the project for the State Affordable Housing Density Bonus of 35%. In addition, the proposed project requests a concession to increase the maximum height for Development Area T1 from 100 ft to 320 ft and the maximum height for Development Area T3 from 60 ft to 80 ft. The proposed project requests a concession to increase the number of stories allowable under the Specific Plan and Zoning from 9 stories at Development Area T1 to 28+ stories and Development Area T3 from 5 stories to 8 stories.

Zoning Analysis

	Required S-15W – 60' 004007700300 **(T2, T3)**	**Required S-15W – 100'** 004007100300 **(T1, T4)**	Proposed 111,230 **(T2, T3)**	Proposed 131,900 **(T1, T4)**
Use				
Multifamily	P		P	P
Administrative	P		P	P
General Retail	P		P	
Maximum Height	60 ft	100 ft	80 ft Allowed with SAHB* concession	320 ft Allowed with SAHB* concession
Residential Density	375 sq ft	225 sq ft	262 units allowed with 25% PUD bonus and 35% SAHB*	500 units allowed with 25% PUD bonus and 35% SAHB*
Max Nonresidential FAR	3.0	5.0	0.1	3.25
Max number of stories	5	9	8 Allowed with SAHB* concession	30 Allowed with SAHB* concession
Open Space				
Group usable open space per regular unit	150 sf per unit = 39,300 sf	75 sf per unit = 37,500 sf	Total required = 76,800 sf Residential Group Open Space Provided: 41,955 sf Residential Private Open Space Provided: 17,584 sf Total open space provided = **77,123 sf** This meets the S-15W requirements	
17.142.110 Development standards. F. Usable Open Space	200 sf/du of group usable open space required = 152,400 sf		Minor variance required. Amount of open space provided meets 50% of the PUD required open space.	
17.116 Total Parking Required	Total Parking Required: 506 spaces Apply parking reduction incentives for transit (30%) and car share (20%) = 253 total parking spaces required		400 total parking spaces provided. Exceeds total parking space requirement of 253 spaces.	
17.97.060 Loading	Driveway cannot be located within 20 ft from walkways and plazas or need CUP		Driveways are more than 20 ft from a walkway or plaza	
17.117 Bike Parking	Long-term: 235 spaces required Short-term: 95 spaces required		Meets requirement Long-term: 252 spaces provided Short-term: 122 short-term spaces provided	
Lockers/Showers	Min 2 showers/ gender plus 1 shower per gender for each 150,000 sf above 150,000 sf = 3 showers/ gender 4 lockers per shower = 20 lockers		Meets requirement. 3 showers and 12 lockers per gender provided on the ground floor of T4	

*State Affordable Housing Bonus (SAHB)

Minor Variance for Open Space

The proposed project includes 762 residential units and, under the S-15W zoning designation in the Oakland Planning Code, should provide 76,800 sf of usable open space. The proposed project provides 77,123 sf of usable open space. Because this project is taking advantage of the 25 % PUD bonus, however, the project needs to comply with the PUD Usable Open Space requirement in 17.142.110 F, which requires 200 square feet of group usable open space per unit. At this time, the project provides approximately half of the required 152,400 square feet of open space required. Staff has worked with the applicant to increase the amount of open space to meet the S-15W requirement. Staff has encouraged the applicant to ensure the group usable open space that is provided for the residential units is high-quality and high amenity, with play spaces and equipment for all ages of children, hot tubs or pools, bbq areas, and fire pits. The City ensures the applicant provides high quality open space through specific Conditions of Approval requiring high quality and high amenity features in the provided open space. Further, staff also notes that the project includes a civic plaza at the corner of Chester St and 7th St and a smaller plaza on 5th St. While these public plazas do not satisfy the definition of group usable open space, staff does acknowledge that these spaces will provide open space to residents, office workers, BART riders, and the general public. These ground floor public plazas need to be high-quality, well-designed, well-programed spaces that include excellent pedestrian-scaled lighting, extensive furnishing, and interactive art or other amenities for children.

ZONING AND RELATED ISSUES

The West Oakland BART is an entire city block, and the proposed project includes four distinct development area segments (T1, T2, T3, T4). The project area is split diagonally by the BART tracks with the BART station in the center, creating site constraints, including required emergency vehicle access. The proposal includes three distinct buildings with smaller retail structures under the BART tracks and kiosks adjacent to the station.

The project also includes a public plaza at 7th St and Chester St, a smaller plaza off of 5th St at Center St, and pedestrian walkways along the south side of the BART tracks. The project includes the following significant streetscape improvements, including bikeway and sidewalk improvements.

The project design complies with the West Oakland Specific Plan (WOSP) Design Guidelines, creating a signature, modern tower at the corner of 7th Street and Mandela Parkway, a residential-oriented mid-rise building facing the South Prescott neighborhood at Chester St with residential scale articulation, and a mid-rise mixed-use office building on 5th St and Mandela Pkwy. In addition, the project includes small-scale retail under the BART tracks and adjacent to the station, including a 600-space bike station. Each building design is clearly distinct, but complimentary to create a cohesive site design. The building ground floors have high floor to floor heights and retail with high proportion of glass store front for good transparency. The ground floor retail spaces provide activated street edges and activated interior public plazas and pedestrian walkways. Quality materials and varied design are proposed to create visual interest for pedestrians.

The applicant has created design guidelines as a part of the PDP submittal, which will guide future FDP submittals.

Previously Identified Issues/Concerns:

At this time, the applicant has worked with staff to respond to and resolve the following issues, including:

- Ground floor facades on 7th St and 5th St. The initial design included arcade concepts with columns and second story overhangs along the ground floor of 7th St and 5th St. The applicant responded to staff feedback by creating a more open and inviting pedestrian environment on the ground floor of the facades facing 7th St and 5th St, including increasing transparency, removing or reducing columns, and decreasing the second-story over-hang. The result is an interesting, inviting pedestrian-scaled design along 5th St and 7th St.
- Ground floor facades facing internal walkways and plazas. Initially, staff had concerns about blank walls and 'dead spaces' on the interior of the site that could create an unpleasant and unsafe pedestrian environment. The applicant has responded to the concern by adding two-sided retail under the BART tracks, adding retail kiosks around the BART station, increasing pedestrian entrances to retail spaces from the internal walkways, and by restricting pedestrian access for a portion of the north side of the BART track (between Mandela Pkwy and the BART station). This restricted area allows for Emergency Vehicle

Access, BART access for trash collecting, etc, and 'back of house' of the proposed food market. Staff feels that this site design is improved and will help to create an active, inviting pedestrian environment through the site.

- 7th St and Mandela Pkwy. Initially, the project design did not create a prominent architectural corner at 7th St and Mandela Pkwy, which is designated as an important corner both in the WOSP and in the Design Guidelines. The applicant has responded with an improved architectural design and increased transparency. Staff feels the improved design helps create a distinct corner, but wants to ensure the use at the corner will activate the space (see comments below).

- Retail along 7th St. Maintaining an active retail frontage along 7th Street is important for the vision of 7th St in the WOSP and for the historic character of 7th St. Initially, the project proposal did not include any retail in Development Area T2, at 7th St and Chester St. After feedback from staff, the applicant worked closely with BART representatives to come up with an under-track retail proposal that both activates the plaza and helps continue the retail character along 7th St.

Remaining Design or Zoning Concerns.

Staff has the following concerns related to the proposed project:

- Ground-floor public plazas and walkways. At this time, the plazas and walkways are only conceptually designed. Staff wants to ensure that, as the project progresses, these plazas and walkways become delightful places where people not only feel comfortable walking through, but in fact want to stay and spend time. Particularly because the project is only providing half of the required residential open space, staff wants to ensure these ground floor public spaces become amenities for the public as well as the residents of this site. Staff would like to see:
    - High quality design of the plazas and walkways, including extensive furnishing, high quality pedestrian-scaled lighting, landscaping, interactive art, and play equipment to truly activate these spaces.
    - Regular programming of the plazas, including concerts, farmer's markets, local vendor pop-ups, etc. These events should be regularly scheduled events to serve residents and BART riders.
    - Ensure all design and programming of these spaces complies with required Emergency Vehicle Access (EVA).

- Residential open space. Because the project is only providing half of the required group open space required by the PUD ordinance, staff wants to ensure that the open space that is provided for residents is high-quality and high amenity. Staff would like to see amenities that are attractive to families with children as well as single residents such as fire pits, bbq areas, pools, or hot tubs, and ample play equipment for various age groups. Staff has attempted to address this issue through project specific Conditions of Approval.

- Retail under the BART tracks. Staff feels the addition of the retail under the tracks is an important component of this project because it both helps to activate the public plazas and walkways and it helps to maintain continuous retail along 7th St. Staff, however, also acknowledges the challenges with building under a BART facility. If the applicant cannot proceed with retail under the tracks as proposed in the plans, staff would like to see an equivalent amount of retail provided directly on 7th St. The retail can be in the form of kiosks, containers, or other small-scale retail spaces. The bike station would also need to be incorporated somewhere with equal convenience to the BART station.

- Ground floor residential on Chester St. The applicant has proposed ground floor residential along Chester St with ground floor space that is flexible for resident's use. Staff would like to support the flexibility of these ground-floor spaces, but they are currently being processed as residential spaces, so staff would like to ensure the design works for residential space, while also providing flexibility for home occupation uses if desired. The detailed design can be resolved in the FDP phase.

CALIFORNIA ENVIRONMENTAL QUALITY ACT

The City Council certified an Environmental Impact Report (EIR) for the West Oakland Specific Plan on July 15, 2014. The West Oakland Specific Plan Environmental Impact Report [SCH No. 2012102047] is provided under separate cover to the Planning Commission (Attachment B) and is available to the public at the Planning Department offices and on the web at: http://www2.oaklandnet.com/Government/o/PBN/OurOrganization/PlanningZoning/DOWD008409.

Staff has determined that an Addendum to the West Oakland Specific Plan EIR is appropriate because no new information about the site, changes to the project, or circumstances under which the project would be undertaken have occurred. The California Public Resources Code section 21166 and CEQA Guidelines section 15164 State CEQA Guidelines Section 15164 states that an Addendum to a certified EIR is allowed when minor changes or additions are necessary and none of the conditions for preparation of a Subsequent EIR are met.
Staff has determined, through the environmental checklist, that there is substantial evidence that the project would not require preparation of a Supplemental EIR and that an Addendum is the appropriate CEQA document, per the following conclusions:
(1) The proposed project adds project-level details to a site identified in the WOSP for transit-oriented development within the Zoning and General Plan densities proposed (while the applicant also leverages the State Affordable Housing Density Bonus Law (Government Code Section 65915 et seq., City of Oakland Municipal Code Chapter 17.107)) to allow for the increased density and heights proposed. The increased density and project concessions are required under state law and ministerial, therefore beyond CEQA analysis. The project would not result in new significant environmental effect or a substantial increase in the severity of impacts identified in the WOSP EIR because the project, being a transit-oriented development, is consistent in character and density with what the WOSP and zoning contemplated. The State Density Bonus law requires the City to provide a 35% density bonus and is therefore a ministerial action beyond the scope of additional CEQA review.
(2) Although the Addendum was prepared to take into account current conditions, including updated Plan Area development, there would be no new significant environmental effect or a

substantial increase in the severity of impacts identified in the WOSP EIR due to changes in circumstances.
(3) Although the Addendum was completed to take into account new information, including updated transportation and emissions assessments per current guidelines and implementation of current SCAs, there would be no new significant environmental effect or a substantial increase in the severity of impacts identified in the WOSP EIR due to new information.
Therefore, in accordance with California Public Resources Code section 21166 and CEQA Guidelines section 15164, the WOSP EIR and this Addendum comprise the full and complete CEQA evaluation necessary for the proposed project and no further CEQA evaluation for the project is required.

RECOMMENDATION

The proposed West Oakland BART Transit-Oriented Development is consistent with and delivers on the vision of transit-oriented development envisioned in the West Oakland Specific Plan and the SW-15 zoning district. Staff finds the proposed project to be well designed, responsive to staff comments, and recommends approval. Staff specifically recommends that the Planning Commission:

1. Rely on the West Oakland Specific Plan (WOSP) EIR as adequate under CEQA for analysis of the West Oakland BART TOD;
2. Approve the West Oakland Station Preliminary Development Permit, subject to the attached findings and conditions.
3. Approve a Minor Variance for reduction of on-site usable open space, based on the attached findings.
4. Approve Vesting Tentative Parcel Map 10940.

Prepared by:

Dara O'Byrne

Dara O'Byrne, Planner III

Reviewed by:

Catherine Payne, Acting Development Planning Manager
Bureau of Planning

Approved for forwarding to the Planning Commission:

Ed Manasse, Acting Deputy Director
Bureau of Planning

Attachments:

A. 1. West Oakland Specific Plan EIR and Addendum #1; available to the public at 250 Frank Ogawa Plaza, Suite 3315, Oakland CA, 94612 during regular business hours, and at http://www2.oaklandnet.com/Government/o/PBN/OurServices/Application/DOWD009157
2. West Oakland BART TOD – Transportation Analysis (non-CEQA)
3. West Oakland BART TOD – Transportation and Parking Demand Management Plan

B. Proposed PDP plans, dated January 28, 2019
C. West Oakland Station Design Guidelines
D. Vesting TPM 10940
E. Conditions of Approval

REQUIRED FINDINGS:
BROOLYN BASIN PARCEL F AFFORDABLE HOUSING
PRELIMINARY DEVELOPMENT PERMIT

Required findings include:

- California Environmental Quality Act
- Regular Design Review: Planning Code Section17.136.050
- Minor Variance Findings: Planning Code Section 17.148.050
- Subdivision Findings
- PUD Findings

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(2) Although the Addendum was prepared to take into account current conditions, including updated Plan Area development, there would be no new significant environmental effect or a substantial increase in the severity of impacts identified in the WOSP EIR due to changes in circumstances.
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Therefore, in accordance with California Public Resources Code section 21166 and CEQA Guidelines section 15164, the WOSP EIR and this Addendum comprise the full and complete CEQA evaluation necessary for the proposed project and no further CEQA evaluation for the project is required.

City of Oakland Design Review Findings

The proposed West Oakland BART TOD design is subject to Planning Code Section 17.136.050 - Regular design review criteria. Accordingly, regular design review approval may be granted only if the proposal conforms to all of the following general design review criteria, as well as to any and all other applicable design review criteria:

17.136.050 Regular design review criteria.

Regular design review approval may be granted only if the proposal conforms to all of the following general design review criteria, as well as to any and all other applicable design review criteria:

For Residential Facilities.

1. That the proposed design will create a building or set of buildings that are well related to the surrounding area in their setting, scale, bulk, height, materials, and textures:

   The proposed West Oakland BART TOD project includes two mixed-use building with residential facilities. Both buildings are designed to comply with the applicable design regulations for the site. Each building on the site is designed to complement, but not mimic the other. The modern style of the project and the highly articulated facades ensure that the neighborhood will be attractive, visually complex and varied. The project fits the vision set forth in the West Oakland Specific Plan (WOSP) Design Guidelines

2. That the proposed design will protect, preserve, or enhance desirable neighborhood characteristics;

   The proposed West Oakland BART TOD project is adjacent to the South Prescott neighborhood, which is part of the broader West Oakland neighborhood. The project complies with the intent of the WOSP design guidelines and provides massing and style that support a unique visual appearance in the neighborhood, while respecting the adjacent residential neighborhood height and character.

3. That the proposed design will be sensitive to the topography and landscape.

   The West Oakland BART TOD site is located in a generally flat area. The project site is bounded by 7th Street to the north, 5th Street to the south, Chester Street to the west, and Mandela Parkway to the east. Existing land uses in the vicinity include multi-story commercial and residential development to the north, parking/fuel station/vacant lot to the east, light *industrial and low-rise residential to the south, and low-rise residential to the west.*

The site is currently surface parking with the BART tracks running diagonally through it with the BART station in the center. The project creates a signature tower at the corner of Mandela Pkwy and 7th St, which was envisioned with the WOSP.

4. That, if situated on a hill, the design and massing of the proposed building relates to the grade of the hill;

   NA.

5. That the proposed design conforms in all significant respects with the Oakland General Plan and with any applicable design review guidelines or criteria, district plan, or development control map which have been adopted by the Planning Commission or City Council.

   As noted throughout this staff report, the West Oakland BART TOD Preliminary Development Permit is consistent with the General Plan and West Oakland Specific Plan and complies with the underlying regulations controlling development of the site, when considering the density and height increases as a result of the State Affordable Housing Bonus. The project meets the intent of the West Oakland Specific Plan design guidelines.

For Nonresidential Facilities and Signs.

1. That the proposal will help achieve or maintain a group of facilities which are well related to one another and which, when taken together, will result in a well-composed design, with consideration given to site, landscape, bulk, height, arrangement, texture, materials, colors, and appurtenances; the relation of these factors to other facilities in the vicinity; and the relation of the proposal to the total setting as seen from key points in the surrounding area. Only elements of design which have some significant relationship to outside appearance shall be considered, except as otherwise provided in Section 17.136.060;

   The proposed project creates a well-composed design in relationship to the West Oakland BART station and the surrounding neighborhood. The project includes three distinct buildings with retail on the ground floor throughout the site, creating activated public spaces. The project is well positioned to the total setting of the surrounding area, with the high-rise tower creating a signature element in the neighborhood at 7th St and Mandela Pkwy, with mid-rise buildings and three-story duplexes facing residential neighborhoods.

2. That the proposed design will be of a quality and character which harmonizes with, and serves to protect the value of, private and public investments in the area;

   The proposed project transforms a surface parking lot into a dynamic transit-oriented development, which is of a quality and character envisioned in the West Oakland Specific Plan. The project will protect the value of the neighborhood by providing affordable housing, office space, and neighborhood serving retail.

2. That the proposed design conforms in all significant respects with the Oakland General Plan and with any applicable design review guidelines or criteria, district plan, or development control map which have been adopted by the Planning Commission or City Council.

   The proposed project complies with the vision of a transit-oriented district in the Oakland General Plan and the West Oakland Specific Plan. The project also complies with the West Oakland Specific Plan Design Guidelines, providing a transit-oriented development with residential, office, and neighborhood-serving retail on the ground floor. The project provides active pedestrian-oriented facades along all street frontages and facing the public spaces around the BART station.

City of Oakland Variance Findings

The proposed West Oakland BART TOD project requires a minor variance for reduced on-site group usable open space. Accordingly, minor variance approval may be granted only if the proposal conforms to all of the following general variance findings, below:

17.148.050 Findings required.

A. With the exception of variances for Adult Entertainment Activities or Sign Facilities, a variance may be granted only upon determination that all of the following conditions are present:

1. That strict compliance with the specified regulation would result in practical difficulty or unnecessary hardship inconsistent with the purposes of the zoning regulations, due to unique physical or topographic circumstances or conditions of design; or, as an alternative in the case of a minor variance, that such strict compliance would preclude an effective design solution improving livability, operational efficiency, or appearance.

   Strict compliance with the PUD open space regulations would preclude an effective design solution with regards to livability and appearance. The project delivers affordable housing in a transit-oriented development setting at the West Oakland BART station. To comply with health and safety requirements for federally funded affordable housing, the project is limited in the provision of open space near the freeway. Through project-specific Conditions of Approval, the proposed design solution will provide high-quality open spaces to serve all age ranges including both families and seniors, including play spaces and equipment for all ages of children, hot tubs or pools, bbq areas, and fire pits. In addition, the project proposes two public plazas and walkable open space for an inviting retail, arts, and public events experience, which will incorporate retail kiosks and public art displays. These ground-floor public plazas ensures adequate access to open space in addition to a pleasurable public plaza experience for residents. Through project-specific Conditions of Approval, the public plazas will be well-designed and activated with regular programming.

2. That strict compliance with the regulations would deprive the applicant of privileges enjoyed by owners of similarly zoned property; or, as an alternative in the case of a minor variance, that such strict compliance would preclude an effective design solution fulfilling the basic intent of the applicable regulation.

   Strict compliance with the PUD open space regulations would preclude an effective design solution with regards to livability and appearance. The project delivers much needed affordable housing in a transit-oriented development context at the West Oakland BART Station. The proposed project complies with the group open space requirements of the underlying zone, S-15W, so is compatible with similarly zoned property. The proposed design solution provides high-quality private decks, terraces, and courtyard spaces. The project provides ground floor plaza space, which does not qualify as group usable open space, but will provide open space to residents. The design of high-quality project courtyards and proximity to public open space ensure adequate access to open space for residents.

3. That the variance, if granted, will not adversely affect the character, livability, or appropriate development of abutting properties or the surrounding area, and will not be detrimental to the public welfare or contrary to adopted plans or development policy.

   The proposed project complies with the open space requirements in the S-15W zone, therefore the City considers the amount of open space provided adequate and appropriate for the character and livability of this type of development. The amount of open space provided will not adversely affect the appropriate development of abutting properties or the surrounding areas and will not be detrimental to the public welfare or contrary to adopted plans or development policy. The project is consistent with the vision in the West Oakland Specific Plan, General Plan, and Zoning.

4. That the variance will not constitute a grant of special privilege inconsistent with limitations imposed on similarly zoned properties or inconsistent with the purposes of the zoning regulations.

   The proposed reduction in open space is consistent with the underlying zone, S-15W, and therefore does not constitute a grant of special privilege for the zone. While the project does not meet the additional open space of the PUD requirements, the project provides ground-floor public plaza space that can be enjoyed by residents and members of the public.

5. That the elements of the proposal requiring the variance (e.g., elements such as buildings, walls, fences, driveways, garages and carports, etc.) conform with the regular design review criteria set forth in the design review procedure at Section 17.136.050.

   Reduction of open space does not affect the design and appearance of the project, which is a well-designed and articulated mixed-use, transit-oriented development with affordable housing.

6. That the proposal conforms in all significant respects with the Oakland General Plan and with any other applicable guidelines or criteria, district plan, or development control map which have been adopted by the Planning Commission or City Council.

   The proposed project complies with the applicable regulatory framework in all ways, with the exception of this minor variance. The proposed project otherwise conforms to the underlying Planned Unit Development regulations, zoning district, WOSP, and General Plan designation.

7. For proposals involving one (1) or two (2) residential dwelling units on a lot: That, if the variance would relax a regulation governing maximum height, minimum yards, maximum lot coverage or maximum floor area ratio, the proposal also conforms with at least one of the following additional criteria:

   1. The proposal when viewed in its entirety will not adversely impact abutting residences to the side, rear, or directly across the street with respect to solar access, view blockage and privacy to a degree greater than that which would be possible if the residence were built according to the applicable regulation and, for

height variances, the proposal provides detailing, articulation or other design treatments that mitigate any bulk created by the additional height; or

2. Over sixty percent (60%) of the lots in the immediate vicinity are already developed and the proposal does not exceed the corresponding as-built condition on these lots and, for height variances, the proposal provides detailing, articulation or other design treatments that mitigate any bulk created by the additional height. The immediate context shall consist of the five (5) closest lots on each side of the project site plus the ten (10) closest lots on the opposite side of the street (see illustration I-4b); however, the Director of City Planning may make an alternative determination of immediate context based on specific site conditions. Such determination shall be in writing and included as part of any decision on any variance.

NA.

Vesting Tentative Parcel Map
Findings for Approval

Lot Design Standards (Section 16.24.040 O.M.C.):

1. No lot shall be created without frontage on a public street, as defined by Section 16.04.030, except:

   The proposed lot has frontage on four public streets, including 7th St to the north, 5th St to the south, Chester St to the west, and Mandela Pkwy to the east.

2. The side lines of lots shall run at right angles or radially to the street upon which the lot fronts, except where impractical by reason of unusual topography:

   The proposed side lines of the lot run at a right angle to the street upon which the lot fronts.

3. All applicable requirements of the zoning regulations shall be met:

   As described in the staff report above, all applicable requirements of the zoning regulations are met.

4. Lots shall be equal or larger in measure than the prevalent size of existing lots in the surrounding area except:
   a. Where the area is still considered acreage;
   b. Where a deliberate change in the character of the area has been initiated by the adoption of a specific plan, a change in zone, a development control map, or a planned unit development:

   The lot is a full city block and is larger in measure than the prevalent size of existing single-family lots to the north and west of the project. It is equal to or larger in measure than the prevalent size of existing industrial lots to the south and east of the project.

5. Lots shall be designed in a manner to preserve and enhance natural out-croppings of rock, specimen trees or group of trees, creeks or other amenities.

   The lot does not contain natural amenities, other than street trees. The lot currently consists of a BART station, BART tracks, and surface parking lots. The street trees are not considered specimen trees.

Tentative Map Findings (Section 16.08.030 O.M.C. & California Government Code §66474):

6. The proposed map is consistent with applicable general and specific plans as specified in the State Government Code Section 65451:

As discussed in the staff report above, the proposed map is consistent with the City of Oakland's General Plan and the West Oakland Specific Plan.

7. The design or improvement of the proposed subdivision is consistent with applicable general and specific plans:

   As discussed in the staff report above, the design of the proposed subdivision is consistent with the City of Oakland's General Plan and the West Oakland Specific Plan.

8. The site is physically suitable for the type of development:

   The site is physically suitable for the type of development proposed. The site is designated Community Commercial in the Oakland General Plan and the WOSP and is designated as a transit-oriented development site.

9. The site is physically suitable for the proposed density of development:

   The site is sufficiently sized and physically suitable to accommodate the proposed density of the project. The West Oakland Specific Plan and the Oakland General Plan anticipated significant density at the site with a Transit-oriented development. The Project is consistent with the redevelopment envisioned by the City for the project site, and the density/intensity of the project is within the maximum limits established by the General Plan.

10. The design of the subdivision or the proposed improvements are not likely to cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat:

    The site is currently a surface parking lot without significant environmental or ecological value. The proposed improvements will replace the trees on site and will add additional vegetation. There is no fish or wildlife habitat on site.

11. The design of the subdivision or type of improvements is not likely to cause serious public health problems:

    The proposed project incorporates design and development elements that promote public health. The project includes improved bicycle and pedestrian access to the site, with Class IV separated bikeways, wider sidewalks, and improved intersections. The project also improves pedestrian access through the site, with pedestrian walkways through the interior of the site, connecting to the BART station.
    Air Quality was analyzed in the WOSP EIR, which found impacts related to construction-period and operational air pollutant emissions and operational toxic air contaminants to be significant and unavoidable under build-out of the WOSP EIR. Construction-period dust and toxic air contaminants were found to be

reduced to a less-than-significant level through implementation of SCAs. All other impacts were found to be less-than-significant.

12. The design of the subdivision or the type of improvements will not conflict with easements, acquired by the public at large, for access through or use of, property within the proposed subdivision. In this connection, the governing body may approve a map if it finds that alternate easements, for access or for use, will be provided, and that these will be substantially equivalent to ones previously acquired by the public. (This subsection shall apply only to easements of record or to easements established by judgment of a court of competent jurisdiction):

    The design of the subdivision of the type of improvements will not conflict with easements for access through or use of property within the proposed subdivision.

13. The design of the subdivision provides to the extent feasible, for future passive or natural heating or cooling opportunities in the subdivision:

    As reflected in the VTPM, the design and organization of the proposed project site provides for passive or natural heating or cooling opportunities.

Planned Unit Development Findings

17.140.080 Permit criteria.
A Planned Unit Development permit may be granted only if it is found that the development (including conditions imposed under the authority of Sections 17.142.060 and 17.140.030) conforms to all of the following criteria, as well as to the Planned Unit Development regulations in Chapter 17.142:

A. That the location, design, size, and uses are consistent with the Oakland General Plan and with any other applicable plan, development control map, design guidelines, or ordinance adopted by the City Council or Planning Commission;
The location, design, size, and uses in the proposed project are consistent with the Oakland General Plan, the West Oakland Specific Plan (WOSP), the WOSP Design Guidelines, and the S-15W designation in the Planning Code, as described in the staff report above. The Oakland General Plan and WOSP designate the site Community Commercial and as transit-oriented development. This designation seeks to encourage neighborhood center uses and larger scale retail and commercial uses, which can be complemented by the addition of urban residential development and compatible mixed use development. The project site is zoned as Transit-Oriented Development Commercial Zone (S-15W), which is intended to feature high-density residential, commercial, and mixed-use developments to encourage a balance of pedestrian-oriented activities, transit opportunities, and concentrated development near transit stations. The proposed uses (mixed-use multi-family residential, office, and retail) are allowable under the General Plan designation and zoning.

The project would be substantially consistent with the development density established by existing zoning, community plan, or General Plan policies and the State Affordable Housing Density Bonus Law, which requires that the City grant a density bonus if the project meets affordable housing requirements. Requested variations from base zoning, community plan or General Plan requirements are allowable under the applicable local and State regulations and would therefore not represent conflicts with applicable plans.

B. That the location, design, and size are such that the development can be well integrated with its surroundings, and, in the case of a departure in character from surrounding uses, that the location and design will adequately reduce the impact of the development;
The development adheres to the WOSP Design Guidelines to ensure the location, design, and size are integrated into the surroundings of the neighborhood. The WOSP envisioned a signature tower at the corner of Mandela Pkwy and 7th St, which is included in the proposed development. This tower is a departure from existing community character, but is responding to the community's vision for the future of the neighborhood. The WOSP EIR determined that the increased height and density was appropriate for the transit site and would not result in a substantial conflict with existing uses if building height transitions were considered at boundaries. The project proposes low-rise residential duplex units along the Chester Street boundary with the South Prescott neighborhood low-rise residential units consistent with this conclusion and would therefore be consistent with the less-than-

significant conclusion in the WOSP EIR.

C. That the location, design, size, and uses are such that traffic generated by the development can be accommodated safely and without congestion on major streets and will avoid traversing other local streets;
Consistent with the findings of the WOSP EIR, the WOSP EIR Addendum #1 finds that the project would not result in any significant impacts related to transportation or circulation. Further, based on an examination of the other Program EIRs, implementation of the project would not result in any increase in the severity of any previously identified impacts, nor would it result in new significant impacts related to transportation or circulation that were not previously identified in the WOSP EIR and Program EIRs.

The project is required to prepare and implement a Transportation and Parking Demand Management Plan (TDM Plan) because it would generate more than 50 peak hour trips. The TDM Plan includes on-going operational strategies, as well as infrastructure improvements in the project vicinity, that encourage the use of non-automobile travel modes.

The project aims to improve access to the site by walking, biking, and transit to replace the more auto-oriented existing site. The major infrastructure improvements included in the project consist of:

- *New Class 4 bicycle lanes along both directions of 7th Street and Mandela Parkway adjacent to the project.*
- *Improved sidewalks and other pedestrian amenities along the project frontages and pedestrian safety and accessibility improvements along the corridor and at intersections*
- *Enhanced bus facilities along the project frontage.*

D. That the location, design, size, and uses are such that the residents or establishments to be accommodated will be adequately served by existing or proposed facilities and services;
The project can be adequately served by existing and proposed services and facilities. The WOSP EIR concluded that while development of the Plan Area would increase demand for public services and recreation, it also includes improvements and would pay development fees to support services and the impacts in this regard would be less-than-significant or reduced to that level through implementation of applicable SCAs. The project would comply with the following SCAs related to public services, parks, and recreation: SCA-GEN-1: Compliance with Other Requirements (#3), SCA-PUB-1: Capital Improvements Impact Fee (#74), and SCA-HAZ-4: Fire Safety Phasing Plan (#46).

E. That the location, design, size, and uses will result in an attractive, healthful, efficient, and stable environment for living, shopping, or working, the beneficial effects of which environment could not otherwise be achieved under the zoning regulations;
The project's location, design, size and uses will result in an attractive, healthful, efficient and stable environment for living, shopping and working. As discussed in the General Plan, WOSP, and Zoning analysis, the project brings to fruition the vision of transit-oriented development surrounding the BART station. The project introduces up to 75,000 square feet

of neighborhood-serving retail, 382,460 square feet of office, and 762 housing units to the community.

The PUD regulations provide the project with the flexibility to create a cohesive and integrated project with three separate primary buildings and additional small-scale retail buildings and kiosks, particularly with the constraints of the BART station and BART tracks. The PUD regulations also provide more flexibility for phasing the implementation of the project.

F. That the development will be well integrated into its setting, will not require excessive earth moving or destroy desirable natural features, will not be visually obtrusive and will harmonize with surrounding areas and facilities, will not substantially harm major views for surrounding residents, and will provide sufficient buffering in the form of spatial separation, vegetation, topographic features, or other devices.
The proposed project will be well integrated into its setting. West Oakland is an urban setting with a combination of residential and industrial character. While the proposed project includes a modern, glass tower that will be distinct in the neighborhood, this site is implementing the vision of the WOSP by creating a signature tower at this location. The tower will not substantially harm major views for surrounding residents. The project site does not contain any natural features and earth moving will be limited to what is needed to create the basement, foundations, and a level site for walkways and plazas. The project creates a transition from the high rise tower to mid-rise building, to a three-story duples across from the South Prescott neighborhood on Chester St.

ATTACHMENT A:

All materials available to the public at 250 Frank Ogawa Plaza, Suite 3315, Oakland CA, 94612 during regular business hours, and at http://www2.oaklandnet.com/Government/o/PBN/OurServices/Application/DOWD009157 (see #22)

1. **West Oakland Specific Plan EIR and Addendum #1;**
2. **West Oakland BART TOD – Transportation Analysis (non-CEQA)**
3. **West Oakland BART TOD – Transportation and Parking Demand Management Plan**
4. **West Oakland BART Greenhouse Gas Reduction Plan**

WOB TOD Project

Addendum #1

to the WOSP EIR (SCH#2012102047)

January 2019

Lead Agency:

City of Oakland
Planning and Building Department
250 Frank H. Ogawa Plaza
Suite 2114
Oakland, CA 94612

Prepared By:

Lamphier–Gregory
1944 Embarcadero
Oakland, CA 94606

Table of Contents

Attachments

A: City of Oakland Standard Conditions of Approval

Tables

Figures

I. Project Characteristics

1. Project Title:	West Oakland BART Transportation-Oriented Development (WOB TOD) Project
2. Lead Agency Name and Address:	City of Oakland Bureau of Planning 250 Frank H. Ogawa Plaza, Suite 2114 Oakland, CA 94612
3. Contact Person and Phone Number:	Dara O'Byrne, City Planner 510.238.6983 DO'Byrne@oaklandca.gov
4. Project Location:	1451 7th Street Oakland, CA Assessor's Parcel Numbers: 004-0077-003 and 004-0071-003
5. Project Sponsors' Names and Addresses:	China Harbour Engineering Company (CHEC) / Strategic Urban Development Alliance (SUDA) JV Partnership 4000 Executive Parkway, Suite 275 San Ramon, CA 94583
6. Existing General Plan Designations:	Community Commercial (West Oakland Specific Plan)
7. Existing Zoning:	S-15W (Transit-Oriented Development Commercial Zones) Height Limit: 60' (western half) and 100' (eastern half)
8. Requested Approvals:	Planned Unit Development / Preliminary Development Plan Regular Design Review Vesting Tentative Parcel Map

II. Executive Summary

The project represents establishment of the transit-oriented development (TOD) as contemplated in the West Oakland Specific Plan (WOSP) on the site surrounding the West Oakland BART station. The project would demolish the existing 451-space West Oakland BART station surface parking lot and associated circulation and construct three new mid-rise and high-rise buildings, retail under the BART tracks, and a row of residential duplexes for a total of 762 residential units, 382,460 square feet of office space, and up to 75,000 square feet of ground-floor retail uses. The project also includes a 400-space underground parking lot, a surface plaza, and circulation elements. The project takes advantage of the 25 percent PUD residential bonus, the 35 percent State Affordable Housing Density Bonus, and includes a minor variance for group open space.

As presented in Section VI: Summary of Findings, this Addendum has determined that the West Oakland BART TOD project qualifies for an Addendum pursuant to CEQA Guidelines Section 15164 and that the WOSP EIR and this Addendum comprises the full and complete CEQA evaluation necessary for the proposed project and no further CEQA evaluation for the project is required.

The Section V: Project Consistency Assessment provides substantial evidence that the project is generally consistent with applicable plans and regulations.

The Section VII: Environmental Checklist provides substantial evidence pursuant to CEQA Guidelines Section 15162 that with implementation of the applicable SCAs, the proposed project would not result in a substantial increase in the severity of significant impacts previously identified in the WOSP EIR or any new significant impacts that were not previously identified in the WOSP EIR.

III. Purpose and Organization of this CEQA Document

Purpose

The purpose of this CEQA document is to analyze the West Oakland BART TOD Project, proposed at 1451 7th Street (Assessor's Parcel Number: 004-007-700-300 and 004-007-100-300), to determine if it qualifies for an Addendum pursuant to Public Resources Code Section 21166 and State CEQA Guidelines Section 15164 such that no additional environmental review is required.

The project site is within the 7th Street Opportunity Area of the West Oakland Specific Plan (WOSP) Area. The City adopted the WOSP and certified the associated EIR in 2014 (State Clearinghouse No. 2012102047). The WOSP identifies policies to guide future development in West Oakland by providing a comprehensive and multi-faceted strategy for development and redevelopment of vacant and/or underutilized commercial and industrial properties in strategic areas (Opportunity Areas) of West Oakland. The WOSP establishes a land use and development framework, identifies needed transportation and infrastructure improvements, and recommends implementation strategies needed to develop these areas. Subsequent activities under the WOSP are subject to environmental requirements pursuant to the WOSP EIR. The effects of future growth and development within West Oakland were fully considered in the cumulative growth projections factored into the WOSP EIR analysis. The WOSP EIR analyzed the environmental impacts of implementation of the WOSP, including development of the project site.

The WOSP EIR 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 Planning and Building Department website at:
http://www2.oaklandnet.com/Government/o/PBN/OurServices/Application/DOWD009157.

State CEQA Guidelines Section 15164 states that an Addendum to a certified EIR is allowed when minor changes or additions are necessary and none of the conditions for preparation of a Subsequent EIR pursuant to Section 15162 are satisfied. Section 15162 further specifies that no subsequent EIR shall be prepared unless one or more of the following conditions are met:

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.

The Environmental Checklist contained in this document summarizes the impact findings of the WOSP EIR, which is the underlying EIR for the proposed project, and assesses whether impacts of the proposed project would fall within those identified in the WOSP EIR or whether new or more significant environmental impacts than those identified in the WOSP EIR are identified which would trigger the need for a subsequent EIR.

Standard Conditions of Approval

The City established its Standard Conditions of Approval and Uniformly Applied Development Standards in 2008, and they have since been amended and revised several times. The City's SCAs are incorporated into new and changed projects as conditions of approval regardless of a project's environmental determination. The SCAs incorporate policies and standards from various adopted plans, policies, and ordinances (such as the Oakland Planning and Municipal Codes, Oakland Creek Protection Ordinance, Stormwater Water Management and Discharge Control Ordinance, Oakland Protected Trees Ordinance, Oakland Grading Regulations, National Pollutant Discharge Elimination System (NPDES) permit requirements, Housing Element-related mitigation measures, California Building Code and Uniform Fire Code, among others), which have been found to substantially mitigate environmental effects. 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.

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—e.g., SCA-AIR-1, SCA-AIR-2. The SCA title is also provided—e.g., SCA-AIR-1: Construction-Related Air Pollution (Dust and Equipment Emissions). Finally, the current City of Oakland master-list SCA numbering is included though it should be noted that this numbering can change as SCAs are added or deleted.

Consistent with the requirements of CEQA, a determination of whether the project would have a significant impact assumes implementation of required SCAs. Attachment A includes the complete Standard Conditions of Approval and Mitigation Monitoring and Reporting Program (SCAMMRP).

Organization

This document describes the proposed project in Section IV, Project Description, and documents the project's consistency with the WOSP in Section V, Project Consistency Assessment. Section VI, Summary of Findings, provides an overview of the environmental analysis conclusions. The potential environmental impacts of the project are detailed in Section VII, Environmental Checklist, which identifies the impact findings of the WOSP Environmental Impact Report (EIR) and relevant City of Oakland Standard Conditions of Approval (SCAs) and explains whether the project would cause new or more significant environmental impacts than those identified in the WOSP EIR.

IV. Project Description

This section describes the proposed West Oakland BART TOD project evaluated in this Addendum and includes a description of the project site, existing site conditions, the proposed development, and the required project approvals.

Project Location

As shown in **Figure 1**, the approximately 5.58-acre site encompassing the West Oakland BART station is bounded by 7th Street to the north, 5th Street to the south, Chester Street to the west, and Mandela Parkway to the east. The project site consists of two parcels at 1451 7th Street (Assessor's Parcel Number: 004-007-700-300 and 004-007-100-300).

Existing Conditions and Surrounding Land Uses

The project site is a rectangular lot occupied by the West Oakland BART station and associated surface parking and circulation. Vegetation onsite is currently limited to some street and parking lot landscaping and trees.

Existing land uses in the vicinity include multi-story commercial and residential development to the north, parking/fuel station/vacant lot to the east, light industrial and low-rise residential to the south, and low-rise residential to the west.

General Plan and Zoning Designations

The Oakland General Plan and WOSP designate the project site as Community Commercial. This designation seeks to encourage neighborhood center uses and larger scale retail and commercial uses, which can be complemented by the addition of urban residential development and compatible mixed use development.

The project site is zoned as Transit-Oriented Development Commercial Zone (S-15W), which is intended to feature high-density residential, commercial, and mixed-use developments to encourage a balance of pedestrian-oriented activities, transit opportunities, and concentrated development near transit stations.

The proposed uses (mixed-use multi-family residential, office, and retail) are allowable under the General Plan designation and zoning. A more detailed consistency discussion is included in Section VI of this document.

Proposed Project

The project sponsor is proposing to demolish the existing 451-space West Oakland BART station surface parking lot and associated circulation and construct three new mid-rise and high-rise buildings, retail under the BART tracks, and a row of residential duplexes for a total of 762 residential units, 382,460 square feet of office space, and up to 75,000 square feet of ground-floor retail uses. The project also includes a 400-space underground parking lot, a surface plaza, and circulation elements. The BART station and tracks will remain. The project represents establishment of the transit-oriented development (TOD) contemplated in the WOSP on the site surrounding the West Oakland BART station.

The proposed project would consist of the following development, split into four development areas labeled T-1 through T-4 as shown on **Figure 2** and summarized in **Table 1**:

- T-1: 28-story 320-foot tall high-rise building with 500 residential units, 82,460 square feet of office, and 17,185 square feet of ground-floor retail
- T-2: surface plaza with 7,670 square feet of retail under the BART tracks
- T-3: 7-story, 80-foot tall mid-rise residential building of 240 multi-family units and 22 3-story residential duplex units and 15,200 square feet of ground-floor retail
- T-4: 8-story, 100-foot tall mid-rise commercial office building with 300,000 square feet of office and 30,800 square feet of ground-floor retail

Table 1. Project Development Summary

Uses	T1	T2	T3	T4	Total
Office	82,460 sf			300,000 sf	382,460 sf
Retail	17,185 sf	7,670 sf	15,200 sf	30,800 sf	up to 75,000 sf [1]
Residential	500 units		240 units + 22 duplexes		762 units
Parking			286 stalls	114 stalls	400 stalls

[1] Total retail square footage has been increased from the proposed 70,855 square feet to allow some flexibility in ground level design tweaks for up to 75,000 square feet of retail, which is what has been analyzed in this document.

Figures 3 through **11** show the floor plans and **Figures 12** and **13** show illustrative views of the project. Additional plans and elevations are available as part of the project file with the City of Oakland.

The proposed residential units would include market-rate units but also affordable units amounting to at least 20% of the base units (at least 152 units) and would rely upon the and the State Affordable Housing Density Bonus Law (Government Code Section 65915 et seq.), which is locally enacted through City of Oakland Municipal Code Chapter 17.107, to allow for the increased density and heights. A more detailed discussion of consistency and the required approvals is included in Section VI of this document.

As detailed in the consistency assessment in Section V, the project would be substantially consistent with the development density established by existing zoning, community plan, or General Plan policies and the State Affordable Housing Density Bonus Law, which requires that the City grant a density bonus if the project meets affordable housing requirements. Requested variations from base zoning, community plan or General Plan requirements are allowable under the applicable local and State regulations and would therefore not represent conflicts with applicable plans.

The proposed 400-space parking area would be accessed through T3 via Chester Street and includes 129 stalls within the first and second levels of T3, 143 stalls in the basement of T3, and 128 stalls in the basement of T4.

LOCATION OF PROJECT SITE WITHIN WEST OAKLAND NEIGHBORHOOD

5 ACRE PROJECT SITE

Figure 1. Project Location

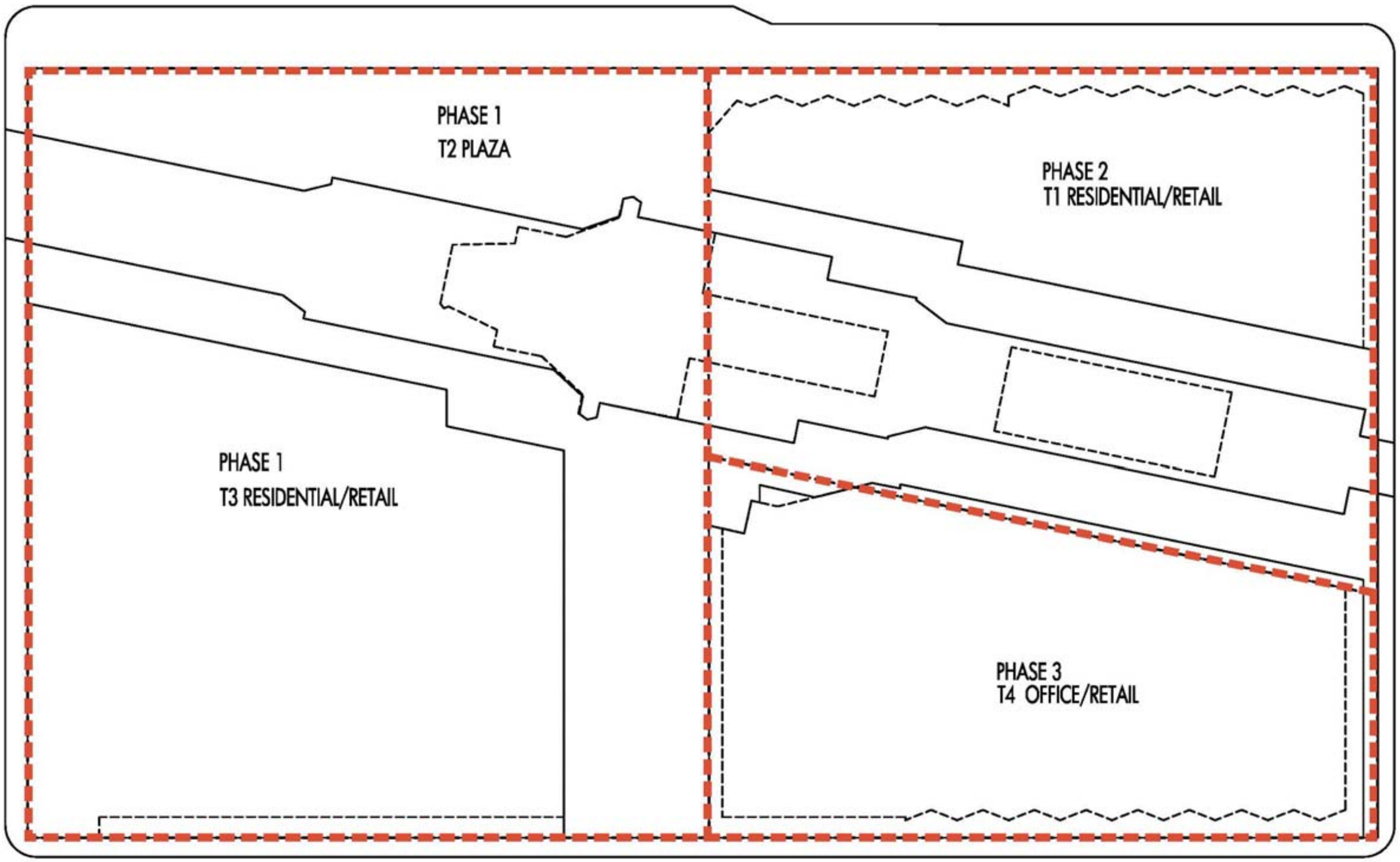

Figure 2. Project Development Areas and Possible Phasing

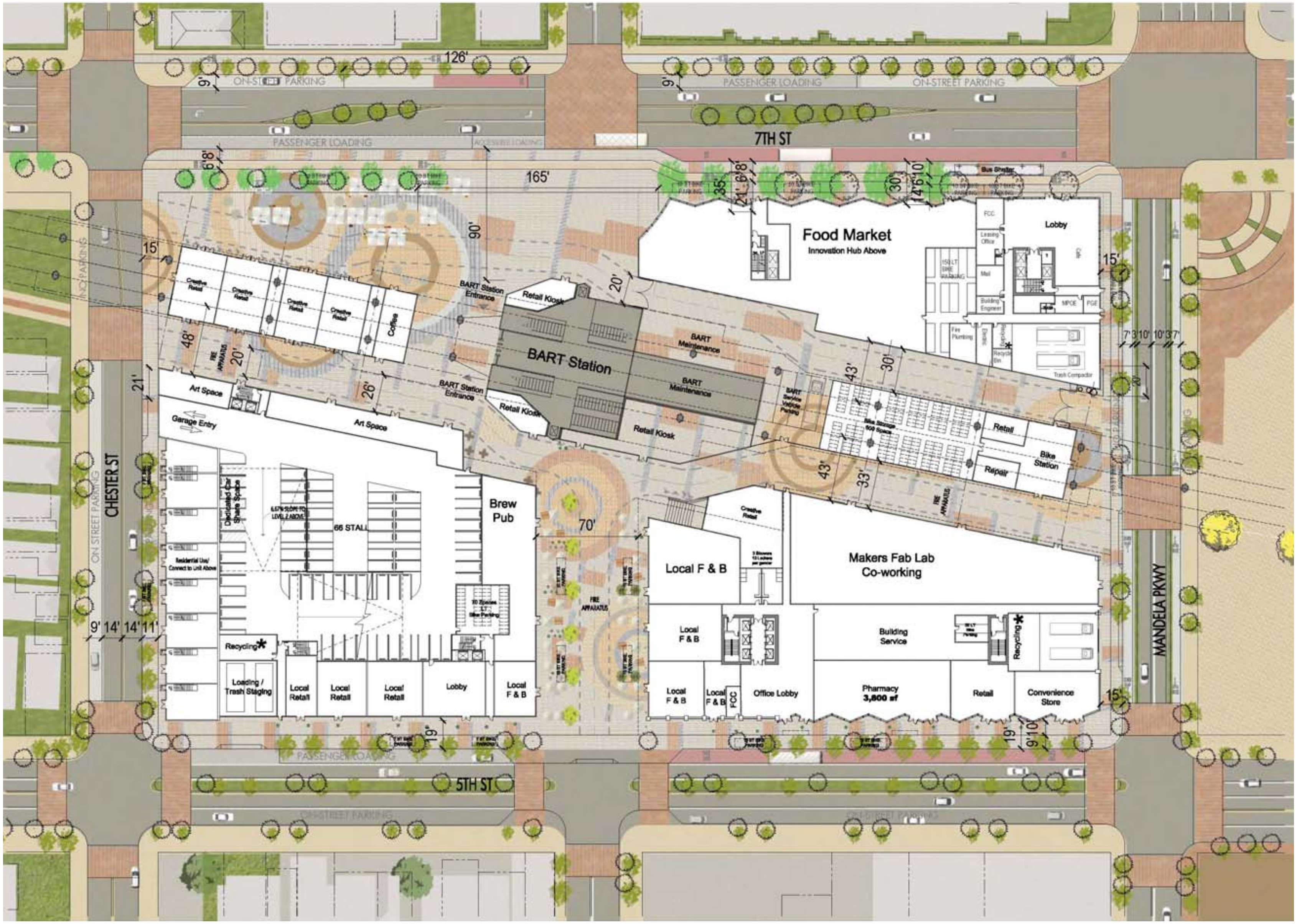

Figure 3. Floor Plan, Ground Floor

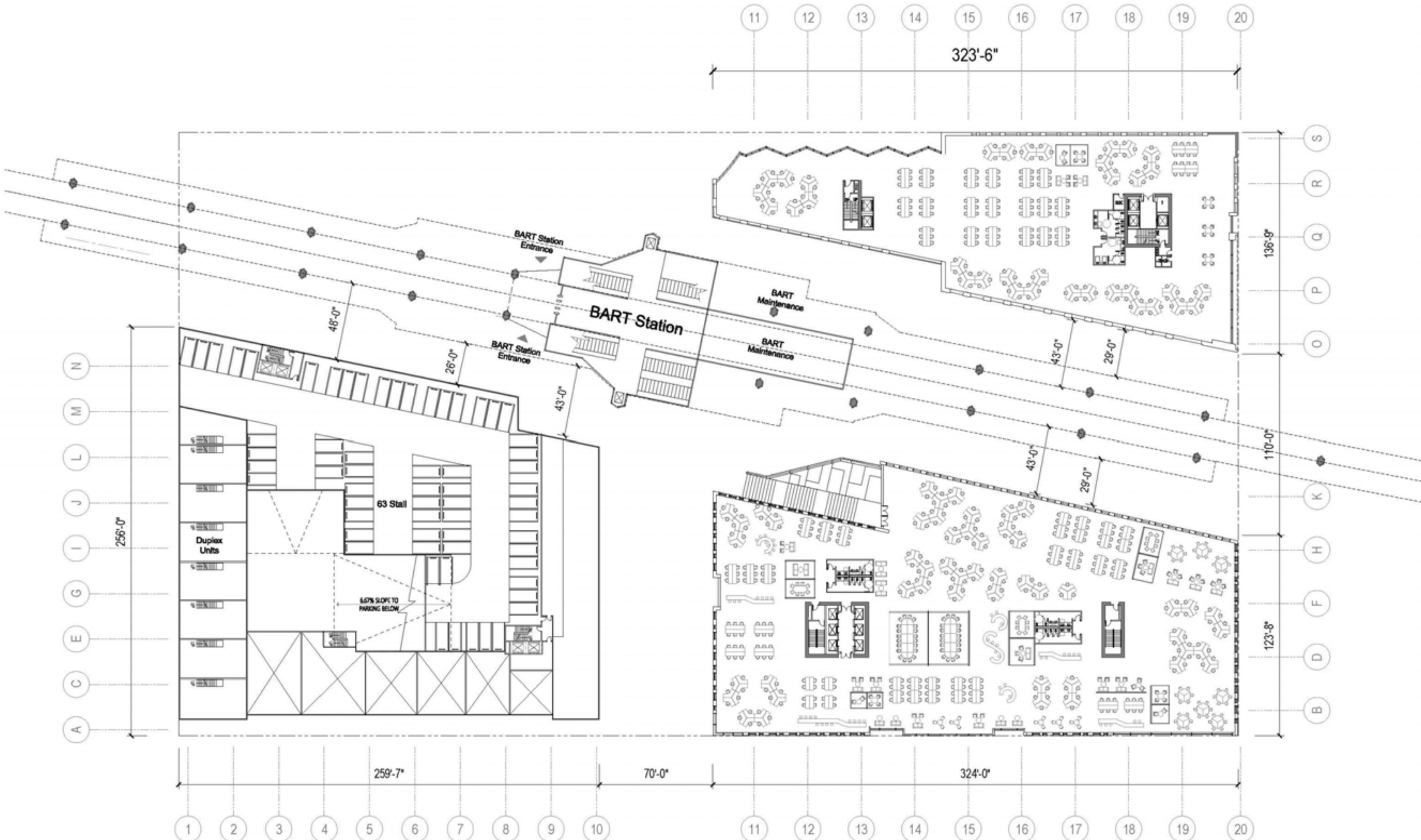

Figure 4. Floor Plan, 2nd Floor

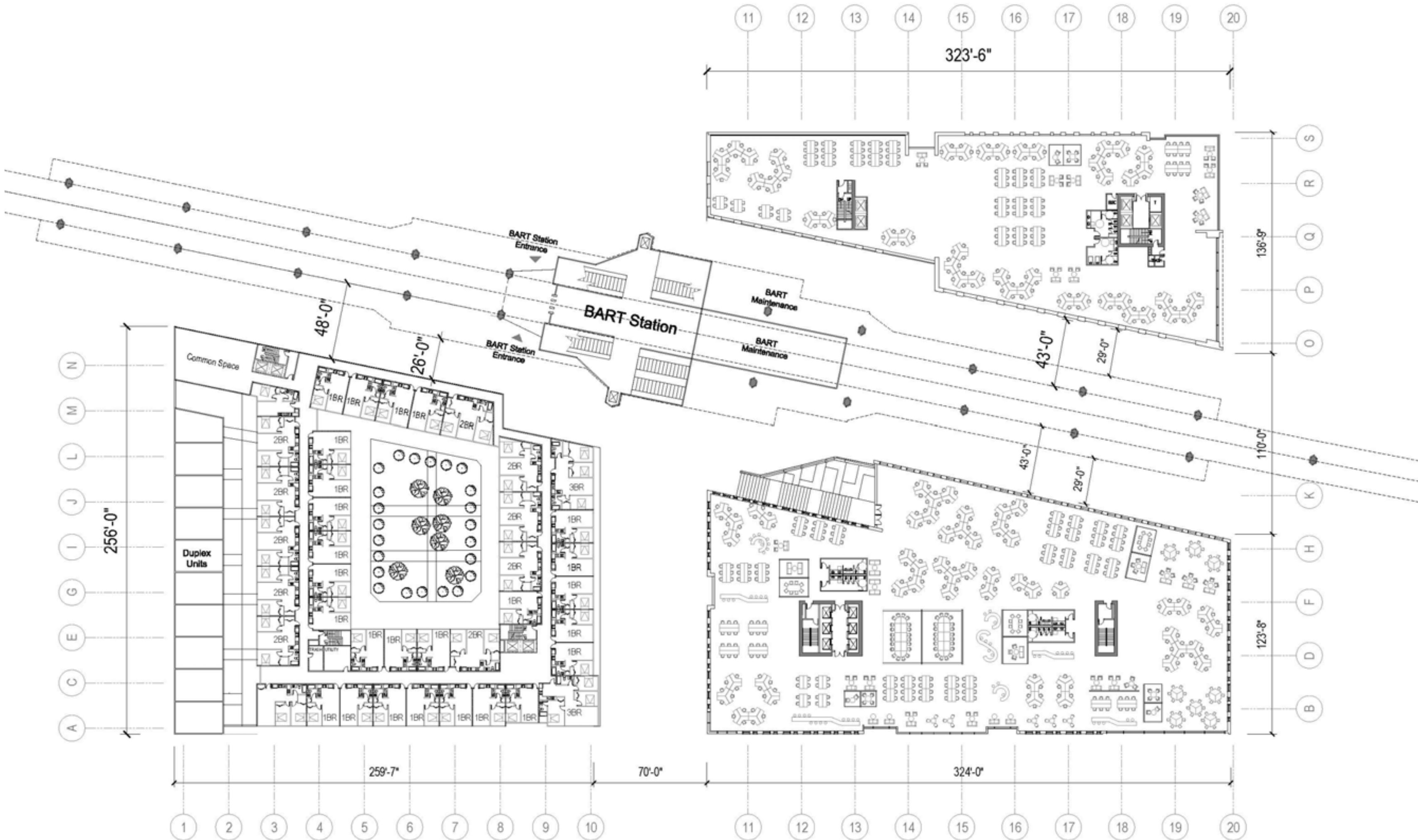

Figure 5. Floor Plan, 3rd-4th Floors

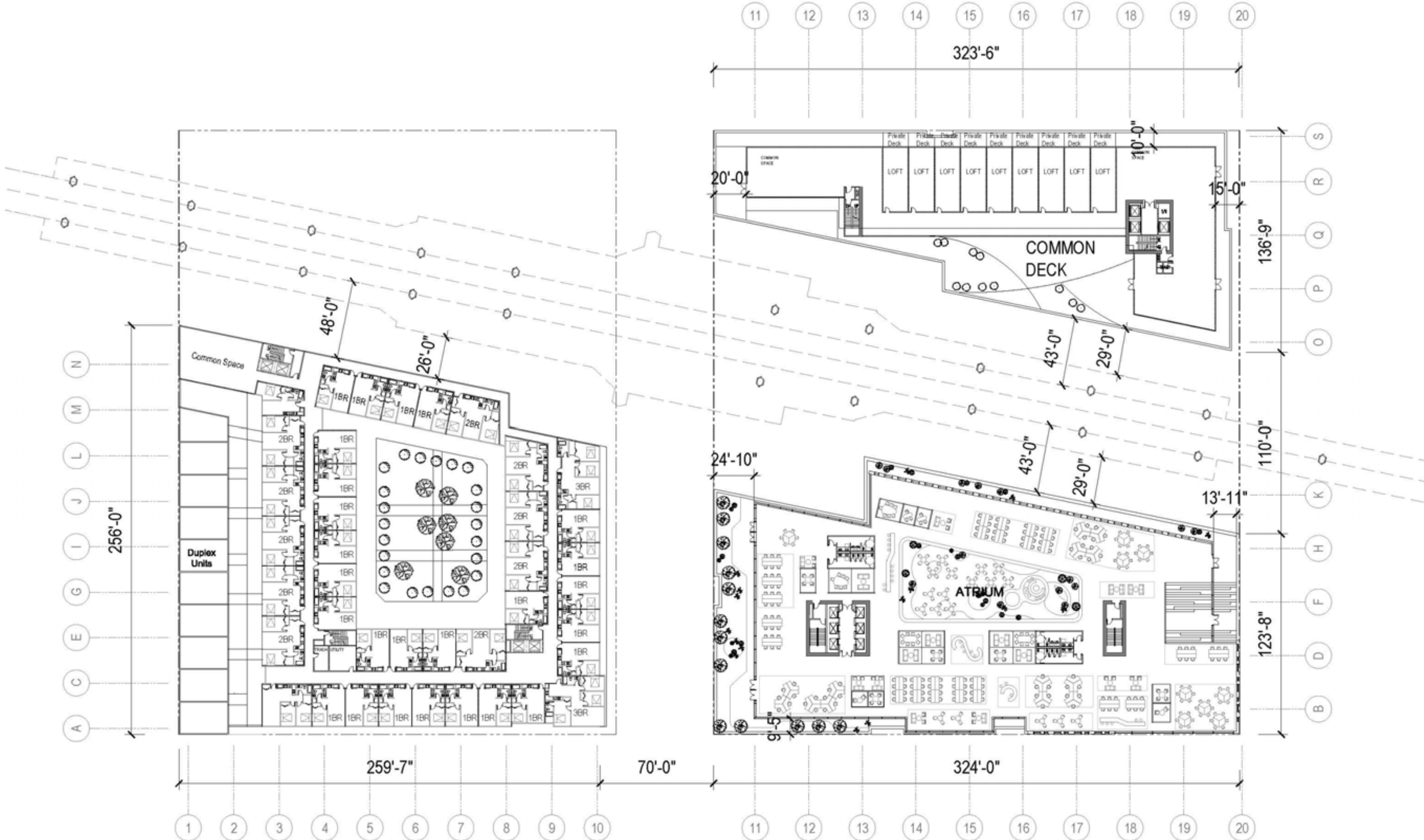

Figure 6. Floor Plan, 5th Floor

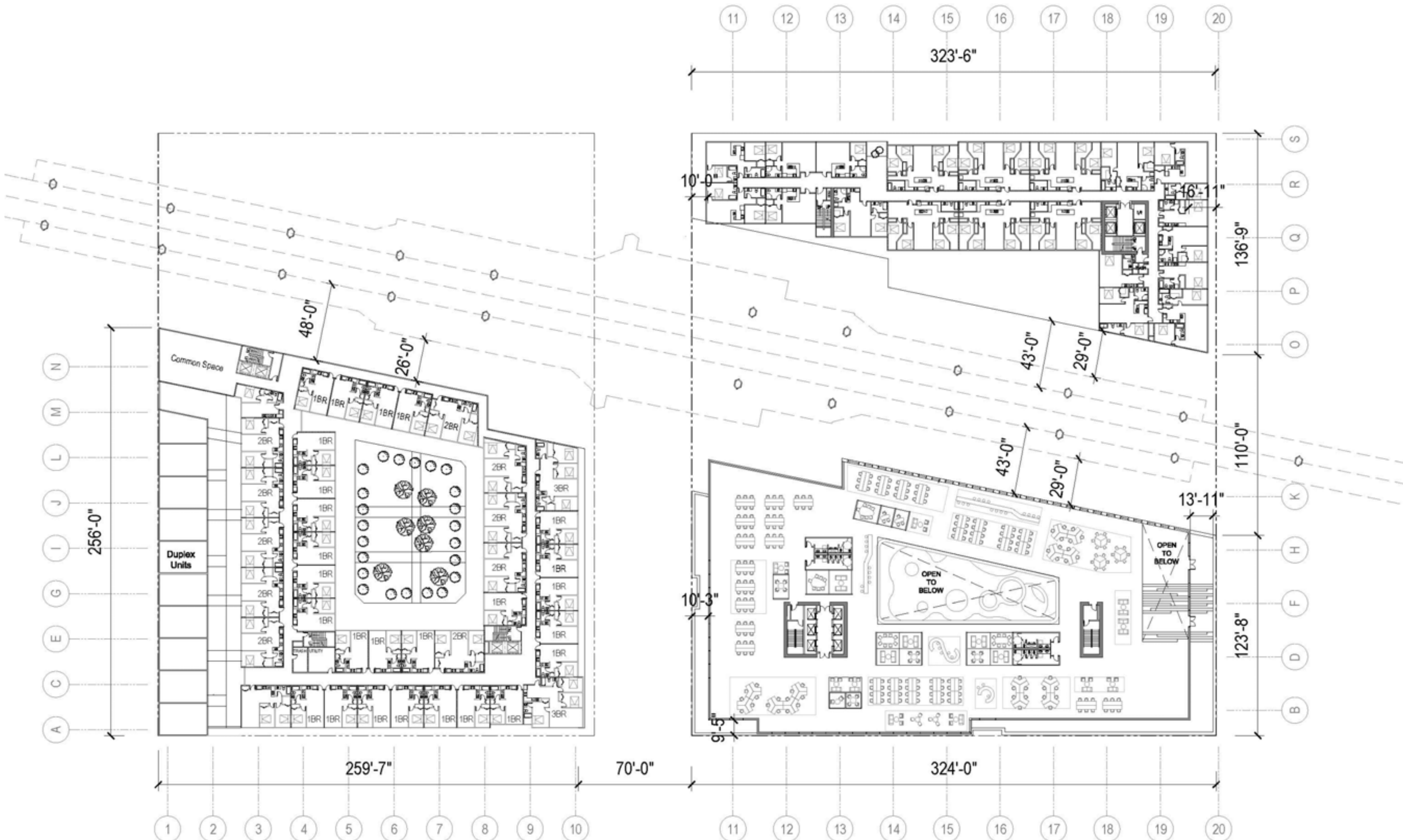

Figure 7. Floor Plan, 6th Floor

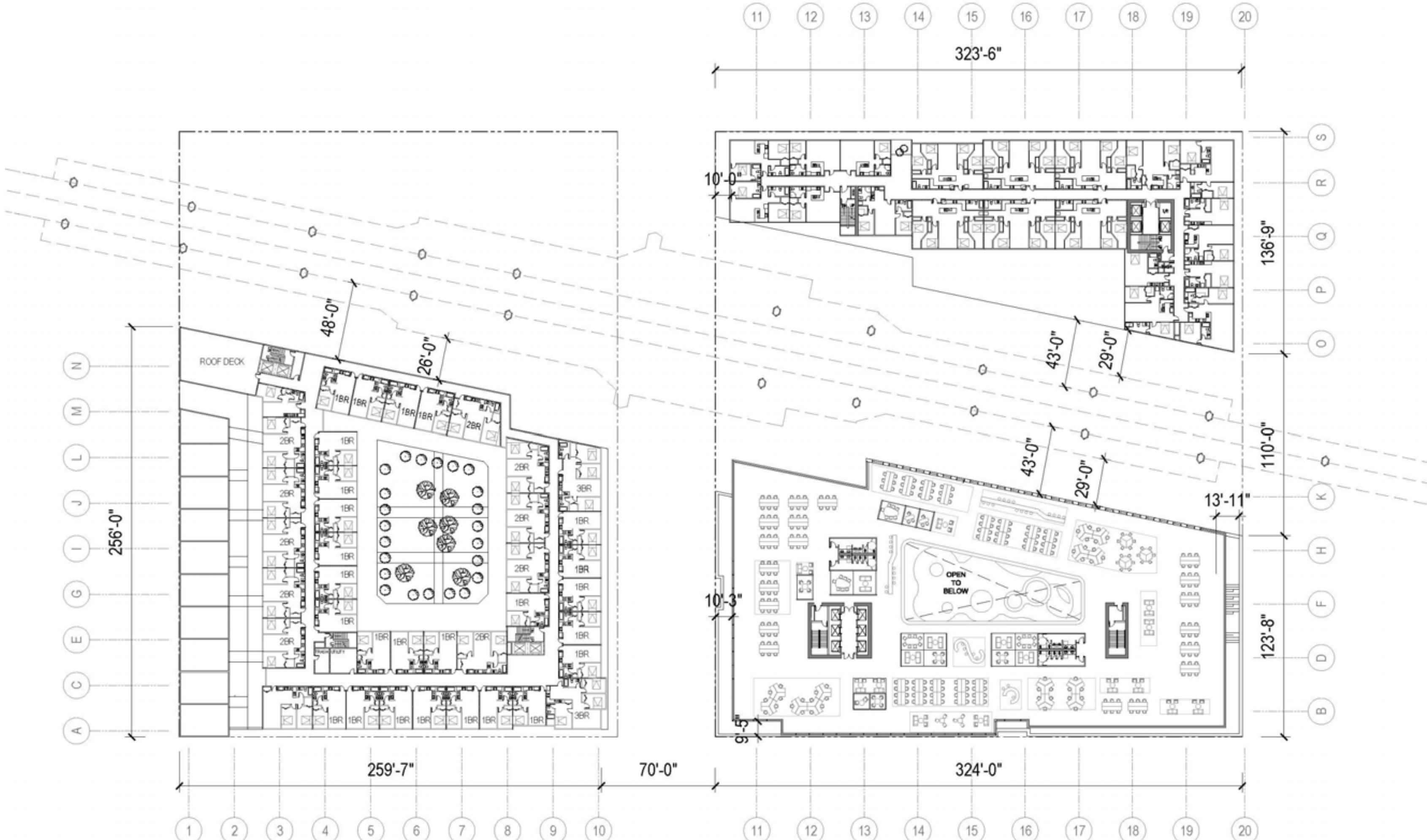

Figure 8. Floor Plan, 7th Floor

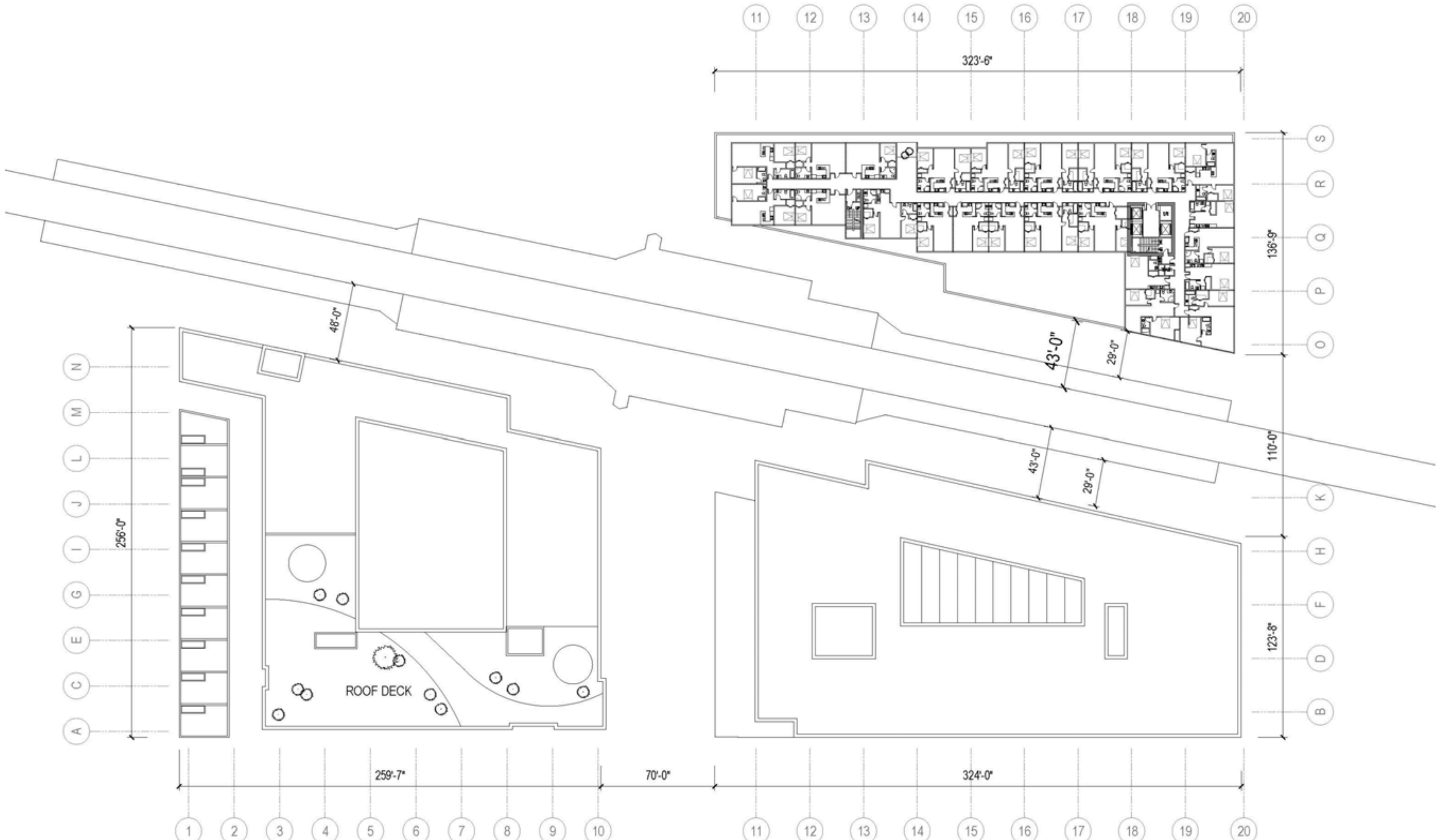

Figure 9. Floor Plan, 8th–18th Floors

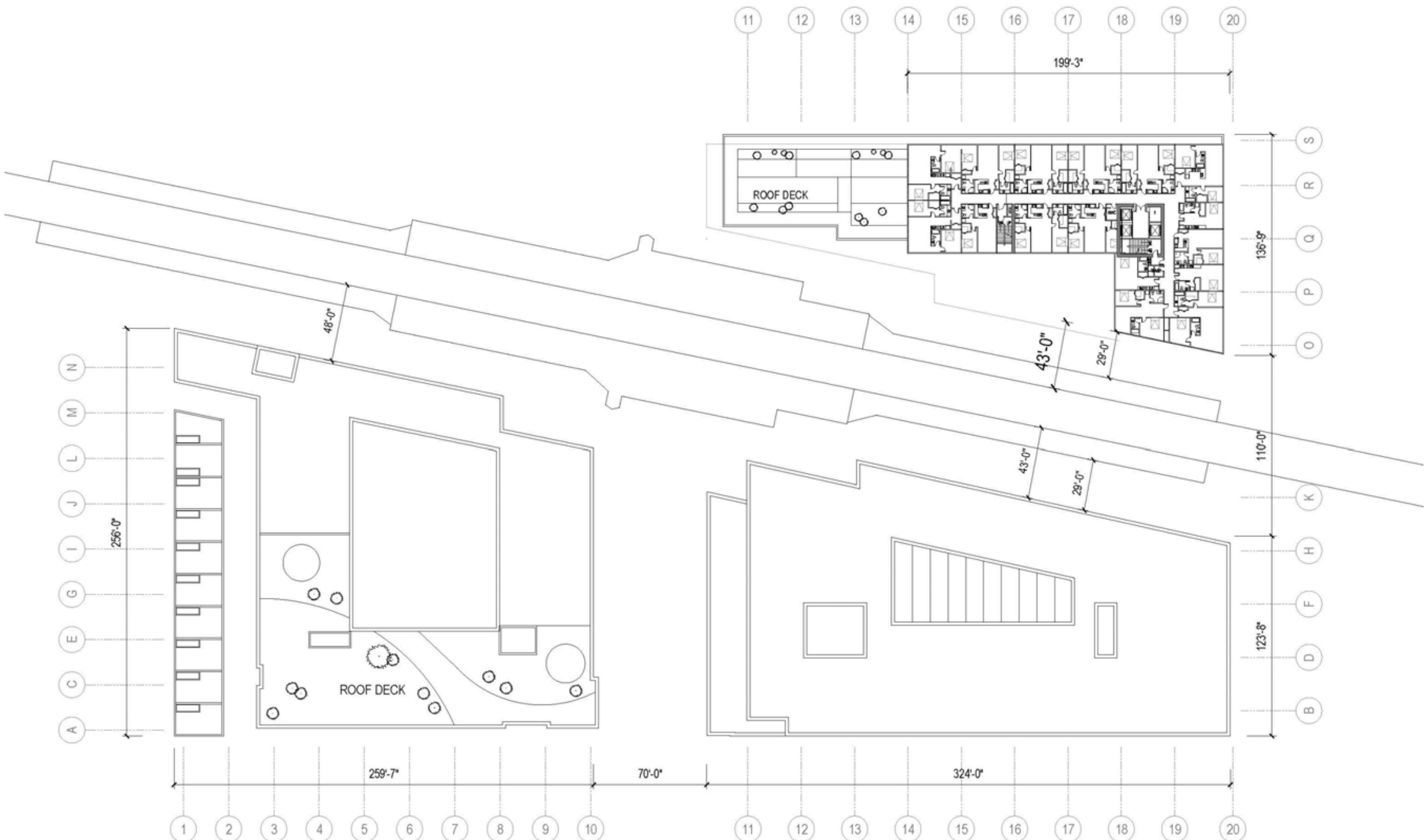

Figure 10. Floor Plan, 19th–28th Floors

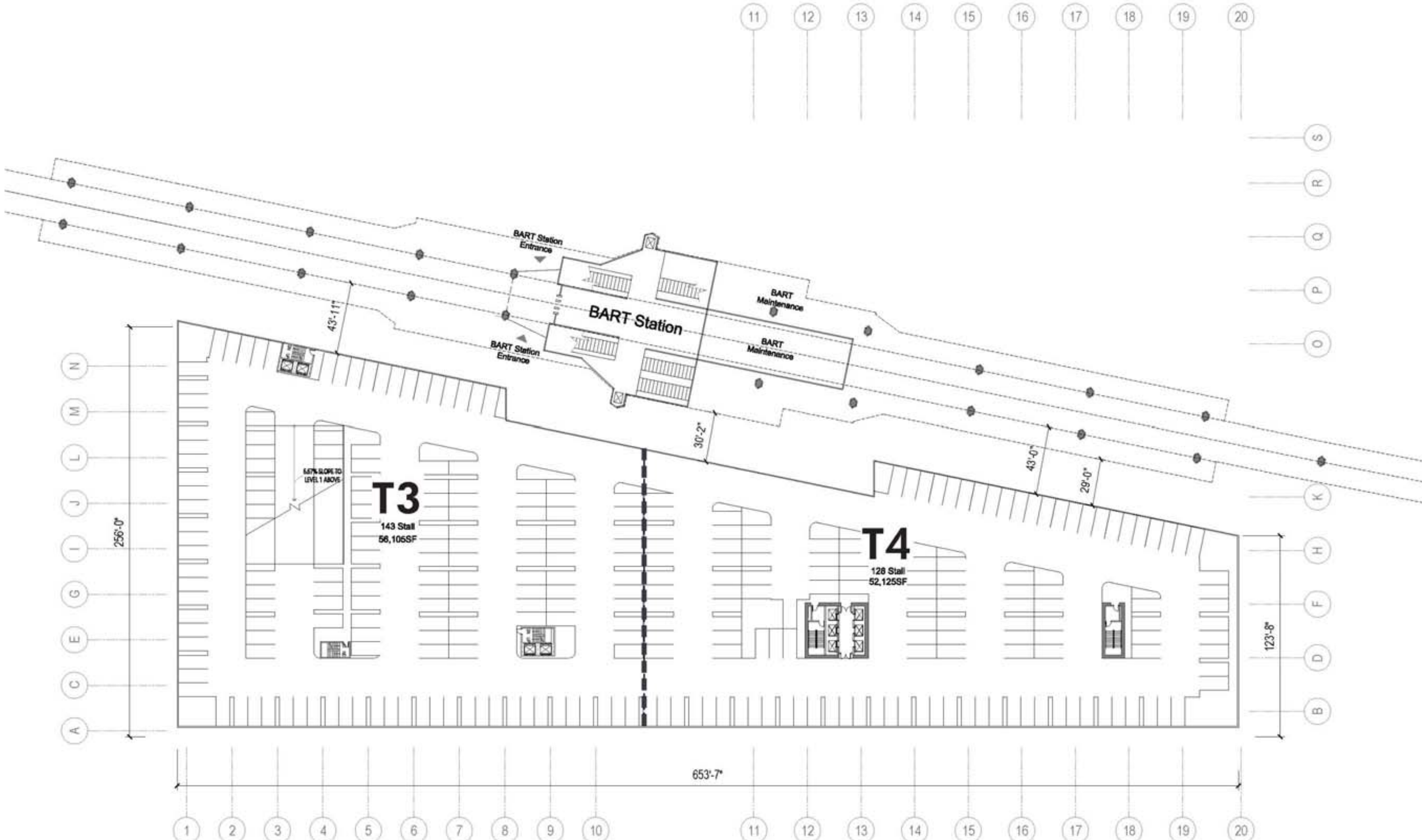

Figure 11. Floor Plan, Basement Level

Figure 12. Illustrative View, Looking South

Figure 13. Illustrative View, Looking North

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Retail space is proposed at the ground level under the BART tracks and along the ground level of proposed high- and mid-rise buildings and is intended to include smaller local retail spaces and food options as well as a larger food market and co-working maker lab space. Also on the ground floor would be ancillary areas for on-site uses including lobby/office areas, trash/recycling areas, loading areas, utility areas, and bicycle parking. The BART station, a surface plaza, and pedestrian circulation elements take up the remainder of the ground level.

The project would include public ground level open space consisting of plaza and pedestrian circulation areas totaling 89,073 square feet. Additionally, the two buildings containing residential uses also have common open space, including in T1: a 7,830 square foot landscaped terrace and 1,100 square feet of private decks on level 5, a 5,712 square foot landscaped terrace on level 28, and 3,360 square feet of other common use decks; and in T3: a 8,380 square foot landscaped courtyard on level 3 with 17,584 square feet of private open space, and on level 7, a 1,673 square foot landscaped terrace and 15,000 square feet of common use terrace space.

Project Construction

The project is currently in the design phase of development and no details are as-yet available regarding the construction schedule and phasing. For the purpose of this analysis, however, it has been assumed that project construction would last at least 14 months and likely substantially longer due to phasing of building construction.

Project Approvals

The project requires the following discretionary actions/approvals, including without limitation:

Discretionary Actions by the City of Oakland

City discretionary approvals include, but may not be limited to:

- Planned Unit Development / Preliminary Development Plan including use of State Affordable Housing Density Bonus waivers/concessions
- Minor Variance for residential open space requirements
- Regular Design Review for new building construction
- Vesting Tentative Parcel Map
- Subsequent approval of Final Development Plans for each phase

Administrative/ministerial City permits required for the project include, but may not be limited to:

- Tree Protection Removal Permit
- Building permit and other related on-site and off-site work permits

Actions by Other Agencies

The project will require other administrative approvals from other agencies and utility providers such as East Bay Municipal Utility District (EBMUD), PG&E, and California Regional Water Quality Control Board (RWQCB). The project may require additional approvals related to potential contaminants at the site, as applicable.

V. Project Consistency Assessment

Proposed Project

The project would establish the transit-oriented development (TOD) originally contemplated in the WOSP on the site surrounding the West Oakland BART station, which is currently a surface parking lot. The project would redevelop a surface parking lot with three new mid-rise and high-rise buildings, a row of residential duplexes, and a surface plaza and would provide affordable and market-rate multi-family housing, office space, and ground-floor retail space, which is intended to include a food market and co-working maker lab space. See the project description in Section V of this document for additional detail.

Under State Affordable Housing Density Bonus Law and the City's Density Bonus and Incentive Procedure, because the project proposes to set aside approximately 20 percent of the residential units for very low income and/or low income units, the project is entitled to increase the project's base allowable density by up to 35 percent and request up to two additional concessions/ incentives.[1,2]

Project Consistency

Considering the bonuses allowed under the State Affordable Housing Density Bonus Law, the proposed 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, as determined by the City of Oakland Bureau of Planning.

- In the West Oakland Specific Plan, the project site is located in the 7th Street Opportunity Area on site #23. The project is consistent with the plan policies for the 7th Street Opportunity Area, which contemplate higher-density housing, commercial office, and government/institutional office space around the core of the BART Station, and neighborhood-serving retail as well as custom manufacturing / industrial arts/ artist exhibition space on the ground floor.

- The project site is zoned as Transit-Oriented Development Commercial Zone (S-15W), which is intended to create, preserve and enhance areas devoted primarily to serve multiple modes of transportation and to feature high-density residential, commercial, and mixed-use developments to encourage a balance of pedestrian-oriented activities, transit opportunities, and concentrated development; and encourage a safe and pleasant pedestrian environment near transit stations by allowing a mixture of Residential, Civic, Commercial, and Light Industrial Activities, allowing for amenities such as benches, kiosks, lighting, and outdoor cafes; and by limiting conflicts between vehicles and pedestrians, and is typically appropriate around transit centers such as Bay Area Rapid Transit (BART) stations, AC Transit centers, and other transportation modes.

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1 Government Code Sections 65915-65918; City of Oakland, 2017. Oakland Planning Code, Chapter 17.107: Density Bonus and Incentive Procedure. Section 17.107.090-Permitted Number of Density Incentives or Concessions.

2 Government Code Sections 65915-65918; City of Oakland, 2017. Oakland Planning Code, Chapter 17.107: Density Bonus and Incentive Procedure. Section 17.107.095-Waiver of Development Standards.

The proposed uses (multi-family residential, office, and retail) are allowable in this zone. The site spans two height districts, with the T2 and T3 areas in the 60’ height zone and the T1 and T4 areas in the 100’ height zone. The project proposes 262 units in the 60’ zone, which would be 1 unit per 424 square feet, within the maximum density of 1 unit per 375. The project proposes 500 units in the 100’ zone, which would be 1 unit per 263 square feet, within the maximum density of 1 unit per 225.

However, the non-residential FAR also factors into the density calculations. For the entire site, non-residential uses account for approximately 46% of the base FAR. Under the base density, that would result in a maximum 476 residential units. The allowable units, including the Planned Unit Area 25 percent density bonus would be 595. The State Affordable Housing Density Bonus increase of 35 percent would allow up to 803 residential units, which is more than the 762 units proposed.

Additionally, both residential towers would require waivers of the following development standards imposed by the Specific Plan and Planning Code: i) increase the number of stories allowable under the Specific Plan and Planning Code; and ii) elimination of the height limits to allow the T1 building to reach a height of 320’ in the 100’ zone and the T3 building to reach a height of 80’ in a 60’ zone. The applicant requests the right to determine a second concession, if needed, as final design plans are prepared.

- The General Plan land use designation for the site is Community Commercial. The intent of the Community Commercial designation is to “identify, create, maintain, and enhance areas suitable for a wide variety of commercial and institutional operations along the City’s major corridors and in shopping districts or centers.” This designation seeks to encourage neighborhood center uses and larger scale retail and commercial uses, which can be complemented by the addition of urban residential development and compatible mixed use development. The maximum FAR for this classification is 5.0 and maximum residential density is 125 units per gross acre, not including the State Affordable Housing Density Bonus. [3]

  The project includes market-rate and affordable multi-family residential, office space, and ground-floor retail and would create ground-floor commercial uses at the site complimented by mixed-use, including urban residential uses. Because the project is consistent with the intent of the land use designations, the project would be consistent with the General Plan.[4]

As **Table 2** demonstrates, the project would also be consistent with the relevant policies of the General Plan and West Oakland Specific Plan.

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[3] City of Oakland, 1998. General Plan, Land Use and Transportation Element, p. 150.

[4] State law “does not require precise conformity of a proposed project with the land use designation for a site, or an exact match between the project and the applicable general plan… Instead, a finding of consistency requires only that the proposed project be ‘compatible with the objectives, policies, general land uses, and programs specified in’ the applicable plan. State of California, 2015. Court of Appeals of California, Fourth District, Division One. Save Our Heritage Organization v. City of San Diego (2015) 237 Cal.App.4th 163, 185-186, 187.

Table 2: Evaluation of Consistency with General Plan and WOSP

Relevant Policies, Principles, and Guidelines of the General Plan and WOSP	Project Consistency
Policy N3.1 Facilitating Housing Construction. Facilitating the construction of housing units should be considered a high priority for the City of Oakland.	**Consistent.** The project would involve redevelopment of the site to add 762 new housing units, including at least 152 affordable units.
Policy N3.2 Encouraging Infill Development. In order to facilitate the construction of needed housing units, infill development that is consistent with the General Plan should take place throughout the City of Oakland.	**Consistent.** The project site is surrounded by development and represents an infill development opportunity.
Policy N3.5 Encouraging Housing Development. The City should actively encourage development of housing in designated mixed housing type and urban housing areas through regulatory and fiscal incentives, assistance in identifying parcels that are appropriate for new development, and other measures.	**Consistent.** The project would add housing to an urban housing area and would utilize the state's affordable housing density bonus regulatory incentive as well as potentially other TOD and/or affordable housing incentives/funding.
Policy N3.8 Required High-Quality Design. High-quality design standards should be required of all new residential construction. Design requirements and permitting procedures should be developed and implemented in a manner that is sensitive to the added costs of those requirements and procedures.	**Consistent.** The project would be designed pursuant to California Building Code and other applicable codes, and would be subject to Design Review approval by the City.
Policy N3.9 Orienting Residential Development. Residential developments should be encouraged to face the street and to orient their units to desirable sunlight and views, while avoiding unreasonably blocking sunlight and views for neighboring buildings, respecting the privacy needs of residents of the development and surrounding properties, providing for sufficient conveniently located on-site open space, and avoiding undue noise exposure.	**Consistent.** The project is on an already-busy BART station site indicated for TOD development and is expected to develop taller and denser than surrounding uses and therefore, any change in sunlight, views, and privacy in the vicinity would not be considered unreasonable. As appropriate for a busy BART station site, the project includes mostly hardscape plaza and walkways and as part of an area plan (WOSP), more noise-sensitive open space is located elsewhere in the Plan Area.
Policy N3.10 Guiding the Development of Parking. Off-street parking for residential buildings should be adequate in amount and conveniently located and laid out, but its visual prominence should be minimized.	**Consistent.** Four hundred parking spaces would be provided in below-ground garage on the project site, using the allowed reductions under Municipal Code 17.116.110 (transit accessible area).
Policy N4.2 Advocating for Affordable Housing. The City encourages local non-profit organizations, affordable housing proponents, the business community, the real estate industry, and other local policy makers to join in efforts to advocate for the provision of affordable housing in communities throughout the Bay Area region.	**Consistent.** The project would involve redevelopment of the site to add at least 152 (20%) new affordable units.
Policy N7.1 Ensuring Compatible Development. New residential development in Detached Unit and Mixed Housing Type areas should be compatible with the density, scale, design, and existing or desired character of surrounding development.	**Consistent.** The project's choice of materials, design features, and scale of development would be compatible with existing character of surrounding development.
Policy N7.2 Defining Compatibility. Infrastructure availability, environmental constraints and natural features, emergency response and evacuation	**Consistent, with density bonus.** The project design would be consistent with the values that define compatibility. The project is located near infrastructure for utilities, transit, and

times, street width and function, prevailing lot size, predominant development type and height, scenic values, distance from public transit, and desired neighborhood character are among the factors that could be taken into account when developing and mapping zoning designations or determining compatibility. These factors should be balanced with the citywide need for additional housing.	community services. In height, scale, and development type, the project would be consistent with existing community character. The residential use would therefore be compatible with the Mixed Housing Type Residential land use goals in the General Plan.
Policy N9.7 Creating Compatible but Diverse Development. Diversity in Oakland's built environment should be as valued as the diversity in population. Regulations and permit processes should be geared toward creating compatible and attractive development, rather than "cookie cutter" development.	**Consistent.** The project's choice of materials, design features, and scale of development would be compatible with existing character of surrounding development and is subject to Design Review approval by the City.
Policy N11.4 Alleviating Public Nuisances. The City should strive to alleviate public nuisances and unsafe and illegal activities. Code Enforcement efforts should be given as high a priority as facilitating the development process. Public nuisance regulations should be designed to allow community members to use City codes to facilitate nuisance abatement in their neighborhood.	**Consistent.** The project site would be redeveloped to accommodate new residential uses and commercial uses per applicable codes.
West Oakland Specific Plan Guidelines – Applicant-Submitted Consistency Assessment	
1. Enhancements could include mitigating the sound and visual effects of the elevated BART tracks	**Consistent.** Residential and commercial buildings will be constructed with required sound insulating window and wall construction to meet planning and building code requirements. The station location has reduced BART noise due to low speed of trains at this station.
2. Create an enhanced local transit system involving streetcar, light rail, buses, and/or shuttles to serve employment, business, and community centers.	**Consistent.** Site design complies. Access plan is designed to accommodate maximum flexibility of current and future transit modes. This includes planned curb space for AC buses and curb drop-off for transit riders. The site has been designed to maximize the pedestrian access from all surrounding blocks. Bike access is enhanced with dedicated bike tracks on the 7th Street and Mandela Street sides of the project.
3. Ensure adequate parking to attract and support development while encouraging alternative travel modes	**Consistent.** Site design complies. The on-site Parking exceeds minimum requirement for proposed uses, and is planned to provide adequate parking for the residential, commercial and retail uses on site. The site plan is also designed to maximize the use of transit and non-vehicular use of the site. The Site design is planned to encourage pedestrian and bike access to the BART station and the public uses on site.
4. Improve lighting and street appearance so as to deter dumping and blight.	**Consistent.** The Lighting plan will be designed to create well lighted plazas and pedestrian pathways through the site. The visual security of all pedestrian spaces within the site is facilitated by locating retail and other public activities along all edges of the development.
5. Ensure that new development employs sustainable ''green'' building practices, facilitates access to pedestrian	**Consistent.** All new buildings and the site design meet or exceed requirements for energy efficiency and sustainable

and transit networks, and enhances streetscapes and open spaces.	development. By developing an infill site with a high density of residential and commercial uses, this development is "green" in terms of land use. The site plan has been designed to maximize transit access, and pedestrian and bike use and access to the site, and to the BART station.
6. Promote energy efficiency throughout all aspects of new development and redevelopment.	**Consistent.** All new buildings and the site are designed to incorporate energy efficient systems and design standards. The buildings will be designed to meet or exceed local Green Building standards. Measures employed during the design and construction of the project will contribute additional environmental benefits. These measures will promote occupant comfort while conserving water, energy, water and natural resources.
7. Encourage sustainable development that incorporates innovative approaches to storm water management and air pollution mitigation, and continues to enhance the well-being of residents of West Oakland.	**Consistent.** Site is designed to provide innovative strategies policy for achieving storm water management on site. The overall site design will meet or exceed city standard for water management and air pollution mitigation. Wellness design is incorporated into the master plan design concept to encourage the overall comfort and wellbeing of residents and visitors to the site. These measures will promote occupant comfort while conserving water, energy, water and natural resources.
8. Recognize and market the artisan and arts community for their contribution to social, cultural, youth education and the economic development in West Oakland.	**Consistent.** The site program will incorporate significant and innovative arts, education and cultural programing on site. The open spaces will be programed with year round cultural, community and arts events that encourages use of the site, and encourages local arts and artists within the West Oakland community. This cultural, education and arts programming is incorporated into the overall design, leasing and operations to encourage and incubate the arts in West Oakland.
9. Establish new grocery stores in West Oakland that can serve the un-met food needs of current and future West Oakland consumers. A grocery anchor can also create a customer flow that can be leveraged to successfully attract other retail shops that can then draw patrons from the anchor tenant's shoppers. A safe and pleasant pedestrian environment will be necessary, especially near the transit station.	**Consistent.** It is anticipated food, grocery or other neighborhood serving retail will be incorporated into the tenant leasing of the ground floor retail. Planning incorporates large retail spaces with loading and transit access that are conducive to these neighborhood serving uses. The pedestrian environment is designed to encourage local shopping by planning safe, active pedestrian spaces and access and to promote community use and a quality shopping pedestrian experience.
10. Neighborhood amenities such as benches, kiosks, lighting, and outdoor cafes are needed to enrich and enhance the urban setting.	**Consistent.** The site design is designed to facilitate flexible community uses including: recreation, community events, farmers markets, makers markets, arts events, festivals and other events that promote this as a central destination for the local and regional community. Neighborhood amenities, such as seating, lighting, retail kiosks, cafes, maker spaces and other activated uses will be incorporated into the pedestrian edges of all public edges of the development. This will ensure that the overall development becomes a year round activated urban community destination.
11. Potential conflicts between vehicles and pedestrians in and around the station will need to be eliminated.	**Consistent.** The Site Circulation and Access plan is designed to coordinate the vehicle and pedestrian access and use of the site. The design intentionally mitigates these conflicts to

	ensure site use enjoyment for all users. Vehicular traffic is minimized on site to ensure maximum pedestrian safety, access and use. Parking is restricted to non-pedestaling areas. Building loading areas are located to minimize pedestrian conflicts, and to minimize conflicts with transit and other access modes to the site.
12. Noise from the BART tracks needs to be mitigated with sound barriers.	C**onsistent.** Residential and commercial buildings will be constructed with additional sound insulating window and wall construction to meet planning code and building code requirement. This station site location has reduced BART noise due to low speed of trains at this station.
13. Mandela/7th 1: Site Planning. Close to the West Oakland BART station, a large civic plaza should be created near the intersection of Mandela Parkway and 7th Street that is surrounded by ground floors that include publicly accessible uses such as restaurants, retail, building lobbies, galleries, and studios.	C**onsistent.** Site design complies. A larger civic plaza and pedestrian passages have been designed into the site design to celebrate the central location of the site and the Mandela corridor. The large civic plaza has been located at the center of the site at the gateway to the BART station. This plaza is located to be more central to the overall site in order to increase its public importance, public access, and public use for community, arts and cultural events. The central plaza is visible and accessible from Mandela and 7th Street.
14. Mandela/7th -2: Massing, Height. Taller buildings are encouraged along Mandela Parkway and in particular to mark intersection of 7th St and Mandela Parkway.	C**onsistent.** Site design complies. Larger buildings are located on 7th street and Mandela. A signature tower will be located at the intersection of Mandela and 7th Street to create a visual icon for the West Oakland community. This massing will reinforce the importance of Mandela and 7th Street corridors.
15. Mandela/7th- 3: Height. It is encouraged that taller buildings mark the intersection of 7th Street and Mandela Parkway.	C**onsistent.** Site design complies. Larger buildings are located on 7th street and Mandela. This massing will reinforce the importance of Mandela and 7th Street corridors. The urban design of the overall site locates smaller buildings along 5th and Chester Streets to transition the scale lower to the south and west portions of the site.
16. Mandela /7th -4: Fenestration. Ground floors should have large openings and a high degree of transparency in the blocks adjacent to the West Oakland BART Station.	**Consistent.** Site design complies. Ground floors have high floor to floor heights and retail with high proportion of glass store front for good retail transparency. The ground floor retail spaces are planned at all building ground floors to provide activated street edges, and to activate the interior plazas and pedestrian passages. Quality materials and varied design will be incorporated into the ground floor retail design to create visual interest for shoppers and pedestrians using the site.
17. Mandela/7th - 5: Landscape. Landscaping should be coordinated with that of the existing public landscaped areas along Mandela Parkway and should include a similarly high quality of planting and paving.	C**onsistent.** Site design complies. Landscape plan is designed to enhance 7th street corridor and to create a high quality of pedestrian experience and civic prominence. The existing trees will be replaced because of conflicts with the access plan. The new tree planting will complement the overall landscape strategy of the 7th Street corridor to ensure a continuous, interesting and varied visual experience. Planting and paving materials will be of high quality and will be aesthetically designed to differentiate unique spaces within the pedestrian plazas, promote visual access to the BART station entrance, and to create opportunities for cultural, community and arts events. The landscape plan is

	designed to create a visually significant destination and center for the West Oakland community and users of the transit hub.
18. 7th Street TOD Env-1: New residences within the West Oakland BART Station TOD area will be subject to Title 24 of the California Code of Regulations, which requires an interior noise standard of 45 dBA DNL in any habitable room, and requires an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard. To meet the interior noise standard, a noise level reduction of up to nearly 35 dBA will likely be necessary from the exterior façades of the buildings facing towards the I-880 freeway and BART tracks and station.	**Consistent.** Residential and commercial buildings will be constructed with code complying sound insulating window and wall construction to meet planning and building code requirement. This includes required sound insulation from the I-880 freeway to ensure development meets necessary noise reduction criteria. The station location has reduced BART noise due to low speed of trains at this station.
19. 7th Street TOD Env.-4: New development of all sensitive receptor uses at the West Oakland BART Station TOD sites must mitigate the anticipated health risks and air quality hazards at this location through implementation of Best Management Practices (BMPs) for air quality.	**Consistent.** Site design complies. The building design will use practical and cost effective Best Management Practices (BPM) practices in the design of all structures and open space to mitigate the anticipated health risks and air quality hazards. It is also the intent of the overall plan to facilitate dramatic increases in transit use which will have a major impact on the decrease in air quality hazards in the community.
20. Provide a more effective and substantial transition in building heights nearest to the South Prescott neighborhood, with buildings nearest to this neighborhood as low as 2- stories.	**Consistent.** Site Design complies. The master plan development places the maximum height along Mandela and 7th Street, and transitions down to 5th Street and Chester Street. The Chester Street frontage has been designed with 3 level residential buildings that reflect more of the scale and detail of the structures of the South Prescott neighborhood, to further mitigate the height of the larger structures and to create a good urban scale transition to the smaller structures in the neighborhood. It is the intent to use a more modern design vocabulary along Chester Street that uses scale and fenestration elements that relate to the neighboring structures.
21. Ensure that new development projects along 7th Street are of compatible height and mass as the existing, newer developments within Mandela Gateway.	C**onsistent.** Site design complies. The base of the larger buildings has been articulated with a cornice height, materials and a variety of window fenestrations that intentionally scales the buildings to relate to the lower existing structures along 7th Street and 5th Street neighborhood context. These larger buildings are designed with a clear separation of lower tower and upper towers to differentiate the higher structures, and to emphasize the importance of the lower buildings that create the activated street elevations.
22. Target 15% of the new units to be built in the Plan Area between now and 2035 for low and moderate income households.	C**onsistent.** Site complies. The development plan will meet or exceed the requirement for affordable units on-site.
23. Neighborhood Commercial 3: Height. Except when located at important intersections such as Mandela Parkway and 7th Street, buildings over 5 stories in height should generally include a significant step-back along commercial arterial roadways to harmonize the scale of new buildings with the existing neighborhood.	C**onsistent.** Site design complies. The lower 5 floors of the high rise buildings have been articulated with a cornice and clear differentiation between the lower and upper portions of the building. The building massing is designed to provide a varied base and street elevation that relates to the smaller scale of the surrounding buildings along the 7th Street

	corridor. Residential buildings along 5th Street exceed the 5 floor set back in order to have a better proportioned street façade. The building base massing to provide a variety of scales to provide a visually active street scape, and to relate better to the varied neighborhood context.
24. Neighborhood Commercial 8: Landscape. Publicly accessible outdoor space areas should be comprehensively designed with high quality pavement, landscaping, and seating, and are encouraged at the following locations: Mandela and 7th Street.	C**onsistent.** Site design complies. The landscape materials are designed with high quality stone, brick, finished concrete and other materials to create a high quality public pedestrian experience and to maximize the types of uses that can occur on site. The landscape will be designed to relate to a larger vision for the 7th Street corridor. The new tree planting will complement the overall landscape strategy of the 7th Street corridor to ensure a continuous, interesting and varied visual experience. Planting and paving materials will be of high quality and will be aesthetically designed to differentiate unique spaces within the pedestrian plazas, promote visual access to the BART station entrance, and to create opportunities for cultural, community and arts events. The landscape plan is designed to create a visually significant destination and center for the West Oakland community and users of the transit hub.

Based on the above, the project would be substantially consistent with the development density established by existing zoning, community plan, or General Plan policies and the State Affordable Housing Density Bonus Law, which requires that the City grant a density bonus if the project meets affordable housing requirements. Requested variations from base zoning, community plan or General Plan requirements are allowable under the applicable local and State regulations and would therefore not represent conflicts with applicable plans.

VI. Summary of CEQA Findings

California Public Resources Code section 21166 and CEQA Guidelines section 15164 State CEQA Guidelines Section 15164 states that an Addendum to a certified EIR is allowed when minor changes or additions are necessary and none of the conditions for preparation of a Subsequent EIR are met.

Section VII: Environmental Checklist below provides substantial evidence that the project would not require preparation of a Supplemental EIR and that an Addendum is the appropriate CEQA document, per the following conclusions:

(1) Although the proposed project adds project-level details to a site identified in the WOSP for development and leverages the State Affordable Housing Density Bonus Law (Government Code Section 65915 et seq., City of Oakland Municipal Code Chapter 17.107), to allow for the increased density and heights proposed, these project changes would not result in new significant environmental effect or a substantial increase in the severity of impacts identified in the WOSP EIR.

(2) Although the Environmental Checklist was completed to take into account current conditions, including updated Plan Area development, there would be no new significant environmental effect or a substantial increase in the severity of impacts identified in the WOSP EIR due to changes in circumstances.

(3) Although the Environmental Checklist was completed to take into account new information, including updated transportation and emissions assessments per current guidelines and implementation of current SCAs, there would be no new significant environmental effect or a substantial increase in the severity of impacts identified in the WOSP EIR due to new information.

Therefore, in accordance with California Public Resources Code section 21166 and CEQA Guidelines section 15164, the WOSP EIR and this Addendum comprise the full and complete CEQA evaluation necessary for the proposed project and no further CEQA evaluation for the project is required.

_______________________________________ _____________________

Catherine Payne, Planner IV Date
Environmental Review Officer

VII. ENVIRONMENTAL CHECKLIST

The Abbreviated Appendix N Checklist below compares potential environmental impacts of the project to the findings of the WOSP EIR, notes whether the project would result in new significant impacts or impacts substantially greater or more severe than those previously identified in WOSP EIR, and includes an explanation substantiating the findings for each topic. It uses the abbreviation SU for significant and unavoidable and LTS for less-than-significant and LTS w/ SCAs of MM for impacts that are reduced to LTS with implementation of identified SCAs and/or Mitigation Measures. Topics for which No Impact was identified in the WOSP EIR were assessed against the proposed project and determined to remain applicable so are not further discussed in this document.

The checklist also lists mitigation measures and standard conditions of approval applicable to the impacts. A full list of the SCAs and Mitigation Measures (MMs) applicable to the project can be found in Attachment A, Standard Conditions of Approval and Mitigation Monitoring and Reporting Program (SCAMMRP). More detail regarding the significance criteria used in this Addendum and the environmental impacts of implementation of the WOSP is available in the WOSP Draft and Final EIR at the following link:
http://www2.oaklandnet.com/Government/o/PBN/ OurOrganization/PlanningZoning/OAK028334.

When a dash (--) appears in the checklist below, it means that the WOSP EIR did not identify any MMs or SCAs related to that environmental impact. N/A appears when an MM or SCA was identified but it does not apply to the project (e.g., the project location does not meet the criteria specified in the MM or SCA). The SCAs that appear in the checklist represent the City's latest standards, revised November 5, 2018. In many cases, newer SCAs from the 2018 update have superseded the SCAs originally listed in the WOSP EIR and functionally equivalent SCA are substituted without further comment. The numbers used to identify the SCAs are also reflective of the 2018 SCAs, not the numbers used in the WOSP EIR.

A. Aesthetics, Shadow, and Wind

Impacts Related To:	WOSP EIR Findings with Implementation of SCA or MMs (If Required)	PROJECT				
		Relationship to WOSP EIR Findings		Applicable MMs	Applicable SCAs	Project Level of Significance
		Equal or Less Severity	Substantial Increase in Severity			
a. Scenic Vistas or Resources	LTS	☒	☐	--	--	LTS
b. Visual Character or Quality	LTS	☒	☐	--	--	LTS
c. Light or Glare	LTS w/ SCA	☒	☐	--	SCA-AES-1: Lighting Plan (#19)	LTS w/ SCA
d. Shadows	LTS	☒	☐	--	--	LTS
e. Wind	LTS	☒	☐	--	--	LTS

Discussion

Under Public Resources Code Section 21099(d), effective January 1, 2014, aesthetics of "a residential, mixed-use residential, or employment center project on an infill site located within a transit priority area" shall no longer be considered significant impacts on the environment. As a result, no further analysis is needed for the proposed project related to aesthetics and the following is provided for informational purposes.

Consistent with WOSP EIR conclusions, implementation of SCA-AES-1: Lighting (#19) will ensure the project will comply with guidelines related to light and glare.

Consistent with WOSP EIR conclusions, due to distance and intervening development, there are no public parks that the project would substantially shadow and no historic resources nearby that contain light-sensitive features with the potential to be substantially affected by shadowing.

Consistent with WOSP EIR conclusions, the project is not within an area where the City requires a wind study for tall projects.

Independent of the Addendum, the project would be required to implement the following additional SCAs related to aesthetics, as found in Attachment A: SCA-AES-1: Trash and Blight Removal (#16), SCA-AES-2: Graffiti Control (#17), and SCA-AES-3: Landscape Plan (#18).

B. Air Quality

Impacts Related To:	WOSP EIR Findings with Implementation of SCA or MMs (If Required)	PROJECT				
		Relationship to WOSP EIR Findings				
		Equal or Less Severity	Substantial Increase in Severity	Applicable MMs	Applicable SCAs	Project Level of Significance
a. Criteria Air Pollutant Emissions	SU	☒	☐	--	SCA-AIR-1 Dust Controls-Construction Related (#21) SCA-AIR-2 Criteria Air Pollutant Controls - Construction-Related (#22) SCA-AIR-3 Diesel Particulate Matter Controls- Construction Related (#23) SCA-TRANS-4 Transportation and Parking Demand Management (#79)	SU
b. Toxic Air Contaminants	Construction LTS w/SCAs Operational SU	☒	☐	N/A [a]	SCA-AIR-1 Dust Controls-Construction Related (#21) SCA-AIR-2 Criteria Air Pollutant Controls - Construction-Related (#22) SCA-AIR-3 Diesel Particulate Matter Controls- Construction Related (#23) SCA-AIR-4: Stationary Sources of Air Pollution (Toxic Air Contaminants) (#25)	Construction LTS w/SCAs Operational SU

[a] Mitigation Measures Air-9, -9B, -9C, and -10 are now incorporated into SCA-AIR-4 and SCA-AIR-6. Only the SCAs appear in Attachment A, not the mitigation measure.

Discussion

Air Quality was analyzed in the WOSP EIR, which found impacts related to construction-period and operational air pollutant emissions and operational toxic air contaminants to be significant and unavoidable under build-out of the WOSP EIR. Construction-period dust and toxic air contaminants were found to be reduced to a less-than-significant level through implementation of SCAs. All other impacts were found to be less-than-significant.

The proposed project would construct mid-rise and high-rise residential and office uses with ground-floor retail. It is assumed the high-rise building and potentially also the mid-rise buildings would include emergency generators that would not be used regularly, but that could be used to operate elevators in the event of an emergency. The project is consistent with the assumptions used in the WOSP EIR for the 7th Street Opportunity Area. The WOSP and the associated EIR intend to provide flexibility in the location, amount, and type of development. Therefore, the project would contribute to the identified emissions and significant impacts identified in the WOSP EIR, and the air quality impact analysis and conclusions presented in the WOSP EIR remains valid so long as the development in the overall Plan Area remains below the forecasted level. Since the approval of the WOSP EIR, eleven developments, including this project, have been proposed and are under construction or are in some stage of the City's approval process. As detailed in subsection M, Transportation and Circulation, the current proposal is within the overall development assumed in the WOSP EIR.

Construction-Period

Because of the size of the project site, the City's basic and enhanced control measures for construction dust and emissions would apply, as described under SCA-AIR-1: Dust Controls – Construction Related (#21) and SCA-AIR-2: Criteria Air Pollutant Controls – Construction Related (#22), originally combined as SCA A of the WOSP EIR. Although not yet required at the time of the WOSP EIR, SCA-AIR-3: Diesel Particulate Matter Controls-Construction Related (#23) is a currently required SCA and would further reduce diesel particulate matter emissions and related health risk during construction. As reported in the WOSP EIR, these SCAs would keep fugitive dust levels and construction-related TAC emissions to less-than-significant levels.

However, consistent with the findings of the WOSP EIR, it is assumed that the project is one of the large construction projects pursuant to the WOSP that would result in a significant and unavoidable impact for construction-related criteria air pollutant emissions. This significant construction-related criteria pollutant emission impact was studied in the WOSP EIR under Impact Air-5. The WOSP did not have any additional mitigation measures for this impact, but the project would comply with the relevant SCAs listed in Attachment A.

With implementation of SCA-Air-1, SCA-AIR-2, and SCA-AIR-3, the project impact would be consistent with WOSP Impacts Air-4, Air-5, and Air-6 and no further analysis is required for construction-period air pollutant and toxic air contaminant emissions.

Operational

The WOSP EIR identified functionally equivalent SCA-TRANS-4: Transportation and Parking Demand Management (#79) as reducing the operational air pollutant emissions through reduction of vehicle emissions though not below significance levels. With implementation of SCA-TRANS-4, the project impact would be consistent with WOSP Impact Air-7 and no further analysis is required with respect to operational air pollutant emissions.

Residential, office, and retail uses are not generally considered substantial sources of operational toxic air emissions. However, while specifics would be determined during building-specific permitting, it is likely that the project would include a back-up diesel generator on the high-rise building and potentially also back-up generators for the mid-rise building(s), which would generate some amount of stationary-source toxic air contaminants. Consistent with the findings of the WOSP EIR, health risk impacts related to the project's operational-emitted TACs to nearby existing sensitive receptors would be considered significant and unavoidable, even with inclusion of SCA-AIR-4: Stationary Sources of Air Pollution (Toxic Air Contaminants) (#25) (which includes elements functionally equivalent to WOSP EIR Mitigation Measure AIR-9: Risk Reduction Plan). With implementation of SCA-AIR-4, the project impact would be consistent with WOSP Impact Air-9 and no further analysis is required.

Impacts of the existing environment on the project are not required by CEQA and so are not analyzed in this CEQA document and related Mitigation Measures Air-9B and Air-9c are not applicable.[5] (These mitigation measures have also been replaced by requirements under SCA-AIR-5, listed below.) Independent of conclusions of the Addendum, the following SCAs related to air quality and future site users would be applicable: SCA-AIR-5: Exposure to Air Pollution (Toxic Air Contaminants) (#25).

5 Supreme Court of California, 2018. *California Building Industry Association v Bay Area Air Quality Management District* No S213478. December 17.

C. Biological Resources

Impacts Related To:	WOSP EIR Findings with Implementation of SCA or MMs (If Required)	PROJECT				
		Relationship to WOSP EIR Findings				
		Equal or Less Severity	Substantial Increase in Severity	Applicable MMs	Applicable SCAs	Project Level of Significance
a. Special-Status Species, Wildlife Corridors, Riparian/ Sensitive Habitat, Wetlands	LTS w/SCAs	☒	☐	--	SCA-BIO-1: Tree Removal During Breeding Season (#30)	LTS w/SCAs
b. Tree and Creek Protection	LTS w/SCAs	☒	☐	--	SCA-BIO-2: Tree Permit (#31)	LTS w/SCAs

Discussion

Biological Resources

The project site is located within a developed area and is currently occupied by the West Oakland BART station plaza and associated surface parking. Wildlife and botanical resources present within the WOSP Plan Area, including the project site, are adapted to disturbed, urban conditions and would not be adversely affected by the implementation of the project.

The WOSP EIR determined that due to the absence of natural habitat in the Plan Area, special-status species and habitat as well as wildlife corridors and wetlands were not expected to be present within the Plan Area, with the exception of common birds, which are protected when nesting under the Migratory Bird Treaty Act.

Biological impacts related to disturbance of nesting birds and their movements (Impacts Bio-1 and Bio-4) were determined to be less-than-significant with implementation of SCA-BIO-1: Tree Removal During Breeding Season (#30). (The WOSP EIR-identified SCA related to Bird Collision Reduction would not be applicable to this site as this project site is not immediately adjacent to a water body or park and does not include substantial green roofs.) With implementation of SCA-BIO-1, the project impact would be consistent with WOSP Impacts Bio-1 through Bio-4 and no further analysis is required with respect to special-status species, habitat, corridors, or wetlands.

Creek and Tree Protection

No creeks exist on the project site, and no off-site creeks would be affected by the project. There are no habitat conservation plans or natural community conservation plans applicable to the site. Construction of the project would require removal of existing landscaping trees at the project site. The WOSP EIR determined that through compliance with SCA-BIO-2: Tree Permit (#31) (which combines the tree removal and tree replacement SCAs identified in the WOSP EIR), tree removal for Plan Area projects would comply with the applicable City of Oakland Tree Protection Ordinance. With implementation of SCA-BIO-2, the project impact would be consistent with the WOSP Impact Bio-5 and no further analysis is required with respect to tree and creek protection.

D. Cultural Resources

Impacts Related To:	WOSP EIR Findings with Implementation of SCA or MMs (If Required)	PROJECT				
		Relationship to WOSP EIR Findings		Applicable MMs	Applicable SCAs	Project Level of Significance
		Equal or Less Severity	Substantial Increase in Severity			
a. Historical Resources	LTS w/SCAs	☒	☐	--	N/A	LTS
b. Archaeological, Paleontological, and Tribal Resources and Human Remains	LTS w/SCAs	☒	☐	--	SCA-CUL-1: Archaeological and Paleontological Resources – Discovery During Construction (#33) SCA-CUL-2: Archaeologically Sensitive Areas – Pre-Construction Measures (#34) SCA-CUL-3: Human Remains – Discovery During Construction (#35)	LTS w/SCAs

Discussion

Historic Resources

The project site does not include and is not adjacent to any of the historically significant structures identified in the WOSP EIR and therefore identified SCAs related to historic preservation and vibration adjacent to historic structures are not applicable.

The WOSP EIR shows that the project site is near, but not within, the Oakland Point Area of Primary Importance (Oakland Point API), whose southern boundary is one half to one full block north of the project site across 7th Street. The WOSP EIR concludes that properties surrounding the Oakland Point API, other than some 7th Street commercial strip properties that abut the district (which does not include the project site), do not contribute to its historical significance. The WOSP EIR further concludes that proposed development elsewhere in the 7th Street Opportunity Area, including on the project site, would not cause a substantial adverse change in the significance of this API or of the individual historical resources within the API. The WOSP EIR determined that Areas of Secondary Importance (ASIs) did not qualify as significant historical resources under CEQA and therefore, that while the project site is adjacent across Chester Street to the South Prescott ASI to the west, there would be no potential for significant historical impacts on this area. Therefore, the project impact would be consistent with the WOSP Impacts CR-1 and CR-3 and no further analysis is required with respect to historic resources.

Archaeological, Paleontological, and Tribal Resources and Human Remains

With respect to archaeological, paleontological, and Native American resources and human remains, the WOSP EIR concluded that the Plan Are is located in an area of moderate to high potential for unrecorded historic-period archaeological and/or Native American resources. Compliance with the following SCAs, which are functionally equivalent to the SCAs that were in effect at the writing of the WOSP EIR, would ensure that any impacts related to discovery of unrecorded resources during construction at the project site are mitigated to a less-than-significant level: SCA-CUL-1: Archaeological and Paleontological Resources – Discovery During Construction (#33); SCA-CUL-2 Archaeologically Sensitive Areas – Pre-Construction Measures (#34); and SCA-CUL-3: Human Remains – Discovery During Construction (#35).

E. Geology, Soils, and Geohazards

Impacts Related To:	WOSP EIR Findings with Implementation of SCA or MMs (If Required)	PROJECT				
		Relationship to WOSP EIR Findings		Applicable MMs	Applicable SCAs	Project Level of Significance
		Equal or Less Severity	Substantial Increase in Severity			
a. Seismic Hazards & Unstable Soil	LTS w/SCAs	☒	☐	--	SCA-GEO-1: Construction-Related Permit[s] (#37) SCA-GEO-2: Soils Report (#38) SCA-GEO-3: Seismic Hazards Zone (Landslide/ Liquefaction) (#40)	LTS w/SCAs
b. Soil Erosion	LTS w/SCAs	☒	☐	--	SCA-GEO-4: State General Construction Permit (#50) SCA-HYD-1: Erosion and Sedimentation Control Plan for Construction (#49)	LTS w/SCAs

Discussion

Seismic Hazards and Unstable Soil

The WOSP EIR noted that there are no Alquist-Priolo Earthquake Fault Zones within the Plan Area and therefore no significant impact related to fault rupture. The WOSP EIR further noted that the Plan Area, including the project site, is located within the greater San Francisco Bay Area, a seismically active region with risks of strong seismic ground shaking and seismic-related ground failure, particularly the potential for liquefaction at and around the project site. Further, construction activities that disturb soils could result in erosion or loss of topsoil.

The WOSP EIR concluded that compliance with SCAs, which include the current SCAs: SCA-GEO-1: Construction-Related Permit(s) (#37), SCA-GEO-2: Soils Report (#38), and SCA-GEO-3: Seismic Hazards Zone (Landslide/Liquefaction) (#40), would ensure that the project would not result in significant impacts related to seismic hazards and unstable soils. These SCAs are included in Attachment A. With implementation of SCA-GEO-1, SCA-GEO-2, and SCA-GEO-3, the project impact would be consistent with WOSP EIR Impacts GEO-1, GEO-2, and GEO-5 and no further analysis is required with respect to seismic hazards and unstable soils.

Soil Erosion

The WOSP EIR identified SCA-GEO-4: State General Construction Permit (#50) and SCA-HYD-1: Erosion and Sedimentation Control Plan for Construction (#49) to ensure that the project would not result in significant impacts related to soil erosion. These SCAs are included in Attachment A. With implementation of SCA-GEO-4 and SCA-HYD-1, the project impact would be consistent with WOSP EIR Impact GEO-4 and no further analysis is required with respect to erosion.

F. Greenhouse Gas Emissions and Climate Change

Impacts Related To:	WOSP EIR Findings with Implementation of SCA or MMs (If Required)	PROJECT				
		Relationship to WOSP EIR Findings		Applicable MMs	Applicable SCAs	Project Level of Significance
		Equal or Less Severity	Substantial Increase in Severity			
a. GHG Emissions	LTS (Stationary sources SU but not applicable to current project)	☒	☐	--	--	LTS
b. Consistency with Applicable GHG Plans	LTS	☒	☐	--	--	LTS

Discussion

GHG Emissions

According to the City of Oakland's thresholds of significance, which were also used in the WOSP EIR, a project would have a significant impact if it would produce total greenhouse gas (GHG) emissions of more than 1,100 metric tons of carbon dioxide equivalents (CO2e) annually and more than 4.6 metric tons of CO2e per service population annually. The service population includes both the residents and the employees of the project.

The WOSP EIR evaluated impacts related to GHG emissions from construction and operation of development under the WOSP. Future projects and development under the WOSP would be required to implement SCAs that would reduce GHG emissions during construction and operation of projects and, with the exception of new stationary sources of GHG, would be expected to meet applicable efficiency thresholds and result in less-than-significant impacts. The project does not include permitted stationary sources of GHG so these are not further discussed.

While the project is consistent with the WOSP EIR analysis and therefore would have a less-than-significant impact with regard to GHG emissions, Oakland requires quantification to determine applicability of SCAs. Full inputs and outputs of the GHG emissions analysis are included in the Greenhouse Gas Reduction Plan and summarized below.

Based on the GHG analysis shown in **Table 3**, the project's estimated CO2e emissions per service population would be 0.57 metric tons annually, which is below the efficiency threshold of 4.6. Because the project would be below one of the project-level significance thresholds, impacts related to GHG emissions would be less-than-significant. Therefore, the proposed project would not substantially increase the severity of significant impacts identified in the WOSP EIR, nor would it result in new significant impacts related to GHG and climate change that were not identified in the WOSP EIR.

The WOSP EIR did not identify any mitigation measures related to GHGs, and none are required for the proposed project.

Table 3. Summary of Project GHG Emissions

Emission Source	CO2e (MT/year)	CO2e Efficiency (MT/year/SP) [a]
Construction [b]	21	0.00
Operation – Area	40	0.01
Operation – Energy	2,075	0.49
Operation – Mobile [c]	5,670	1.33
Operation – Waste	43	0.01
Operation – Water	240	0.06
Total Projects Emissions [c]	**2,419**	**0.57**
Thresholds of Significance	1,100	4.6
Threshold Exceeded? [d]	***YES***	***NO***

[a] The service population of 4,261 residents and employees was used, see subsection K, Population and Housing for details.

[b] In accordance with CEQA guidance from the City of Oakland, GHG emissions during construction are amortized over 40 years

[c] In accordance with SB 375, the estimated GHG emissions from cars and light-duty trucks are excluded from the GHG analysis.

[d] Project must exceed both thresholds to be considered a significant impact.

Source: Greenhouse Gas Reduction Plan for WOB TOD Project, December 2018.

Independent of the Addendum, because of the size of the project and exceedance of at least one threshold, the project would be required to implement SCA-GHG-1: GHG Reduction Plan (#42). Implementation of other SCAs would also reduce GHG emissions. These include but are not limited to SCA-TRANS-4: Transportation and Parking Demand Management (#79), SCA-UTIL-1: Construction and Demolition Waste Reduction and Recycling (#84), SCA-UTIL-4: Green Building Requirements (#87), SCA-UTIL-7: Recycled Water (#91), and SCA-UTIL-8: Water Efficient Landscape Ordinance (WELO) (#92).

<u>Consistency with GHG Emissions and Policies</u>

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 (CARB's) Climate Change Scoping Plan. Since the GHG emissions from the project would be below the City's efficiency threshold based on the service population (see above), it can be assumed that the proposed project is consistent, and not in fundamental conflict, with the AB 32 Scoping Plan. Moreover, the project site is located in a Priority Development Area designated by Plan Bay Area,[6] the Sustainable Communities Strategy adopted for the purpose of achieving the GHG reduction target established by CARB for the region's transportation and land use sector pursuant to the AB 32 Scoping Plan. As stated by Plan Bay Area, a Priority Development Area is a geographic area "where new development

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[6] Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG), 2017. Priority Development Areas (Plan Bay Area 2040), available at http://opendata.mtc.ca.gov/datasets/56ee3b41d6a242e5a5871b043ae84dc1_0.

will support the day-to-day needs of residents and workers in a pedestrian-friendly environment served by transit." By focusing new development within a Priority Development Area, Plan Bay Area establishes a preferred development scenario, which will achieve the plan's GHG reduction targets. Since the proposed project would be constructed within a Priority Development Area with land uses at a density and intensity higher than the minimum recommendation included in Plan Bay Area (i.e., >20 dwelling units per acre; 0.75 FAR), the proposed project would further, and not conflict with, Plan Bay Area's GHG reduction targets.

The project is consistent with, and would not hinder, the GHG reduction goals set forth in the City of Oakland's Energy and Climate Action Plan (ECAP) and the green planning policies of the General Plan because the proposed project would promote land use patterns and densities that help improve regional air quality conditions, as demonstrated by its compliance with Plan Bay Area's preferred development scenario. The project would also be required to comply with the City's Green Building Ordinance, which supports the goals, policies, and actions of the ECAP and General Plan.

As listed under GHG Emissions discussion above, implementation of the City's SCAs would also reduce GHG emissions. Overall, the project would not conflict with applicable GHG plans, policies or regulations, and this impact would be less-than-significant, consistent with the conclusions of the WOSP EIR.

G. Hazards and Hazardous Materials

Impacts Related To:	WOSP EIR Findings with Implementation of SCA or MMs (If Required)	PROJECT				
		Relationship to WOSP EIR Findings		Applicable MMs	Applicable SCAs	Project Level of Significance
		Equal or Less Severity	Substantial Increase in Severity			
a. Hazardous Materials Use, Exposure, Storage & Disposal	LTS w/ SCAs	☒	☐	--	SCA-HAZ-1: Hazardous Materials Related to Construction (#43) SCA-HAZ-2: Hazardous Building Materials and Site Contamination (#44) SCA-HAZ-3: Fire Safety Phasing Plan (#46)	LTS w/ SCAs
b. Hazardous Materials within a ¼-mile of a School	LTS w/ SCAs	☒	☐	--	N/A	LTS
c. Emergency Access Routes	LTS w/ SCAs	☒	☐	--	SCA-GEN-1: Construction Management Plan (#13)	LTS w/ SCAs

Discussion

The project site is not located near wildland areas or public or private airstrips. Therefore, there are no wildland fire risks or risk of airport hazards at the project site and these are not further discussed in this document.

<u>Hazardous Materials</u>

As noted in the WOSP EIR, the site is included in the DTSC Geotracker database as a site requiring evaluation though no known sources of contaminants or known contaminants of concern were identified.[7] Construction activities would use, transport, and store on site hazardous materials, including fuels and other chemicals and disturb soils and/or groundwater that may contain contaminates. The WOSP EIR reported that hazards and hazardous materials impacts would be mitigated to less-than-significant levels with compliance with local, state, and federal regulations for treatment, remediation, and/or disposal of contaminated soil and/or groundwater and the City SCAs that were in effect at the time, which are functionally equivalent to the City's current SCAs, including SCA-HAZ-1: Hazardous Materials Related to Construction (#43), SCA-HAZ-2: Hazardous Building Materials and Site Contamination (#44), SCA-HAZ-3: Fire Safety Phasing Plan (#46). Impacts of the environment on the project are not required under CEQA and information/SCAs related to future site users or residents are included for informational purposes.

[7] State Department of Toxic Substances Control, EnviroStor records, available at https://www.envirostor.dtsc.ca.gov/public/, including record ID # 70000133 for the project site.

Hazardous Materials Near Schools

Because the project would not include any industrial uses, the proposed project would not use substantial amounts of hazardous materials and the small amounts of "household hazardous waste", which includes cleaning products, would be handled according to applicable regulations. While there are schools located within ¼ mile of the project site, the impact would be less-than-significant because the project would not handle significant amounts of hazardous materials during operations.

Emergency Access Routes

As noted in the WOSP EIR, 7th Street in the project area is an identified emergency evacuation route. The WOSP EIR noted that temporary localized disruption of evacuation routes could be possible but that the impact would be reduced to less-than-significant through implementation of functionally equivalent SCA-GEN-1: Construction Management Plan (#13).

H. Hydrology and Water Quality

Impacts Related To:	WOSP EIR Findings with Implementation of SCA or MMs (If Required)	PROJECT				
		Relationship to WOSP EIR Findings				
		Equal or Less Severity	Substantial Increase in Severity	Applicable MMs	Applicable SCAs	Project Level of Significance
a. Water Quality & Drainage	LTS w/ SCAs	☒	☐	--	SCA-HYD-1: Erosion and Sedimentation Control Plan for Construction (#49) SCA-HYD-2: State Construction General Permit (#50) SCA-HYD-3: NPDES C.3 Stormwater Requirements for Regulated Projects (#54)	LTS w/ SCAs
b. Use of Groundwater	LTS	☒	☐	--	--	LTS
c. Flooding & Substantial Risks from Flooding	LTS	☒	☐	--	--	LTS

Discussion

Water Quality and Drainage

The majority of the site (212,865 square feet, which is 87.5% of the site) is currently covered with impervious surfaces. Implementation of the project would include landscaped areas that would reduce impervious surfaces on the project site (relative to the existing condition) by approximately 10,320 square feet. The project would be required to comply with Provision C.3 of the National Pollutant Discharge Elimination System (NPDES) Municipal Regional Permit (MRP). Consistent with conclusions of the WOSP EIR, because the project would adhere to national, state, and local regulations, as well as the City's SCAs, including functionally equivalent SCA-HYD-1: Erosion and Sedimentation Control Plan for Construction (#49), SCA-HYD-2: State Construction General Permit (#50), and SCA-HYD-3: NPDES C.3 Stormwater Requirements for Regulated Projects (#54), the potential for the proposed project to substantially alter drainage patterns, increase the flow of runoff, impact groundwater, or affect water quality would be less-than-significant.

Use of Groundwater

The WOSP EIR noted that the local water district, EBMUD, relies on surface water and does not use the groundwater basin for municipal water supply so the impact in regard to use of groundwater would be less-than-significant. Additionally, the WOSP noted that development is required to comply with C.3 provisions requiring recharge rates at development sites at least equivalent to pre-development rates.

Flooding

As noted in the WOSP EIR, the project site is not in an area subject to inundation in the event of dam failure, seiche, or mudflows. However, some areas, including a portion of the project site, could be subject to tsunami inundation in the event of an off-shore earthquake. The WOSP EIR determined that due to the rare occurrence of tsunamis, the distance from the shoreline, and the emergency alert system, the potential impacts related to tsunami inundation would be less-than-significant.

As noted in the WOSP EIR and confirmed on current flood maps, [8] the project site is outside of the 100-year-flood hazard zone and would not have a significant impact related to flood hazards.

[8] Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) #06001C0066H, effective 12/21/2018, available at https://msc.fema.gov/portal/search.

I. Land Use

Impacts Related To:	WOSP EIR Findings with Implementation of SCA or MMs (If Required)	PROJECT				
		Relationship to WOSP EIR Findings		Applicable MMs	Applicable SCAs	Project Level of Significance
		Equal or Less Severity	Substantial Increase in Severity			
a. Division of an Existing Community	LTS	☒	☐	--	--	LTS
b. Conflict with Land Uses / Land Use Plans	LTS	☒	☐	--	--	LTS

Discussion

Division of an Existing Community

Consistent with WOSP EIR findings, the project would not disrupt or divide a community, but instead would replace a surface lot with walkways and plaza areas lined with neighborhood-serving retail uses with increased activation as well as comfort and appearance of pedestrian connections through the site.

Conflict with Land Uses / Land Use Plans

As detailed in the consistency assessment in Section V, the project would be substantially consistent with the development density established by existing zoning, community plan, or General Plan policies and the State Affordable Housing Density Bonus Law, which requires that the City grant a density bonus if the project meets affordable housing requirements. Requested variations from base zoning, community plan or General Plan requirements are allowable under the applicable local and State regulations and would therefore not represent conflicts with applicable plans.

The WOSP EIR acknowledges that higher-density development would be allowed at the project site than in adjacent low-rise residential areas. The WOSP EIR further determined that the increased density was appropriate for the transit site and would not result in a substantial conflict with existing uses if building height transitions were considered at boundaries. The project proposes low-rise residential duplex units along the Chester Street boundary with the South Prescott neighborhood low-rise residential units consistent with this conclusion and would therefore be consistent with the less-than-significant conclusion in the WOSP EIR.

J. Noise

Impacts Related To:	WOSP EIR Findings with Implementation of SCA or MMs (If Required)	PROJECT				
		Relationship to WOSP EIR Findings		Applicable MMs	Applicable SCAs	Project Level of Significance
		Equal or Less Severity	Substantial Increase in Severity			
a. Construction Noise and Vibration	LTS w/ SCAs	☒	☐	--	SCA-NOI-1: Construction Days/Hours (#62) SCA-NOI-2: Construction Noise (#63) SCA-NOI-3: Extreme Construction Noise (#64) SCA-NOI-4: Project-Specific Construction Noise Reduction Measures (#65) SCA-NOI-5: Construction Noise Complaints (#66)	LTS w/ SCAs
b. Operational Noise and Vibration	LTS w/ SCAs	☒	☐	--	SCA-NOI-6: Operational Noise (#68)	LTS w/ SCAs
d. Noise Exposure / Compatibility	LTS w/ SCAs	☒	☐	--	N/A	N/A

Discussion

Construction Noise and Vibration

Sensitive receptors are located across the street from the project site, which includes single-family homes approximately 60 feet away across Chester Street and 80 feet across 5th Street and multi-family structures approximately 100 feet away across 7th Street. The project site's proximity to sensitive receptors, and the type of construction equipment that would be used as part of the project, are similar to other projects in urban areas. Because the proposed project site and its vicinity are part of an established, urbanized area, periodic exposure to construction-related noise and vibration are existing conditions. The use of heavy construction equipment would occur at different locations across the site. Therefore, the duration and frequency of heavy construction equipment operation near sensitive receptors would be limited on any given day and would not be expected to last more than a few days at a time. The WOSP EIR concluded that the impacts related to construction noise and vibration would be less-than-significant with implementation of applicable SCAs which are functionally equivalent to the applicable SCA-NOI-1: Construction Days/Hours (#62), SCA-NOI-2: Construction Noise (#63), SCA-NOI-3: Extreme Construction Noise (#64), SCA-NOI-4: Project-Specific Construction Noise Reduction Measures (#65), SCA-NOI-5: Construction Noise Complaints (#66). With implementation of these SCAs, the project's impact would be less-than-significant and within Impacts Noise-1 and Noise-4 of the WOSP EIR.

Operational Noise and Vibration

The WOSP EIR concluded that increases in traffic noise from build-out of the Plan Area would be below threshold levels and would therefore represent a less-than-significant impact. Residential, office, and retail uses such as those proposed are not generally considered substantial sources of operational noise or vibration, though noise from rooftop equipment can exceed threshold levels if not appropriately shielded. The WOSP EIR concluded the impacts related to operational noise and vibration would be less-than-significant with compliance with relevant regulations and applicable SCAs functionally equivalent to SCA-NOI-6: Operational Noise (#68).

Additionally, a noise specialist assessed the potential for noise from the BART line and nearby 7th Street to reflect off the large surfaces of the project's proposed buildings. Even assuming that 100% of such noise were reflected, given the distance from receptors and way that noise is perceived, even under worst-case conditions, the reflected noise component would increase overall noise levels by only 0.3 dBA, which would not be a noticeable or measurable increase at receptors in nearby buildings. Therefore, the noise reflection would not result in significant noise impacts.[9]

Noise Exposure / Compatibility

Analysis of existing noise and vibration on the project is not required under CEQA and is not analyzed in this CEQA document. Independent of the Addendum, the project would comply with the following SCAs related to nose levels at future site users: SCA-NOI-7: Exposure to Community Noise (#67).

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9 Personal correspondence with Michael Thill, Illingworth & Rodkin, Inc., 12/20/2018. BART produces a noise level of approximately 69 dBA Ldn at 50 feet and 7th Street a level of 72 dBA CNEL at 50 feet from centerline. Existing noise levels at sensitive receptors to the north of the project are approximately 72.6 dBA CNEL/Ldn. The reflected source would travel farther as it would bounce off the proposed buildings, and would be 61 dBA Ldn at sensitive receptors to the north. Calculating the combined noise level of existing and reflected noise, the noise level at sensitive receptors to the north would be 72.9 dBA CNEL/Ldn, an increase of 0.3 dBA.

K. Population & Housing

Impacts Related To:	WOSP EIR Findings with Implementation of SCA or MMs (If Required)	PROJECT				
		Relationship to WOSP EIR Findings		Applicable MMs	Applicable SCAs	Project Level of Significance
		Equal or Less Severity	Substantial Increase in Severity			
a. Population Growth	LTS	☒	☐	--	--	LTS
b. Displacement of Housing & People	LTS	☒	☐	--	--	LTS

Discussion

The project would not remove any existing housing nor displace people. In fact, the project would function to do the opposite; serving to combat displacement by providing much needed affordable housing (at least 152 units). The project would result in an estimated 2,287 permanent employees on site and approximately 1,974 new residents.[10, 11] The WOSP EIR anticipated significant residential and employment growth, and as detailed in subsection M, Transportation and Circulation, the current proposal is within the overall development assumed in the WOSP EIR. Consistent with the WOSP EIR, environmental impacts related to population and housing would be less-than-significant.

10 Employee estimates are based on an office and retail employment density of 5 employees per 1,000 square feet.

11 Residential estimates are based on a residential density of 2.59 persons per household per the State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2018, with 2010 Benchmark. Sacramento, California, January 2018.

L. PUBLIC SERVICES, PARKS, AND RECREATION FACILITIES

Impacts Related To:	WOSP EIR Findings with Implementation of SCA or MMs (If Required)	PROJECT				
		Relationship to WOSP EIR Findings		Applicable MMs	Applicable SCAs	Project Level of Significance
		Equal or Less Severity	Substantial Increase in Severity			
a. Public Services	LTS w/ SCA	☒	☐	--	SCA-GEN-1: Compliance with Other Requirements (#3) SCA-PUB-1: Capital Improvements Impact Fee (#74) SCA-HAZ-4: Fire Safety Phasing Plan (#46)	LTS w/ SCA
b. Parks & Recreation	LTS	☒	☐	--	--	LTS

Discussion

The WOSP EIR concluded that while development of the Plan Area would increase demand for public services and recreation, it also includes improvements and would pay development fees to support services and the impacts in this regard would be less-than-significant or reduced to that level through implementation of applicable SCAs. The project would comply with the following SCAs related to public services, parks, and recreation: SCA-GEN-1: Compliance with Other Requirements (#3), SCA-PUB-1: Capital Improvements Impact Fee (#74), and SCA-HAZ-4: Fire Safety Phasing Plan (#46).

M. Transportation and Circulation

Impacts Related To:	WOSP EIR Findings with Implementation of SCA or MMs (If Required)	PROJECT				
		Relationship to WOSP EIR Findings		Applicable MMs	Applicable SCAs	Project Level of Significance
		Equal or Less Severity	Substantial Increase in Severity			
a. Conflict with Circulation Plans	LTS w/ SCAs	☒	☐	N/A	SCA-TRANS-4: Transportation and Parking Demand Management (#79) SCA-TRANS-5: Transportation Impact Fee (#80) SCA-GEN-1: Construction Management Plan (#13)	LTS w/ SCAs
b. Substantial Additional VMT [a]	LTS-SU	☒	☐	N/A	--	LTS
c. Induce Traffic	LTS	☒	☐	--		LTS

[a] As explained in the discussion below, LOS-based impact analysis has been replaced by VMT-based analysis. WOSP EIR findings were for LOS-based analysis.

Discussion

Transportation and circulation was analyzed in the WOSP EIR, which found Level of Service (LOS) at Intersection #13, Broadway and West Grand Avenue, LOS at Intersection #15, Adeline Street and 18th Street, and LOS at Intersection #24, Adeline Street and 5th Street impacts to be less than significant with implementation of mitigation measures or SCAs. Impacts to Intersection #1, 40th Street and Hollis Street, at PM hours, LOS at Intersection #2, 40th Street and San Pablo Avenue, LOS at Intersection #1, queue storage at Intersection #2, and LOS at Intersection #7, West Grand Avenue at Mandela Parkway, were found to be significant and unavoidable under the WOSP EIR. All other transportation and circulation impacts under the WOSP were found to have no impacts or less-than-significant impacts.

The 2010 Oakland Housing Element Update EIR and 2014 Addendum found significant and unavoidable impacts related to traffic delays. The remaining transportation and circulation impacts were found to have no impacts or less-than-significant impacts. In addition, the 1998 LUTE EIR found impacts to intersection operations to be less than significant with implementation of mitigation measures or SCAs. Impacts to roadway segments under the 1998 LUTE EIR were found to be significant and unavoidable. The remaining transportation and circulation impacts under the 1998 LUTE EIR were found to have no or less-than-significant impacts.

<u>Conflicts with Circulation Plans</u>

The project is consistent with applicable plans, ordinances, and policies, and would not cause a significant impact by conflicting with adopted plans, ordinances, or policies addressing the safety and performance of the circulation system, including transit, roadways, bicycle lanes, and pedestrian paths (except for automobile level of service or other measures of vehicle delay).

The 1998 LUTE, as well as the City's Public Transit and Alternative Mode and Complete Streets policies, states a strong preference for encouraging the use of non-automobile transportation modes, such as transit, bicycling, and walking. The project would encourage the use of non-automobile transportation modes by locating a mixed-use project (residential, office, and retail) in an area that is becoming a more dense, walkable urban environment and is well-served by both local and regional transit. The project would further discourage driving in the project vicinity by eliminating 337 existing parking spaces at the existing West Oakland BART Station.

The project is consistent with both the City's 2017 Pedestrian Master Plan and the 2007 Bicycle Master Plan as it would not make major modifications to existing pedestrian or bicycle facilities in the surrounding areas and would not adversely affect installation of future facilities.

Further, the project is required to prepare and implement a Transportation and Parking Demand Management Plan (TDM Plan) because it would generate more than 50 peak hour trips (see separate Transportation and Parking Demand Management memorandum for more detail). The TDM Plan includes on-going operational strategies, as well as infrastructure improvements in the project vicinity, that encourage the use of non-automobile travel modes.

The major off-site infrastructure improvements included in the project consist of:

- New Class 4 bicycle lanes along both directions of 7th Street and Mandela Parkway adjacent to the project.
- Improved sidewalks and other pedestrian amenities along the project frontages and pedestrian safety and accessibility improvements along the corridor and at intersections.
- Enhanced bus facilities along the project frontage.

These improvements would not only benefit the project residents, workers, and visitors, but also residents, workers, and visitors in the areas surrounding the project site, including BART riders. In addition, these improvements are also consistent with the City's adopted plans, ordinances, and policies relating to safety and performance of the circulation system because they improve the pedestrian and bicycle environment in the vicinity of the project.

Overall, the project would not conflict with adopted plans, ordinances, or policies addressing the safety and performance of the circulation system. This is a less-than-significant impact; no mitigation measures are required.

In addition, the project is consistent with the WOSP EIR, which evaluated the impacts of developments in the West Oakland area, as described below.

WOSP EIR Traffic Analysis

The project site is located within the WOSP Area. The development evaluated in the WOSP EIR represents the reasonably foreseeable development expected to occur in the next 20 to 25 years in the WOSP Area. The WOSP and its EIR intend to provide flexibility in the location, amount, and type of development. Thus, as long as the trip generation for the overall WOSP Area remains below the levels estimated in the WOSP EIR, the traffic impact analysis presented in the WOSP EIR continues to remain valid.

Since the certification of the WOSP EIR, 11 developments, including this project, have been proposed and are in some stage of the City's approval process at this time. **Table 4** summarizes the trip generation for these developments. The 11 developments combined would generate about 1,305 AM peak hour and 1,452 PM peak hour trips. The combined trip generation is less than the total trip generation estimated in the WOSP EIR. Similarly, inclusive of the project, the 11 developments currently entitled and proposed within the WOSP Area are substantially less than the total cumulative development assumed within the WOSP Area by the WOSP EIR.

Table 4. Trip Generation for Development Projects within the WOSP Area

Project Name	**AM Peak Hour**	**PM Peak Hour**
2201 Filbert (Icehouse)[a]	52	84
532 Union Street (The Union Project)[b]	34	47
1708 Wood Street (Roadway Express)[c]	50	58
Mandela Parkway Hotel [d]	135	141
914 West Grand Avenue [e]	15	17
34th and San Pablo Affordable Housing Development [f]	38	41
1450 32nd Street [g]	12	15
1919 Market Street [h]	34	41
801 Pine Street (The Phoenix) [i]	84	97
500 Kirkham Street [j]	384	399
West Oakland BART Project [k]	472	548
Total Projects Trips	**1,310**	**1,488**
WOSP Estimated Trip Generation [l]	5,537	6,698
Percent Complete	***24%***	***22%***

[a] Source: West Grand Avenue & Market Street CEQA Analysis, August 20, 2015.
[b] Source: 532 Union Street CEQA Analysis, July 15, 2016.
[c] Source: 1708 Wood Street CEQA Analysis, June 20, 2016.
[d] Source: 914 West Grand Avenue Project in Oakland – Transportation Impact Review, November 17, 2017.
[e] Source: Mandela Hotel in Oakland – Transportation Assessment, November 29, 2017.
[f] Source: 34th and San Pablo Project – Transportation Impact Review, October 20, 2017.
[g] Source: 1450 32nd Street – Preliminary Transportation Impact Analysis, July 28, 2017.
[h] Source: 1919 Market Street Project in Oakland – Preliminary Transportation Assessment, August 8, 2017.
[i] Source: 500 Kirkham Street – Planning-Related Non-CEQA Transportation Impact Review, January X, 2019
[j] Source: The Phoenix – Transportation Assessment (Non-CEQA Memorandum), November 29, 2018
[k] Source: West Oakland BART Project Planning-Related Non-CEQA Transportation Impact Review, January X, 2019.
[l] Source: West Oakland Specific Plan Draft EIR, Table 4.10-4, May 2014.

Source: Fehr & Peers, 2019.

The project is located in the 7th Street Opportunity Area and is consistent with the assumptions used in the WOSP EIR for the 7th Street Opportunity Area. Since the project, combined with other currently proposed developments in the WOSP Area, would generate fewer automobile trips than assumed in the WOSP EIR, the project would not result in additional impacts on traffic operations at the intersections analyzed in the WOSP EIR. In addition, all the mitigation measures identified in the WOSP EIR are included in the citywide Transportation Impact Fee (TIF), implemented as SCA-TRANS-5: Transportation Impact Fee (#80). SCA-TRANS-4: Transportation and Parking Demand Management (#79) and SCA-GEN-1: Construction Management Plan (#13) would also be applicable to ensure consistency with applicable plans and regulations.

Substantial Additional VMT

On September 21, 2016, the City of Oakland's Planning Commission directed staff to update the CEQA Thresholds of Significance Guidelines related to transportation impacts in order to implement the directive from Senate Bill 743 to modify local environmental review processes by removing automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion, as a significant impact on the environment pursuant to CEQA.[12] The Planning Commission direction aligns with draft proposed guidance from the Governor's Office of Planning and Research and the City's approach to transportation impact analysis, with adopted plans and polices related to transportation, which promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. Consistent with the Planning Commission direction and the Senate Bill 743 requirements, the City of Oakland published the revised Transportation Impact Review Guidelines on April 14, 2017 to guide the evaluation of the transportation impacts associated with land use development projects.

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 vehicle travel compared to development located in urban areas, where a higher density of development, a mix of land uses, and non-single occupancy vehicle travel options are available.

Given these travel behavior factors, most of Oakland has lower VMT per capita and VMT per worker ratios than the nine-county San Francisco Bay Area region. Further, within the City of Oakland, some neighborhoods may have lower VMT ratios than others.

VMT Estimate

Neighborhoods within Oakland are expressed geographically in transportation analysis zones (TAZ), which are used in transportation planning models for transportation analysis and other planning purposes. 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 neighborhoods.

[12] Steinberg, 2013. (Senate Bill SB 743)

The MTC Travel Model is a model that assigns all predicted trips within, across, or to/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 the 2000 US Census and modified using the open source PopSyn software.
- Zonal accessibility measurements for destinations of interest.
- Travel characteristics and vehicle ownership rates derived from the 2000 Bay Area Travel Survey (BATS).
- 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. All the stops and trips within her day form her "tour". The tour-based approach would add up the total number of miles driven over the course of her tour and assign it as her daily VMT.

Based on the MTC Travel Model, the regional average daily VMT per capita is 15.0 under 2020 conditions and 13.8 under 2040 conditions. The regional average daily VMT per worker is 21.8 under 2020 conditions and 20.3 under 2040 conditions.

Thresholds of Significance for VMT

According to the City of Oakland Transportation Impact Review Guidelines (TIRG), 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 percent.
- For office projects, a project would cause substantial additional VMT if it exceeds the existing regional VMT per worker minus 15 percent.
- For retail projects, a project would cause substantial additional VMT if it results in a net increase in total VMT.

Screening Criteria

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

1. Small Projects: The project generates fewer than 100 vehicle trips per day

2. Low-VMT Areas: The project meets map-based screening criteria by being located in an area that exhibits below threshold VMT, or 15 percent or more below the regional average

3. Near Transit Stations: The project is located in a Transit Priority Area or within a one-half mile of a Major Transit Corridor or Stop[13] and satisfies the following:
   - 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 less 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).

The project satisfies the Near Transit Stations (#3) criterion as described below.

Criterion #1: Small Projects

The project would generate more than 100 vehicle trips per day and therefore does not meet criterion #1.

Criterion #2: Low-VMT Area

Table 5 shows the estimated 2020 and 2040 VMT per capita and VMT per worker for TAZ 965, the TAZ in which the project is located, as well as the applicable VMT thresholds of 15 percent below the regional average. As shown in Table 5, the 2020 estimated average daily VMT per capita in the project TAZ is less than the regional averages minus 15 percent. However, the 2040 VMT per capita and both the 2020 and 2040 VMT per worker in TAZ 965 is greater than the regional average minus 15 percent.

Note that TAZ 965 has more than double the estimated VMT per capita and VMT per worker than other nearby TAZs. Although the West Oakland BART Station is located in TAZ 965, the MTC Model does not accurately reflect the proximity of the uses in the TAZ, especially the proposed project, to the BART Station because TAZ 965 is a relatively large TAZ (it is more than three or four times the size of the other nearby TAZs and includes the Port of Oakland to the West which is not very transit accessible.) The Model assumes that all the developments in the TAZ are uniformly distributed throughout the TAZ; even though many uses, such as the proposed project, are concentrated around the BART Station. Considering that the proposed project would consist of diverse uses with high densities adjacent to the BART station, it is expected that its VMT per capita and VMT per worker would be lower than the TAZ averages shown in Table 5. It is likely that the project would generate less VMT per capita and/or VMT per worker than the regional average minus 15 percent. However, since TAZ 965 does not meet the map-based screening criteria, it is conservatively assumed that the residential and office components of the project cannot be presumed to result in less than substantial additional VMT under the screening criterion.

[13] "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. Daily Vehicle Miles Traveled Summary

Metric	Bay Area				TAZ 965	
	2020		2040			
	Regional Average	Regional Average minus 15%	Regional Average	Regional Average minus 15%	2020	2040
Residential (VMT per Capita)[a]	15.0	12.8	13.8	11.7	12.5	**12.4**
Non-Residential (VMT per Worker)[b]	21.8	18.5	20.3	17.3	**32.0**	**28.1**

Notes:

Bold indicates that the TAZ does not meet the screening criteria of VMT less than the regional average minus 15

[a] MTC Model results at analytics.mtc.ca.gov/foswiki/Main/PlanBayAreaVmtPerCapita and accessed in December 2018.

[b] MTC Model results at analytics.mtc.ca.gov/foswiki/Main/PlanBayAreaVmtPerWorker and accessed in December 2018.

Source: Fehr & Peers, 2018.

According to the City of Oakland TIRG, retail spaces less than 80,000 square-feet are considered local serving and are not expected to contribute to an increase in VMT. Therefore, it is presumed that the retail component of the project, which would consist of up to 75,000 square feet of ground level retail, would not result in substantial additional VMT and project impacts with respect to VMT would be less than significant.

Criterion #3: Near Transit Stations

The project would be located adjacent to the West Oakland BART Station and would be near frequent bus service at the West Oakland BART Station (Lines 14 and 62 with 15-minute headways during the peak periods). The project would satisfy Criterion #3 because it would meet the following three conditions for this criterion:

- The project would have a FAR greater than 0.75.
- The project would include 400 automobile parking spaces. The City of Oakland Planning Code requires the project to provide the following:
  - Section 17.116.060 requires a minimum of 0.5 space per dwelling unit and allows a maximum of 1.25 space per dwelling unit for multi-family residential developments in the S-15W zone. Section 17.116.110.C allows the residential parking minimums to be reduced by 50 percent because the project is located in a transit accessible area (30 percent) and it would provide on-site car-share spaces (20 percent). Thus, the residential component of the project is required to provide between 190 and 953 parking spaces.
  - Section 17.116.080 does not have any minimum parking for commercial activities, and allows a maximum of one space for each 300 square feet of floor area on the ground level and 500 square feet of floor area on other levels for commercial uses in the S-15W zone. Thus, the retail and office components of the project are required to provide between zero and 964 spaces.

  Overall, the Code requires the project to provide a minimum of 190 and a maximum of 1,917 parking spaces. Thus, the 400 parking spaces provided by the project would be within the parking supply allowed by the Planning Code for the project. Therefore, the project would not provide more parking for use by residents, customers, or employees than other typical nearby uses, nor would it provide more parking than required by City Code.

- The project is located within the West Oakland PDA as defined by Plan Bay Area, and is therefore consistent with the region's Sustainable Communities Strategy

VMT Screening Conclusion

As described above, VMT impacts would be less than significant for a project if any of the identified screening criteria outlined below are met: Small Projects, Low-VMT Areas, and Near Transit Stations. The project would satisfy the Near Transit Stations (#3) criterion and would have a less–than-significant impact on VMT.

Induce Automobile Travel

The project would not increase the automobile capacity of the roadway network surrounding the project site. Therefore, it would not increase the physical roadway capacity and would not add new roadways to the network, and would not induce additional automobile traffic. This is a less-than-significant impact; no mitigation measures are required.

Overall Conclusion

Consistent with the findings of the WOSP EIR, the project would not result in any significant impacts related to transportation or circulation. Further, based on an examination of the other Program EIRs, implementation of the project would not result in any increase in the severity of any previously identified impacts, nor would it result in new significant impacts related to transportation or circulation that were not previously identified in the WOSP EIR and Program EIRs.

N. Utilities and Service Systems

Impacts Related To:	WOSP EIR Findings with Implementation of SCA or MMs (If Required)	PROJECT				
		Relationship to WOSP EIR Findings		Applicable MMs	Applicable SCAs	Project Level of Significance
		Equal or Less Severity	Substantial Increase in Severity			
a. Wastewater & Stormwater Facilities	LTS	☒	☐	--	--	LTS
b. Water Supplies	LTS	☒	☐	--	--	LTS
c. Solid Waste Services	LTS	☒	☐	--	--	LTS
d. Energy	LTS	☒	☐	--	--	LTS

Discussion

The Water Supply Assessment prepared by EBMUD for the WOSP EIR concluded that EBMUD has sufficient water supplies to meet current water demand and future water demand through 2035, including the increased water demand associated with development of the Plan Area during normal, single dry, and multiple dry years. The WOSP EIR determined that development of the Plan Area would have less-than-significant impacts related to stormwater and wastewater facilities, solid waste services, and energy. The WOSP EIR did not identify any mitigation measures related to utilities and service systems, and none would be required for the project.

Independent of the Addendum, the project would comply with the following SCAs: SCA-UTIL-1: Construction and Demolition Waste Reduction and Recycling (#84), SCA-UTIL-2: Underground Utilities (#85), SCA-UTIL-3: Recycling Collection and Storage Space (#86), SCA-UTIL-4: Green Building Requirements (#87), SCA-UTIL-5: Sanitary Sewer System (#89), SCA-UTIL-6: Storm Drain System (#90), SCA-UTIL-7: Recycled Water (#91), SCA-UTIL-8: Water Efficient Landscape Ordinance (WELO) (#92), and SCA-HYD-3: NPDES C.3 Stormwater Requirements for Regulated Projects (#54).

Acronyms and Terms

AC Transit	Alameda–Contra Costa Transit District
BART	Bay Area Rapid Transit
CEQA	California Environmental Quality Act
City	City of Oakland
EIR	Environmental Impact Report
FAR	floor area ratio
GHG	greenhouse gas
LUTE	Land Use and Transportation Element
NPDES	National Pollution Discharge Elimination System
$PM_{2.5}$	particulate matter, 2.5 micrometers or less
PM_{10}	particulate matter, 10 micrometers or less
SCA	Standard Condition of Approval
TAC	toxic air contaminant
VMT	vehicle miles traveled
WOSP	West Oakland Specific Plan

Attachment A: City of Oakland Standard Conditions of Approval

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, site, surroundings, project proposal, and the type of permits/approvals required for the project. Depending on the specific characteristics of the project type and/or project site, the City will determine which SCAs apply to a specific project. Because these SCAs are mandatory City requirements imposed on a city-wide basis, environmental analyses assume that these SCAs will be imposed and implemented by the project sponsor, and are not imposed as mitigation measures under CEQA.

All SCAs identified in the Addendum—which is consistent with the measures and conditions presented in the City of Oakland General Plan, LUTE EIR—are included herein. To the extent that any SCA identified in the Addendum was inadvertently omitted, it is automatically incorporated herein by reference.

- The first column identifies the SCA applicable to that topic in the Addendum.
- 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 Addendum, other SCAs that are applicable to the project are included herein.

The project sponsor 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 sponsor 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—e.g., **SCA-AIR-1**, **SCA-AIR-2**. The SCA title and the SCA number that corresponds to the City's current master SCA list are also provided—e.g., **SCA-AIR-1: Construction-Related Air Pollution (Dust and Equipment Emissions) (#19)**.

City of Oakland Standard SCAs Required for the Project

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
General			
SCA-AES-1: Construction Management Plan (#13) Prior to the issuance of the first construction-related permit, the project applicant and his/her general contractor shall submit a Construction Management Plan (CMP) for review and approval by the Bureau of Planning, Bureau of Building, and other relevant City departments such as the Fire Department, Department of Transportation, and the Public Works Department as directed. The CMP shall contain measures to minimize potential construction impacts including measures to comply with all construction-related Conditions of Approval (and mitigation measures if applicable) such as dust control, construction emissions, hazardous materials, construction days/hours, construction traffic control, waste reduction and recycling, stormwater pollution prevention, noise control, complaint management, and cultural resource management (see applicable Conditions below). The CMP shall provide project-specific information including descriptive procedures, approval documentation, and drawings (such as a site logistics plan, fire safety plan, construction phasing plan, proposed truck routes, traffic control plan, complaint management plan, construction worker parking plan, and litter/debris clean-up plan) that specify how potential construction impacts will be minimized and how each construction-related requirement will be satisfied throughout construction of the project.	Prior to the issuance of the first construction-related permit	Bureau of Planning, Bureau of Building, and other relevant City departments such as the Fire Department, Department of Transportation, and the Public Works Department as directed	Bureau of Building
Aesthetics, Shadow, and Wind			
SCA-AES-1: 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 nonresidential 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-2: 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	Ongoing	N/A	Bureau of Building

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
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. 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-3: 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.	Prior to approval of construction-related permit	Bureau of Planning	N/A
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.	Prior to building permit final	Bureau of Planning	Bureau of Building
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	Ongoing	N/A	Bureau of Building

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
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.			
SCA-AES-4: 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-5: Public Art for Private Development (#20) 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. *Installation of art/cultural space*: Prior to Issuance of a Certificate of Occupancy	Bureau of Planning	Bureau of Building
AIR QUALITY			
SCA-AIR-1: Dust Controls – Construction Related (#21) The project applicant shall implement all of the following applicable air pollution 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	During construction	N/A	Bureau of Building

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited. 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.			
SCA-AIR-2 : Criteria Air Pollutant Controls – Construction Related (#22) 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. 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.	During construction	N/A	Bureau of Building

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
The project applicant shall implement all of the following applicable enhanced control measures for criteria air pollutants during construction of the project as applicable: g. Criteria Air Pollutant Reduction Measures The project applicant shall retain a qualified air quality consultant to identify criteria air pollutant reduction measures to reduce the project's average daily emissions below 54 pounds per day of ROG, NOx, or PM2.5 or 82 pounds per day of PM10. Quantified emissions and identified reduction measures shall be submitted to the City (and the Air District if specifically requested) for review and approval prior to the issuance of building permits and the approved criteria air pollutant reduction measures shall be implemented during construction. h. Construction Emissions Minimization Plan The project applicant shall prepare a Construction Emissions Minimization Plan (Emissions Plan) for all identified criteria air pollutant reduction measures. The Emissions Plan shall be submitted to the City (and the Air 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 Verified Diesel Emissions Control Strategies (VDECS), the 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.	Prior to issuance of a construction related permit	Bureau of Planning	Bureau of Building
SCA-AIR-3: Diesel Particulate Matter Controls-Construction Related (#23) 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	Prior to issuance of a construction related permit (i), during construction (ii)	Bureau of Planning	Bureau of Building

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
DPM from project construction emissions. The HRA 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 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.	Prior to issuance of a construction related permit	Bureau of Planning	Bureau of Building
SCA-AIR-4: Exposure to Air Pollution (Toxic Air Contaminants) (#24) a. *Health Risk Reduction Measures* The project applicant shall incorporate appropriate measures into the project design	Prior to approval of construction-related permit	Bureau of Planning	Bureau of Building

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
in order to reduce the potential health risk due to exposure to toxic air contaminants. The project applicant shall choose one of the following methods: i. The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with California Air Resources Board (CARB) and Office of Environmental Health and Hazard Assessment requirements to determine the health risk of exposure of project residents/occupants/users to air pollutants. The HRA shall be submitted to the City for review and approval. If the HRA concludes that the health risk is at or below acceptable levels, then health risk reduction measures are not required. If the HRA concludes that the health risk exceeds acceptable levels, health risk reduction measures shall be identified to reduce the health risk to acceptable levels. Identified risk reduction measures shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City. - or - ii. The project applicant shall incorporate the following health risk reduction measures into the project. These features shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City: • Installation of air filtration to reduce cancer risks and Particulate Matter (PM) exposure for residents and other sensitive populations in the project that are in close proximity to sources of air pollution. Air filter devices shall be rated MERV-13 [insert MERV-16 for projects located in the West Oakland Specific Plan area] or higher. As part of implementing this measure, an ongoing maintenance plan for the building's HVAC air filtration system shall be required. • Where appropriate, install passive electrostatic filtering systems, especially those with low air velocities (i.e., 1 mph). • Phasing of residential developments when proposed within 500 feet of freeways such that homes nearest the freeway are built last, if feasible. • The project shall be designed to locate sensitive receptors as far away as feasible from the source(s) of air pollution. Operable windows, balconies, and building air intakes shall be located as far away from these sources as feasible. If near a distribution center, residents shall be located as far away as feasible from a loading dock or where trucks concentrate to deliver goods. • Sensitive receptors shall be located on the upper floors of buildings, if feasible.			

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• Planting trees and/or vegetation between sensitive receptors and pollution source, if feasible. Trees that are best suited to trapping PM shall be planted, including one or more of the following: Pine (Pinus nigra var. maritima), Cypress (X Cupressocyparis leylandii), Hybrid poplar (Populus deltoids X trichocarpa), and Redwood (Sequoia sempervirens). • Sensitive receptors shall be located as far away from truck activity areas, such as loading docks and delivery areas, as feasible. • Existing and new diesel generators shall meet CARB's Tier 4 emission standards, if feasible. • Emissions from diesel trucks shall be reduced through implementing the following measures, if feasible: o Installing electrical hook-ups for diesel trucks at loading docks. o Requiring trucks to use Transportation Refrigeration Units (TRU) that meet Tier 4 emission standards. o Requiring truck-intensive projects to use advanced exhaust technology (e.g., hybrid) or alternative fuels. o Prohibiting trucks from idling for more than two minutes. o Establishing truck routes to avoid sensitive receptors in the project. A truck route program, along with truck calming, parking, and delivery restrictions, shall be implemented.			
b. Maintenance of Health Risk Reduction Measures The project applicant shall maintain, repair, and/or replace installed health risk reduction measures, including but not limited to the HVAC system (if applicable), on an ongoing and as-needed basis. Prior to occupancy, the project applicant shall prepare and then distribute to the building manager/operator an operation and maintenance manual for the HVAC system and filter including the maintenance and replacement schedule for the filter.	Ongoing	N/A	Bureau of Building
SCA-AIR-4: Stationary Sources of Air Pollution (Toxic Air Contaminants) (#25) The project applicant shall incorporate appropriate measures into the project design in order to reduce the potential health risk due to on-site stationary sources of toxic air contaminants. The project applicant shall choose one of the following methods: a. The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with California Air Resources Board (CARB) and Office of Environmental Health and Hazard Assessment requirements to determine the health risk associated with proposed stationary sources of pollution in the project. The HRA shall be submitted to the City for review and approval. If the	Prior to approval of construction-related permit	Bureau of Planning	Bureau of Building

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
HRA concludes that the health risk is at or below acceptable levels, then health risk reduction measures are not required. If the HRA concludes the health risk exceeds acceptable levels, health risk reduction measures shall be identified to reduce the health risk to acceptable levels. Identified risk reduction measures shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City. - or - b. The project applicant shall incorporate the following health risk reduction measures into the project. These features shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City: i. Installation of non-diesel fueled generators, if feasible, or; ii. Installation of diesel generators with an EPA-certified Tier 4 engine or engines that are retrofitted with a CARB Level 3 Verified Diesel Emissions Control Strategy, if feasible.			
Biological Resources			
SCA-BIO-1: Tree Removal During Bird Breeding Season (#30) 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 Building	Bureau of Building

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
SCA-BIO-2: Tree Permit (#31) 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.	Prior to approval of construction-related permit	Permit approval by Public Works Department, Tree Division; evidence of approval submitted to Bureau of Building	Bureau of Building
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 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	During construction	Public Works Department, Tree Division	Bureau of Building

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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 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;	Prior to building permit final	Public Works Department, Tree Division	Bureau of Building

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• 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.			
CULTURAL RESOURCES			
SCA-CUL-1: Archaeological and Paleontological Resources – Discovery During Construction (#33) Pursuant to CEQA Guidelines section 15064.5(f), in the event that any historic or prehistoric subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources shall be halted and the project applicant shall notify the City and consult with a qualified archaeologist or paleontologist, as applicable, to assess the significance of the find. In the case of discovery of paleontological resources, the assessment shall be done in accordance with the Society of Vertebrate Paleontology standards. If any find is determined to be significant, appropriate avoidance measures recommended by the consultant and approved by the City must be followed unless avoidance is determined unnecessary or infeasible by the City. Feasibility of avoidance shall be determined with consideration of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery, excavation) shall be instituted. Work may proceed on other parts of the project site while measures for the cultural resources are implemented. In the event of data recovery of archaeological resources, the project applicant shall submit an Archaeological Research Design and Treatment Plan (ARDTP) prepared by a qualified archaeologist for review and approval by the City. The ARDTP is required to identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. The ARDTP shall identify the scientific/historic research questions applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. The ARDTP shall include the analysis and specify the curation and storage methods. Data recovery, in general, shall be limited to	During construction	N/A	Bureau of Building

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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: Archaeologically Sensitive Areas – Pre-Construction Measures (#34) The project applicant shall implement either Provision A (Intensive Pre-Construction Study) or Provision B (Construction ALERT Sheet) concerning archaeological resources. *Provision A: Intensive Pre-Construction Study.* The project applicant shall retain a qualified archaeologist to conduct a site-specific, intensive archaeological resources study for review and approval by the City prior to soil-disturbing activities occurring on the project site. The purpose of the site-specific, intensive archaeological resources study is to identify early the potential presence of history-period archaeological resources on the project site. At a minimum, the study shall include: a. Subsurface presence/absence studies of the project site. Field studies may include, but are not limited to, auguring and other common methods used to identify the presence of archaeological resources. b. A report disseminating the results of this research. c. Recommendations for any additional measures that could be necessary to mitigate any adverse impacts to recorded and/or inadvertently discovered cultural resources. If the results of the study indicate a high potential presence of historic-period archaeological resources on the project site, or a potential resource is discovered, the project applicant shall hire a qualified archaeologist to monitor any ground disturbing activities on the project site during construction and prepare an ALERT sheet pursuant to Provision B below that details what could potentially be found at the project site. Archaeological monitoring would include briefing construction personnel about the type of artifacts that may be present (as referenced in the ALERT sheet, required per Provision	Prior to approval of construction-related permit; during construction	Bureau of Building; Bureau of Planning	Bureau of Building

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B below) and the procedures to follow if any artifacts are encountered, field recording and sampling in accordance with the Secretary of Interior's Standards and Guidelines for Archaeological Documentation, notifying the appropriate officials if human remains or cultural resources are discovered, and preparing a report to document negative findings after construction is completed if no archaeological resources are discovered during construction. *Provision B: Construction ALERT Sheet.* The project applicant shall prepare a construction "ALERT" sheet developed by a qualified archaeologist for review and approval by the City prior to soil-disturbing activities occurring on the project site. The ALERT sheet shall contain, at a minimum, visuals that depict each type of artifact that could be encountered on the project site. Training by the qualified archaeologist shall be provided to the project's prime contractor, any project subcontractor firms (including demolition, excavation, grading, foundation, and pile driving), and utility firms involved in soil-disturbing activities within the project site. The ALERT sheet shall state, in addition to the basic archaeological resource protection measures contained in other standard conditions of approval, all work must stop and the City's Environmental Review Officer contacted in the event of discovery of the following cultural materials: concentrations of shellfish remains; evidence of fire (ashes, charcoal, burnt earth, fire-cracked rocks); concentrations of bones; recognizable Native American artifacts (arrowheads, shell beads, stone mortars [bowls], humanly shaped rock); building foundation remains; trash pits, privies (outhouse holes); floor remains; wells; concentrations of bottles, broken dishes, shoes, buttons, cut animal bones, hardware, household items, barrels, etc.; thick layers of burned building debris (charcoal, nails, fused glass, burned plaster, burned dishes); wood structural remains (building, ship, wharf); clay roof/floor tiles; stone walls or footings; or gravestones. Prior to any soil-disturbing activities, each contractor shall be responsible for ensuring that the ALERT sheet is circulated to all field personnel, including machine operators, field crew, pile drivers, and supervisory personnel. The ALERT sheet shall also be posted in a visible location at the project site.			
SCA-CUL-3: Human Remains – Discovery during Construction (#35) 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	During Construction	N/A	Bureau of Building

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the remains until appropriate arrangements are made. In the event that the remains are Native American, the City shall contact the California Native American Heritage Commission (NAHC), pursuant to subdivision (c) of section 7050.5 of the California Health and Safety Code. If the agencies determine that avoidance is not feasible, then an alternative plan shall be prepared with specific steps and timeframe required to resume construction activities. Monitoring, data recovery, determination of significance, and avoidance measures (if applicable) shall be completed expeditiously and at the expense of the project applicant.			
Geology and Soils			
SCA-GEO-1: Construction-Related Permit(s) (#37) 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 (#38) 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
SCA-GEO-3: Seismic Hazards Zone (Landslide/Liquefaction) (#40) The project applicant shall submit a site-specific geotechnical report, consistent with California Geological Survey Special Publication 117 (as amended), prepared by a registered geotechnical engineer for City review and approval containing at a minimum a description of the geological and geotechnical conditions at the site, an evaluation of site-specific seismic hazards based on geological and geotechnical conditions, and recommended measures to reduce potential impacts related to liquefaction and/or slope stability hazards. The project applicant shall implement the recommendations contained in the approved report during project design and construction.	Prior to approval of construction-related permit	Bureau of Building	Bureau of Building
Greenhouse Gas Emissions			
SCA-GHG-1: Greenhouse Gas (GHG) Reduction Plan (#42) a. Greenhouse Gas (GHG) Reduction Plan Required The project applicant shall retain a qualified air quality consultant to develop a	Prior to approval of construction-related permit.	Bureau of Planning	N/A

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Greenhouse Gas (GHG) Reduction Plan for City review and approval and shall implement the approved GHG Reduction Plan. The goal of the GHG Reduction Plan shall be to increase energy efficiency and reduce GHG emissions to below at least one of the Bay Area Quality Management District's (BAAQMD's) CEQA Thresholds of Significance (1,100 metric tons of CO2e per year or 4.6 metric tons of CO2e per year per service population) AND to reduce GHG emissions by 36 percent below the project's 2005 "business-as-usual" baseline GHG emissions(as explained below) to help implement the City's Energy and Climate Action Plan (adopted in 2012) which calls for reducing GHG emissions by 36 percent below 2005 levels. The GHG Reduction Plan shall include, at a minimum, (a) a detailed GHG emissions inventory for the project under a "business-as-usual" scenario with no consideration of project design features, or other energy efficiencies, (b) an "adjusted" baseline GHG emissions inventory for the project, taking into consideration energy efficiencies included as part of the project (including the City's Standard Conditions of Approval, proposed mitigation measures, project design features, and other City requirements), and additional GHG reduction measures available to further reduce GHG emissions, and (c) requirements for ongoing monitoring and reporting to demonstrate that the additional GHG reduction measures are being implemented. If the project is to be constructed in phases, the GHG Reduction Plan shall provide GHG emission scenarios by phase. Potential GHG reduction measures to be considered include, but are not be limited to, measures recommended in BAAQMD's latest CEQA Air Quality Guidelines, the California Air Resources Board Scoping Plan (December 2008, as may be revised), the California Air Pollution Control Officers Association (CAPCOA) Quantifying Greenhouse Gas Mitigation Measures (August 2010, as may be revised), the California Attorney General's website, and Reference Guides on Leadership in Energy and Environmental Design (LEED) published by the U.S. Green Building Council. The types of allowable GHG reduction measures include the following (listed in order of City preference): (1) physical design features; (2) operational features; and (3) the payment of fees to fund GHG-reducing programs (i.e., the purchase of "carbon credits") as explained below. The allowable locations of the GHG reduction measures include the following (listed in order of City preference): (1) the project site; (2) off-site within the City of Oakland; (3) off-site within the San Francisco Bay Area Air Basin; (4) off-site within the State of California; then (5) elsewhere in the United States. As with preferred locations for the implementation of all GHG reductions measures,			

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the preference for carbon credit purchases include those that can be achieved as follows (listed in order of City preference): (1) within the City of Oakland; (2) within the San Francisco Bay Area Air Basin; (3) within the State of California; then (4) elsewhere in the United States. The cost of carbon credit purchases shall be based on current market value at the time purchased and shall be based on the project's operational emissions estimated in the GHG Reduction Plan or subsequent approved emissions inventory, which may result in emissions that are higher or lower than those estimated in the GHG Reduction Plan. For physical GHG reduction measures to be incorporated into the design of the project, the measures shall be included on the drawings submitted for construction-related permits.			
b. GHG Reduction Plan Implementation During Construction The project applicant shall implement the GHG Reduction Plan during construction of the project. For physical GHG reduction measures to be incorporated into the design of the project, the measures shall be implemented during construction. For physical GHG reduction measures to be incorporated into off-site projects, the project applicant shall obtain all necessary permits/approvals and the measures shall be included on drawings and submitted to the City Planning Director or his/her designee for review and approval. These off-site improvements shall be installed prior to completion of the subject project (or prior to completion of the project phase for phased projects). For GHG reduction measures involving the purchase of carbon credits, evidence of the payment/purchase shall be submitted to the City for review and approval prior to completion of the project (or prior to completion of the project phase, for phased projects).	During construction	Bureau of Planning	Bureau of Building
c. GHG Reduction Plan Implementation After Construction The project applicant shall implement the GHG Reduction Plan after construction of the project (or at the completion of the project phase for phased projects). For operational GHG reduction measures to be incorporated into the project or off-site projects, the measures shall be implemented on an indefinite and ongoing basis. The project applicant shall satisfy the following requirements for ongoing monitoring and reporting to demonstrate that the additional GHG reduction measures are being implemented. The GHG Reduction Plan requires regular periodic evaluation over the life of the project (generally estimated to be at least 40 years) to determine how the Plan is achieving required GHG emissions reductions over time, as well as the efficacy of the specific additional GHG reduction measures identified in the Plan. Annual Report. Implementation of the GHG reduction measures and related requirements shall be ensured through compliance with Conditions of Approval	Ongoing	Bureau of Planning	Bureau of Planning

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
adopted for the project. Generally, starting two years after the City issues the first Certificate of Occupancy for the project, the project applicant shall prepare each year of the useful life of the project an Annual GHG Emissions Reduction Report ("Annual Report"), for review and approval by the City Planning Director or his/her designee. The Annual Report shall be submitted to an independent reviewer of the City's choosing, to be paid for by the project applicant. The Annual Report shall summarize the project's implementation of GHG reduction measures over the preceding year, intended upcoming changes, compliance with the conditions of the Plan, and include a brief summary of the previous year's Annual Report results (starting the second year). The Annual Report shall include a comparison of annual project emissions to the baseline emissions reported in the GHG Plan. The GHG Reduction Plan shall be considered fully attained when project emissions are less than either applicable numeric BAAQMD CEQA Thresholds AND GHG emissions are 36 percent below the project's 2005 "business-as-usual" baseline GHG emissions, as confirmed by the City through an established monitoring program. Monitoring and reporting activities will continue at the City's discretion, as discussed below. Corrective Procedure. If the third Annual Report, or any report thereafter, indicates that, in spite of the implementation of the GHG Reduction Plan, the project is not achieving the GHG reduction goal, the project applicant shall prepare a report for City review and approval, which proposes additional or revised GHG measures to better achieve the GHG emissions reduction goals, including without limitation, a discussion on the feasibility and effectiveness of the menu of other additional measures ("Corrective GHG Action Plan"). The project applicant shall then implement the approved Corrective GHG Action Plan. If, one year after the Corrective GHG Action Plan is implemented, the required GHG emissions reduction target is still not being achieved, or if the project applicant fails to submit a report at the times described above, or if the reports do not meet City requirements outlined above, the City may, in addition to its other remedies, (a) assess the project applicant a financial penalty based upon actual percentage reduction in GHG emissions as compared to the percent reduction in GHG emissions established in the GHG Reduction Plan; or (b) refer the matter to the City Planning Commission for scheduling of a compliance hearing to determine whether the project's approvals should be revoked, altered or additional conditions of approval imposed. The penalty as described in (a) above shall be determined by the City Planning			

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
Director or his/her designee and be commensurate with the percentage GHG emissions reduction not achieved (compared to the applicable numeric significance thresholds) or required percentage reduction from the "adjusted" baseline. In determining whether a financial penalty or other remedy is appropriate, the City shall not impose a penalty if the project applicant has made a good faith effort to comply with the GHG Reduction Plan. The City would only have the ability to impose a monetary penalty after a reasonable cure period and in accordance with the enforcement process outlined in Planning Code Chapter 17.152. If a financial penalty is imposed, such penalty sums shall be used by the City solely toward the implementation of the GHG Reduction Plan. Timeline Discretion and Summary. The City shall have the discretion to reasonably modify the timing of reporting, with reasonable notice and opportunity to comment by the applicant, to coincide with other related monitoring and reporting required for the project.			
Hazards and Hazardous Materials			
SCA-HAZ-1: Hazardous Materials Related to Construction (#43) 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 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	During construction	N/A	Bureau of Building

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
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.			
SCA-HAZ-2: Hazardous Building Materials and Site Contamination (#44) a. *Hazardous Building Materials Assessment* The project applicant shall submit a comprehensive assessment report to the Bureau of Building, signed by a qualified environmental professional, documenting the presence or lack thereof of asbestos-containing materials (ACMs), lead-based paint, polychlorinated biphenyls (PCBs), and any other building materials or stored materials classified as hazardous materials by State or federal law. If lead-based paint, ACMs, PCBs, or any other building materials or stored materials classified as hazardous materials are present, the project applicant shall submit specifications prepared and signed by a qualified environmental professional, for the stabilization and/or removal of the identified hazardous materials in accordance with all applicable laws and regulations. The project applicant shall implement the approved recommendations and submit to the City evidence of approval for any proposed remedial action and required clearances by the applicable local, state, or federal regulatory agency.	Prior to approval of demolition, grading, or building permits	Bureau of Building	Bureau of Building
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.	Prior to approval of construction-related permit	Applicable regulatory agency with jurisdiction	Applicable regulatory agency with jurisdiction
c. *Health and Safety Plan Required* The project applicant shall submit a Health and Safety Plan for the review and approval by the City in order to protect project construction workers from risks associated with hazardous materials. The project applicant shall implement the approved Plan.	Prior to approval of construction-related permit	Bureau of Building	Bureau of Building

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
d. Best Management Practices (BMPs) 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.	Prior to approval of demolition, grading, or building permits	Bureau of Building	Bureau of Building
SCA-HAZ-2: Fire Safety Phasing Plan (#46) The project applicant shall submit a Fire Safety Phasing Plan for City review and approval, and shall implement the approved Plan. The Fire Safety Phasing Plan shall include all of the fire safety features incorporated into each phase of the project and the schedule for implementation of the features.	Prior to approval of construction-related permit	Oakland Fire Department	Bureau of Building
HYDROLOGY AND WATER QUALITY			
SCA-HYDRO-1: Erosion and Sedimentation Control Plan for Construction (#49) *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 notation that the plan is subject to changes as changing conditions occur. Calculations of anticipated stormwater runoff and	Prior to approval of construction-related permit	Bureau of Building	N/A

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
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.	During construction	N/A	Bureau of Building
SCA-HYDRO-2: State Construction General Permit (#50) The project applicant shall comply with the requirements of the Construction General Permit issued by the State Water Resources Control Board (SWRCB). The project applicant shall submit a Notice of Intent (NOI), Stormwater Pollution Prevention Plan (SWPPP), and other required Permit Registration Documents to SWRCB. The project applicant shall submit evidence of compliance with Permit requirements to the City.	Prior to approval of construction-related permit	State Water Resources Control Board; evidence of compliance submitted to Bureau of Building	State Water Resources Control Board
SCA-HYDRO-2: Site Design Measures to Reduce Stormwater Runoff (#52) Pursuant to Provision C.3 of the Municipal Regional Stormwater Permit issued under the National Pollutant Discharge Elimination System (NPDES), the project applicant is encouraged to incorporate appropriate site design measures into the project to reduce the amount of stormwater runoff. These measures may include, but are not limited to, the following: a. Minimize impervious surfaces, especially directly connected impervious surfaces and surface parking areas; b. Utilize permeable paving in place of impervious paving where appropriate; c. Cluster structures; d. Direct roof runoff to vegetated areas; e. Preserve quality open space; and f. Establish vegetated buffer areas.	Ongoing	N/A	N/A
SCA-HYDRO-3: NPDES C.3 Stormwater Requirements for Regulated Projects (#54) 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	Prior to approval of construction-related permit	Bureau of Planning; Bureau of Building	Bureau of Building

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
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 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.	Prior to building permit final	Bureau of Building	Bureau of Building
NOISE			
SCA-NOS-1: Construction Days/Hours (#62) 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.	During Construction	N/A	Bureau of Building

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
b. Construction activities are limited to between 9:00 a.m. and 5:00 p.m. on Saturday. In residential zones and within 300 feet of a residential zone, construction activities are allowed from 9:00 a.m. to 5:00 p.m. only within the interior of the building with the doors and windows closed. No pier drilling or other extreme noise generating activities greater than 90 dBA are allowed on Saturday. c. No construction is allowed on Sunday or federal holidays. Construction activities include, but are not limited to, truck idling, moving equipment (including trucks, elevators, etc.) or materials, deliveries, and construction meetings held on-site in a non-enclosed area. Any construction activity proposed outside of the above days and hours for special activities (such as concrete pouring which may require more continuous amounts of time) shall be evaluated on a case-by-case basis by the City, with criteria including the urgency/emergency nature of the work, the proximity of residential or other sensitive uses, and a consideration of nearby residents'/occupants' preferences. The project applicant shall notify property owners and occupants located within 300 feet at least 14 calendar days prior to construction activity proposed outside of the above days/hours. When submitting a request to the City to allow construction activity outside of the above days/hours, the project applicant shall submit information concerning the type and duration of proposed construction activity and the draft public notice for City review and approval prior to distribution of the public notice.			
SCA-NOS-2: Construction Noise (#63) The project applicant shall implement noise reduction measures to reduce noise impacts due to construction. Noise reduction measures include, but are not limited to, the following: a. Equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds) wherever feasible. b. Except as provided herein, impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used, if such jackets are commercially available, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with	During Construction	N/A	Bureau of Building

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
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-NOS-3: Extreme Construction Noise (#64) *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 90 dBA), the project applicant shall submit a Construction Noise Management Plan prepared by a qualified acoustical consultant for City review and approval that contains a set of site-specific noise attenuation measures to further reduce construction impacts associated with extreme noise generating activities. The project applicant shall implement the approved Plan during construction. Potential attenuation measures include, but are not limited to, the following: i. Erect temporary plywood noise barriers around the construction site, particularly along on sites adjacent to residential buildings; ii. Implement "quiet" pile driving technology (such as pre-drilling of piles, the use of more than one pile driver to shorten the total pile driving duration), where feasible, in consideration of geotechnical and structural requirements and conditions; iii. Utilize noise control blankets on the building structure as the building is erected to reduce noise emission from the site; iv. Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings by the use of sound blankets for example and implement such measure if such measures are feasible and would noticeably reduce noise impacts; and v. Monitor the effectiveness of noise attenuation measures by taking noise measurements. *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	Prior to Approval	Bureau of Building	Bureau of Building

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
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-NOS-4: Construction Noise Complaints (#66) 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
SCA-NOS-5: Exposure to Community Noise (#67) The project applicant shall submit a Noise Reduction Plan prepared by a qualified acoustical engineer for City review and approval that contains noise reduction measures (e.g., sound-rated window, wall, and door assemblies) to achieve an acceptable interior noise level in accordance with the land use compatibility guidelines of the Noise Element of the Oakland General Plan. The applicant shall implement the approved Plan during construction. To the maximum extent practicable, interior noise levels shall not exceed the following: a. 45 dBA: Residential activities, civic activities, hotels b. 50 dBA: Administrative offices; group assembly activities c. 55 dBA: Commercial activities d. 65 dBA: Industrial activities	Prior to approval of construction-related permit	Bureau of Planning	Bureau of Building
SCA-NOS-6: Operational Noise (#68) 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

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
POPULATION AND HOUSING			
SCA-POP-1: Jobs/Housing Impact Fee (#71) The project applicant shall comply with the requirements of the City of Oakland Jobs/Housing Impact Fee Ordinance (chapter 15.68 of the Oakland Municipal Code).	Prior to issuance of building permit; subsequent milestones pursuant to ordinance	Bureau of Building	N/A
PUBLIC SERVICES			
SCA-PUB-1: Capital Improvements Impact Fee (#74) The project applicant shall comply with the requirements of the City of Oakland Capital Improvements Fee Ordinance (chapter 15.74 of the Oakland Municipal Code).	Prior to issuance of building permit	Bureau of Building	N/A
TRANSPORTATION AND TRAFFIC			
SCA-TRANS-1: Construction Activity in the Public Right-of-Way (#76) *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, sidewalks, bicycle facilities, and bus stops.	Prior to approval of construction-related permit	Department of Transportation	Department of Transportation
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.		Department of Transportation	Department of Transportation
c. Repair of 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.	Prior to building permit final	N/A	Department of Transportation

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
SCA-TRANS-2: Bicycle Parking (#77) 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 Improvements (#78) 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)	Prior to building permit final or as otherwise specified	Bureau of Building; Department of Transportation	Bureau of Building

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
h. Polara Push buttons (full activation) i. Bicycle detection (full activation) j. Pull boxes k. Signal interconnect and communication with trenching (where applicable), or through existing conduit (where applicable), 600 feet maximum l. Conduit replacement contingency m. Fiber switch n. PTZ camera (where applicable) o. Transit Signal Priority (TSP) equipment consistent with other signals along corridor p. Signal timing plans for the signals in the coordination group 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 (#79) 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 percent VTR o Projects generating 100 or more net new a.m. or p.m. peak hour vehicle trips: 20 percent VTR • Increase pedestrian, bicycle, transit, and carpool/vanpool modes of travel. All four modes of travel shall be considered, as appropriate. • Enhance the City's transportation system, consistent with City policies and programs. ii. 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. • Proposed TDM strategies to achieve VTR goals (see below). iii. For employers with 100 or more employees at the subject site, the TDM Plan	Prior to approval of planning application.	Bureau of Planning	per 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.

Improvement	**Required by code or when…**
Bus boarding bulbs or islands	• 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
Bus shelter	• 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
Concrete bus pad	• A bus stop is located along the project frontage and a concrete bus pad does not already exist
Curb extensions or bulb-outs	• Identified as an improvement within site analysis
Implementation of a corridor-level bikeway improvement	• 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 • 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	• Always required

applicable streetscape plan.	
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.
Intersection improvements[14]	• 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[15]	• 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[16]	• Identified as an improvement within

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

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

	operations analysis
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[17]	• 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
Transit Operations	• The project applicant shall, if feasible, contribute its fair share to AC Transit service enhancements to meet access goals outlined in the City of Oakland West Oakland Specific Plan and AC Transit's ACgo expanded service plan and improve connections to local goods and services. Alternatively, the project applicant may explore and propose other TDM measure(s), including those already set forth in the TDM plan, in lieu of this fair share contribution. The City may approve the substitute TDM measure(s) if the City, in its discretion, deems the measure(s) more feasible and reasonably related and roughly proportional to the impacts of the development.

16 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.

17 Including typical traffic lights, pedestrian signals, bike actuated signals, transit-only signals

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
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).

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
• Provision of a transit subsidy to employees or residents, determined by the project applicant and subject to review by the City, if employees or residents use transit or commute by other alternative modes. • Provision of an ongoing contribution to transit service to the area between the project and nearest mass transit station prioritized as follows: 1) Contribution to AC Transit bus service; 2) Contribution to an existing area shuttle service; and 3) Establishment of new shuttle service. The amount of contribution (for any of the above scenarios) would be based upon the cost of establishing new shuttle service (Scenario 3). • Guaranteed ride home program for employees, either through 511.org or through separate program. • Pre-tax commuter benefits (commuter checks) for employees. • Free designated parking spaces for on-site car-sharing program (such as City Car Share, Zip Car, etc.) and/or car-share 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 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			

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
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.	Prior to building permit final	Bureau of Building	Bureau of Building
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.	Ongoing	Department of Transportation	Department of Transportation
SCA-TRANS-5: Transportation Impact Fee (#80) 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
SCA-TRANS-6: Plug-In Electric Vehicle (PEV) Charging Infrastructure (#83) *a. 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.	Prior to Issuance of Building Permit	Bureau of Building	Bureau of Building
b. 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.	Prior to Issuance of Building Permit	Bureau of Building	Bureau of Building

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
Utilities and Service Systems			
SCA-UTIL-1: Construction and Demolition Waste Reduction and Recycling (#84) 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, Environmental Services Division	Public Works Department, Environmental Services Division
SCA-UTIL-2: Underground Utilities (#85) 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-3: Recycling Collection and Storage Space (#86) The project applicant shall comply with the City of Oakland Recycling Space Allocation Ordinance (chapter 17.118 of the Oakland Planning Code). The project drawings submitted for construction-related permits shall contain recycling collection and storage areas in compliance with the Ordinance. For residential projects, at least two cubic feet of storage and collection space per residential unit is required, with a minimum of ten cubic feet. For nonresidential projects, at least two cubic feet of storage and collection space per 1,000 sf of building floor area is required, with a minimum of ten cubic feet.	Prior to Approval of Construction-Related Permit	Bureau of Planning	Bureau of Building
SCA-UTIL-4: Green Building Requirements (#87) *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	Prior to approval of construction-related permit	Bureau of Building	N/A

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
the City of Oakland Green Building Ordinance (chapter 18.02 of the Oakland Municipal Code). The following information shall be submitted to the City for review and approval with the application for a building permit: • Documentation showing compliance with Title 24 of the current version of the California Building Energy Efficiency Standards. • Completed copy of the final green building checklist approved during the review of the Planning and Zoning permit. • Copy of the Unreasonable Hardship Exemption, if granted, during the review of the Planning and Zoning permit. • Permit plans that show, in general notes, detailed design drawings, and specifications as necessary, compliance with the items listed in subsection (ii) below. • Copy of the signed statement by the Green Building Certifier approved during the review of the Planning and Zoning permit that the project complied with the requirements of the Green Building Ordinance. • Signed statement by the Green Building Certifier that the project still complies with the requirements of the Green Building Ordinance, unless an Unreasonable Hardship Exemption was granted during the review of the Planning and Zoning permit. • Other documentation as deemed necessary by the City to demonstrate compliance with the Green Building Ordinance. The set of plans in subsection (i) shall demonstrate compliance with the following: • CALGreen mandatory measures. • Green building point level/certification requirement per the appropriate checklist approved during the Planning entitlement process. • All green building points identified on the checklist approved during review of the Planning and Zoning permit, unless a Request for Revision Plan-check application is submitted and approved by the Bureau of Planning that shows the previously approved points that will be eliminated or substituted. • The required green building point minimums in the appropriate credit categories.			
b. Compliance with Green Building 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.	During construction	N/A	Bureau of Building

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
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. *c. Compliance with Green Building Requirements After Construction* Prior to the final Building Permit, the Green Building Certifier shall submit the appropriate documentation to City staff and attain the minimum required point level.	Prior to Final Approval	Bureau of Planning	Bureau of Building
SCA-UTIL-5: Sanitary Sewer System (#89) The project applicant shall prepare and submit a Sanitary Sewer Impact Analysis to the City for review and approval in accordance with the City of Oakland Sanitary Sewer Design Guidelines. The Impact Analysis shall include an estimate of pre-project and post-project wastewater flow from the project site. In the event that the Impact Analysis indicates that the net increase in project wastewater flow exceeds City-projected increases in wastewater flow in the sanitary sewer system, the project applicant shall pay the Sanitary Sewer Impact Fee in accordance with the City's Master Fee Schedule for funding improvements to the sanitary sewer system.	Prior to Approval of Construction-Related Permit	Public Works Department, Department of Engineering and Construction	N/A
SCA-UTIL-6: Storm Drain System (#90) The project storm drainage system shall be designed in accordance with the City of Oakland's Storm Drainage Design Guidelines. To the maximum extent practicable, peak stormwater runoff from the project site shall be reduced by at least 25 percent compared to the pre-project condition.	Prior to Approval of Construction-Related Permit	Bureau of Building	Bureau of Building
SCA-UTIL-7: Water Efficient Landscape Ordinance (WELO) (#92) 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%20ex	Prior to approval of construction-related permit	Bureau of Planning	Bureau of Building

Standard Conditions of Approval	When Required	Initial Approval	Monitoring/ Inspection
tract%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 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			

FEHR & PEERS

MEMORANDUM

Date: January 29, 2019

To: Rebecca Auld, Lamphier-Gregory

From: Sam Tabibnia and Jordan Brooks, Fehr & Peers

Subject: West Oakland BART TOD – Transportation Assessment (non-CEQA)

OK18-0294

This memorandum summarizes the non-CEQA transportation assessment that Fehr & Peers completed for the proposed West Oakland BART TOD project in Oakland. This document provides a brief description of the project, an estimate of project trip generation, a review of the project site plan and surrounding areas for access and circulation for various modes, an intersection operations analysis, and a collision analysis. This memorandum also includes recommendations that improve multi-modal access, circulation, and safety.

PROJECT DESCRIPTION

The proposed project would be located adjacent to the West Oakland BART station, bounded by 7th Street to the north, Mandela Parkway to the east, 5th Street to the south, and Chester Street to the west. Based on the project site plan dated January 11, 2019, the project would consist of the following:

- 762 multi-family dwelling units
- approximately 382,000 square feet of office space
- approximately 75,000 square feet of ground-level commercial space

The project would also include 400 automobile parking spaces, with six dedicated carshare spaces, in a garage accessible via a driveway on Chester Street.

The project site is currently occupied by surface parking lots that provide 413 automobile parking spaces for the West Oakland BART station. These spaces for BART riders would be eliminated by the project and would not be replaced.

TRIP GENERATION AND INTERSECTION COUNTS

Automobile Trip Generation

Trip generation is the process of estimating the number of vehicles that would likely access the project on any given day. **Table 1** summarizes the trip generation for the proposed project. Trip generation data published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual (10th Edition)* was used as a starting point to estimate the vehicle trip generation.

ITE's *Trip Generation Manual (10th 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 located in a moderately dense area with streets generally laid out in a grid and sidewalks on most streets. It is located near some existing neighborhood-serving retail and industrial uses, and several projects are proposed in the area that would increase residential and employment densities and provide neighborhood-serving retail uses. Additionally, the project is located within two miles of Downtown Oakland, a dense employment center. Thus, many trips generated by the project may be walking, bicycling, or transit trips.

Since the project borders the West Oakland BART station, this analysis reduces the ITE-based trip generation by about 47 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 less than 0.5 miles from a BART Station is about 47 percent.

In addition, pass-by adjustments were applied for the retail use. Pass-by trips are trips attracted to the site from adjacent roadways as an interim stop on the way to their ultimate destination. These vehicles would be on the roadway network regardless of the project, so pass-by trips result in changed travel patterns but do not add new vehicle trips to the roadway network. According to the ITE *Trip Generation Handbook (2nd Edition)*, the average weekday PM peak hour pass-by reduction is 34 percent for retail uses (ITE land use category 820). Since AM peak hour and daily pass-by reductions are not available, a pass-by reduction was not applied for the AM peak hour, and a 17-percent reduction (half the PM peak hour pass-by reduction) was applied to daily trips.

The estimated trip generation presented in Table 1 is conservative and likely overestimates the actual trip generation of the project in that it does not account for the following:

- The proposed project would eliminate about 413 surface parking spaces currently used for BART parking. Considering that many streets near the BART station have restricted parking, such as residential parking permit (RPP) which limits on-street parking to two-hours by non-local residents and that many streets and other off-street public parking facilities in the vicinity operate at or near capacity during most weekdays, it is likely that many of the current BART riders that park at the West Oakland BART Station surface parking lot would either shift to other modes, drive to other stations, or not use BART. Thus, it is likely that the elimination of the existing surface lot would reduce the number of BART riders who currently drive to and from the West Oakland BART Station. However, in order to present a conservative analysis, this analysis does not eliminate any trips associated with these existing BART parking spaces, and assumes that all of the BART riders who currently drive to the station would continue to drive and park in nearby surface lots or on-street.
- At least 20 percent of the residential units in the proposed project would be affordable. Although research on the transportation impacts of affordable housing in California shows that for any given location and housing type, lower income residents generate fewer automobile trips than residents of a typical multifamily development, this analysis does not reduce the trip generation for these units.[1]

As summarized in Table 1, the net new automobile trip generation for the proposed development is approximately 6,300 daily, 472 AM peak hour, and 548 PM peak hour automobile trips.

[1] Howell, A., Currans, K., Norton, G., & Clifton, K. (2018). Transportation impacts of affordable housing: Informing development review with travel behavior analysis. *Journal of Transport and Land Use, 11*(1). doi:10.5198/jtlu.2018.1129, https://www.jtlu.org/index.php/jtlu/article/download/1129/986

TABLE 1
WEST OAKLAND BART TOD PROJECT AUTOMOBILE TRIP GENERATION

Land Use	ITE Code	Size[1]	Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				In	Out	Total	In	Out	Total
High-Rise Apartment	222[2]	500 DU	2,230	37	118	155	110	70	180
Mid-Rise Apartment	221[3]	240 DU	1,310	23	64	87	65	41	106
Duplex	220[4]	22 DU	130	3	9	12	10	6	16
Office	710[5]	382.5 KSF	3,900	382	62	444	70	370	440
Retail	820[6]	75.0 KSF	4,950	118	72	190	211	229	440
ITE Trip Generation Subtotal			12,520	563	325	888	466	716	1,182
Non-Auto Mode Reduction[7]			-5,870	-264	-152	-416	-219	-336	-554
Retail Pass-By Reduction[8]			-350	0	0	0	-38	-41	-80
Existing Land Use Reduction[9]			-0	-0	-0	-0	-0	-0	-0
Net New Project Trips			**6,300**	**299**	**173**	**472**	**209**	**339**	**548**

Notes:
1. DU = Dwelling Units; KSF = 1,000 square feet.
2. ITE *Trip Generation (10th Edition)* land use category 222 (High-Rise Apartment, General Urban/Suburban):
   Daily: T = 4.45 * X
   AM Peak Hour: T = 0.31 * X (24% in, 76% out)
   PM Peak Hour: T = 0.36 * X (61% in, 39% out)
3. ITE *Trip Generation (10th Edition)* land use category 221 (Mid-Rise Apartment, General Urban/Suburban):
   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 220 (Low-Rise Apartment, General Urban/Suburban):
   Daily: T= 7.56 * X – 40.86
   AM Peak Hour: Ln(T) = 0.95 * ln(X) – 0.51 (23% in, 77% out)
   PM Peak Hour: Ln(T) = 0.89 * ln(X) – 0.02 (63% in, 37% out)
5. ITE *Trip Generation (10th Edition)* land use category 710 (General Office Building, General Urban/Suburban):
   Daily: Ln(T) = 0.97 * ln(X) + 2.5
   AM Peak Hour: T = 1.16 * X (86% in, 14% out)
   PM Peak Hour: T = 1.15 * X (16% in, 84% out)
6. ITE *Trip Generation (10th Edition)* land use category 820 (Shopping Center, General Urban/Suburban):
   Daily: Ln(T) = 0.68 * ln(X) + 5.57
   AM Peak Hour: T = 0.5 * X + 151.78 (62% in, 38% out)
   PM Peak Hour: Ln(T) = 0.74 * ln(X) + 2.89 (48% in, 52% out)
7. Reduction of 47% assumed, based on City of Oakland *Transportation Impact Review Guidelines*, using Census data for urban environments less than 0.5 miles from a BART station.

8. Based on *ITE Trip Generation Handbook (2nd Edition)*, the average PM peak hour pass-by rate for land use category 820 is 34%. A reduction was not applied to the AM peak hour, and a 17% reduction was applied for daily trips.
9. The West Oakland BART TOD project would eliminate 413 surface parking spaces currently used for BART parking. To present a conservative analysis, the project was assumed to not eliminate any trips associated with those parking spaces, because some or all of the BART riders who currently drive to the station would continue to drive and park in nearby surface lots or on-street.

Source: Fehr & Peers, 2019.

Non-Vehicular Trip Generation

Consistent with the City of Oakland TIRG, **Table 2** presents the estimates of project trip generation for all travel modes for the project site. The automobile trip generation shown in Table 2 does not account for pass-by reductions.

TABLE 2
WEST OAKLAND BART TOD PROJECT TRIP GENERATION BY TRAVEL MODE

Mode	Mode Share Adjustment Factors[1]	Daily	AM Peak Hour	PM Peak Hour
Automobile	53.1%	6,650	472	628
Transit	29.7%	3,720	264	351
Bike	5.1%	640	45	60
Walk	10.5%	1,310	93	124
	Total Trips	**12,320**	**874**	**1,163**

Notes:
1. Based on *City of Oakland Transportation Impact Study Guidelines* assuming project site is in an urban environment less than 0.5 miles from a BART station.

Source: Fehr & Peers, 2019.

Trip Distribution and Study Intersection Selection

The trip distribution and assignment process is used to estimate how the trips generated by the project would be distributed across the roadway network. Trip distribution and assignment for the project were developed based on the locations of complementary land uses, existing travel patterns, the street network in the area, and the results of the Alameda County Transportation Commission (CTC) travel demand model. **Table 3** shows the resulting trip distribution.

TABLE 3
WEST OAKLAND BART TOD PROJECT
VEHICLE DISTRIBUTION

Zone	Distribution
To/From West	21%
To/From East	24%
To/From North	17%
To/From South	6%
To/From I-880 South	20%
To/From I-880 North	12%
Total	**100%**

Sources: Fehr & Peers, 2019.

Trips generated by the proposed project, as shown in Table 1, were assigned to the roadway network according to the trip distribution shown on Table 3.

According to the City of Oakland's TIRG, the criteria for selecting study intersections include:

- All intersection(s) of streets adjacent to project site;
- All signalized intersection(s), all-way stop-controlled intersection(s) or roundabouts where 100 or more peak hour trips are added by the project;
- All signalized intersection(s) with 50 or more project-related peak hour trips and existing LOS D-E-F; and
- 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.

This analysis evaluates the following intersections due to being adjacent to the project site:

1. 7th Street/Chester Street
2. 7th Street/Center Street
3. 7th Street/Mandela Parkway
4. 5th Street/Chester Street
5. 5th Street/Center Street
6. 5th Street/Mandela Parkway

Automobile turning movements, pedestrian counts, and bicycle counts were collected at these intersections during the AM and PM peak commuting hours (7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM) on December 12, 2018, a typical weekday with local schools in normal session, moderate weather, and no observed traffic incidents. **Figure 1** shows the peak hour intersection volumes, and **Appendix A** provides the raw traffic counts.

SITE ACCESS AND CIRCULATION ANALYSIS

Fehr & Peers reviewed the project site plan dated January 11, 2019 and the existing street network adjacent to the project site to evaluate safety, access, and circulation for all travel modes.

Automobile Access and Circulation

Currently, the project site is occupied by parking facilities for the West Oakland BART Station, which would be demolished by the project. Access to the existing site is provided by driveways on Mandela Parkway, Chester Street, and 5th Street. These driveways would be eliminated by the project. The proposed project would include a 400-space parking garage which would be accessed through a driveway on Chester Street. Each project building would also provide a loading dock for two trucks. The loading dock for Buildings T1 and T4 would be on Mandela Parkway and the loading dock for Building T3 would be on 5th Street. Based on the project site plan, the garage driveway and/or the loading docks may not provide adequate sight distance between exiting vehicles and pedestrians on the adjacent sidewalk.

> **Recommendation 1:** While not required to address a CEQA impact, the following should be considered as part of the final design for the project:
>
> - Review the final site plans for the project to ensure that the garage driveway on Chester Street and the loading docks for each project building would provide adequate sight distance between vehicles exiting the garage and pedestrians on the adjacent sidewalk.

The project would eliminate the existing merge on westbound 7th Street just west of Mandela Parkway in order to accommodate a Class 4 cycletrack along this segment of 7th Street. Thus the existing shared right/through lane on westbound 7th Street at Mandela Parkway would need to be converted to a right-turn lane.

With the addition of the traffic generated by the proposed project, it is expected that the 7th Street/ Chester Street intersection would meet the Manual on Uniform Traffic Control Devices (MUTCD) Peak Hour Signal Warrant, and the intersection may need to be signalized. Signal warrant analysis is used to determine whether conditions warrant the installation of a new traffic signal. However, meeting one or more signal warrants does not mean that the intersection must be signalized.

> **Recommendation 2:** While not required to address a CEQA impact, the following should be considered as part of the final design for the project:
>
> - Implement the following at the 7th Street/Mandela Parkway intersection:
>   - Convert the existing through/right-turn lane on the westbound 7th Street approach to a right-turn/bus only lane, and remove the merge lane on westbound 7th Street west of the intersection
>   - Modify the signal timings at the intersection to provide a bus only phase for the westbound approach, and reduce the signal cycle length to 90 seconds
> - After the completion of the first phase of the project, conduct a signal warrant analysis at the 7th Street/Chester Street intersection to determine if and when the intersection should be signalized. If signalization is warranted, the project shall signalize the intersection with protected left-turn phasing for the east/west 7th Street approaches. In addition and as determined by the City of Oakland staff, the signal may be interconnected with existing adjacent signals along 7th Street. If signalization is not warranted, the project shall conduct an analysis to determine if other control devices, such as all-way stop controls, or rectangular rapid flash beacon (RRFB) should be installed at the intersection. The project shall implement the recommended improvement at the intersection as approved by the City of Oakland.

Bicycle Access and Bicycle Parking

Currently, Class 2 bicycle lanes are provided along the project frontage on 7th Street and on Mandela Parkway. The 7th Street bicycle lanes connect Peralta Street to the west and about 140 feet west of Mandela Parkway to the east, where they convert to Class 3 bicycle routes with shared-lane markings and continue to Union Street. The bicycle lanes on Mandela Parkway connect 3rd Street in the south and Horton Street in the north. The City's 2007 Bicycle Master Plan proposes Class 2 bicycle lanes on 7th Street between Wood and Union Streets.

The project would include the following modifications that would benefit bicyclists in the project vicinity:

- Raised one-way Class 4 separated bikeways on both sides of 7th Street between Chester Street and Mandela Parkway.
- One-way Class 4 separated bikeways on both sides of Mandela Parkway between 7th and 5th Streets.
- A bike station on the east side of the existing BART station under the BART tracks and adjacent to a mid-block crossing on Mandela Parkway. The bike station is estimated to accommodate at least 500 bicycles, and would provide a repair station.

The nearest Ford GoBike bikeshare station is located adjacent to the site on 7th Street just east of Center Street within the street right-of-way. The project would remove this station to accommodate a bus stop on eastbound 7th Street east of Center Street, but the site plan does not indicate where the bikeshare station would be relocated.

Recommendation 3: While not required to address a CEQA impact, the following should be considered as part of the final design for the project:

- Ensure that the Ford GoBike station currently located in-street on 7th Street just east of Center Street is relocated on the BART Station Plaza to provide close and convenient access to the West Oakland BART station and the bicycle facilities adjacent to the project site.

Chapter 17.117 of the Oakland Municipal Code requires long-term and short-term bicycle parking for new buildings. Long-term bicycle parking includes lockers or locked enclosures, and short-term bicycle parking includes bicycle racks. The Code requires one long-term space for every four multi-family dwelling units and one short-term space for every 20 multi-family dwelling units. The Code does not require any bicycle parking for duplexes. For office uses, the Code requires one long-term space for every 10,000 square feet of floor area and one short-term space for every 20,000 square feet of floor area. For retail uses, the Code requires one long-term space for every 12,000 square feet of floor area and one short-term space for every 5,000 square feet of floor area.

Table 4 presents the bicycle parking requirements for the proposed project. The project would be required to provide at least 229 long-term bicycle parking spaces and 71 short-term spaces.

TABLE 4
BICYCLE PARKING REQUIREMENTS

Land Use	Size[1]	Long-Term		Short-Term	
		Spaces per Unit[2]	Spaces	Spaces per Unit[2]	Spaces
Multi-family Residential	740 DU	1:4 DU	185	1:20 DU	37
Duplex	22 DU	None Required	0	None Required	0
Office	382.5 KSF	1:10 KSF	38	1:20 KSF	19
Retail	75.0 KSF	1:12 KSF	6	1:5 KSF	15
Total Required Bicycle Spaces			229		71
Total Bicycle Parking Provided			252		94
Bicycle Parking Met?			**Yes**		**Yes**

Notes:
1. DU = dwelling unit, KSF = 1,000 square feet
2. Based on Oakland Municipal Code Sections 17.117.090 and 17.117.110

Source: Fehr & Peers, 2019.

The project would provide 252 long-term bicycle parking spaces, which would consist of bike rooms for 150 bicycles in the T1 building (northeast corner of the site), 70 bicycles in the T3 building (southwest corner of the site), and 32 bicycles in the T4 building (southeast corner of the site). Thus, the project would exceed the minimum requirements for long-term bicycle parking.

The project would provide 94 short-term bicycle parking spaces. The short-term spaces would consist of bicycle racks for 34 bicycles along the 5th Street frontage, 40 bicycles along the 7th Street frontage, and 20 bicycles on the pedestrian plaza between 5th Street and the BART station. Thus, the project would exceed the minimum requirements for short-term bicycle parking.

In addition, the bike station at the BART Station would also be available to project residents, workers, and visitors.

Pedestrian Access and Circulation

Most streets in the vicinity of the project site provide sidewalks on both sides of the street, except for the south side of 5th Street between Center Street and Mandela Parkway. The project site currently provides 10-foot sidewalks along the project frontage on Mandela Parkway, 5th Street, and Chester Street. Along the project site's 7th Street frontage, a 30-foot sidewalk is provided between Chester and Center Streets, and a 20-foot sidewalk is provided between Center Street and Mandela Parkway. The City of Oakland's 2017 Pedestrian Master Plan does not list any planned improvements along the project frontages.

Pedestrian facilities at the intersections adjacent to the site include:

- The 7th Street/Chester Street intersection is stop-controlled on both the northbound and southbound Chester Street approaches and provides directional curb ramps with truncated domes on all four corners. The intersection provides curb extensions at the northwest and northeast corners and provides colored crosswalks for all four approaches.
- The 7th Street/Center Street intersection is a signalized T-intersection that provides directional curb ramps with truncated domes on all corners and approaches. The intersection provides curb extensions at the northwest and northeast corners and provides colored crosswalks, and pedestrian countdown signal heads and push buttons for all three approaches. The signal currently provides continuous green phase for the east/west 7th Street approaches, unless vehicles are detected on the southbound Center Street approach or pedestrians activate the push buttons to cross 7th Street.
- The 7th Street/Mandela Parkway intersection is a signalized intersection that provides directional curb ramps with truncated domes on all four corners. The intersection provides curb extensions at the northwest and northeast corners and provides colored crosswalks, and pedestrian countdown signal heads and push buttons for all four approaches.
- The 5th Street/Chester Street intersection is stop-controlled on both the northbound and southbound Chester Street approaches and provides diagonal curb ramps on the northeast, southeast and southwest corners and a directional curb ramp leading across 5th Street on the northwest corner. None of the curb ramps provide truncated domes, and no marked crosswalks are provided on any approach.
- The 5th Street/Center Street intersection is a T-intersection and stop-controlled on the northbound Center Street approach. The intersection provides diagonal curb ramps at both corners. Neither of the curb ramps provide truncated domes, and no marked crosswalks are provided on any approach. Currently, on-street parking is allowed along the north side of the intersection, blocking pedestrian crossings of 5th Street.
- The 5th Street/Mandela Parkway intersection is a signalized intersection that provides diagonal curb ramps with substandard truncated domes on all four corners. The intersection provides a curb extension across the 5th Street approach at the southeast corner and provides marked crosswalks, and pedestrian countdown signal heads and push buttons for all four approaches.

The project would provide pedestrian access to the BART Station from all the four streets bordering the project site, including a north-south pedestrian plaza aligned with Center Street that would provide direct access to the BART station entrance. The site would also provide internal walkways along the south side of the elevated BART tracks that would connect to Chester Street and Mandela Parkway. Each project building would have a lobby that would be accessed from the adjacent street and/or the internal site plazas. The project would include the following modifications that would benefit pedestrian access and circulation in the areas surrounding the project site:

- The project proposes a 19-foot sidewalk along the project frontage on 5th Street, between Chester Street and Mandela Parkway. The sidewalk would have a minimum eight-foot pedestrian through zone, and the sidewalk width would accommodate the needs of pedestrians, bus passengers, and curbside passenger loading.
- The project proposes a sidewalk along the project frontage on 7th Street with a minimum eight-foot pedestrian through zone between Chester Street and Mandela Parkway. The sidewalk would provide adequate width to accommodate the high level of pedestrians with pedestrian amenities such as seating, real-time bus arrival information, trash receptacles, and pedestrian-lighting.
- The project proposes an 11 to 15-foot sidewalk along the project frontage on Chester Street and a 15-foot sidewalk along Mandela Parkway between 5th and 7th Street. All sidewalks would have a minimum eight-foot pedestrian through zone.
- As part of implementing a Class 4 cycletrack along westbound 7th Street, the project would eliminate the second receiving lane west of Mandela Parkway and shorten the pedestrian crossing distance for the west crosswalk at the 7th Street/Mandela Parkway intersection.
- The sidewalks along the project frontage and the internal pedestrian plazas would provide pedestrian-scale lighting and street trees/plantings.
- At the intersections of 5th Street with Chester Street, Center Street and Mandela Parkway, the project would provide high-visibility crosswalks and directional ramps along all approaches.
- At the 5th Street/Center Street intersection, project would provide curb extensions (bulb-outs) at all four intersection corners.
- High-visibility, mid-block pedestrian crossing would be provided on Mandela Parkway between 5th and 7th Streets to align with the east-west pedestrian path within the project site. The mid-block crossing would also allow access between the bike station and the northbound Class 4 cycletrack on Mandela Parkway.

In addition, Recommendation 2 would either signalize or implement other modifications at the 7th Street/Chester Street intersection which would improve pedestrian crossings across 7th Street. The following recommendations are provided to further enhance pedestrian access for the project site:

Recommendation 4: While not required to address a CEQA impact, the following should be considered as part of the final design for the project:

- Explore the feasibility of (and implement, if feasible) installing curb extensions (bulb-outs) and directional curb ramps with truncated domes at the following locations:
    - Southwest corner of the 7th Street/Chester Street intersection.
    - All four corners of the 5th Street/Mandela Parkway intersection and curb extensions (bulb-outs) across the 5th Street approaches of the southwest and northeast corners.
- Provide all-way stop control at the 5th Street/Center Street and 5th Street/Chester Street intersection.
- If reviewed and approved by BART and Oakland Fire Department, provide rolled curb instead of curb cuts for emergency vehicle access points on Chester Street and Mandela Parkway.
- Install a pedestrian scramble at the 7th Street/Center Street intersection.
- Install improvement measures at the proposed mid-block crossing on Mandela Parkway, such as raised crosswalk, RRFB, or other measures as approved by the City of Oakland.

Recommendation 5: While not required to address a CEQA impact, the following should be considered as part of the final design for the project:

- Coordinate with the City of Oakland and the appropriate property owners to determine the feasibility of and if deemed feasible, complete the sidewalk gap on the south side of 5th Street just east of Center Street.

Transit Access

Transit service providers in the vicinity of the proposed project include BART and AC Transit.

BART provides regional rail service throughout the East Bay and across the San Francisco Bay. The proposed project is located adjacent to the West Oakland BART station. The project would eliminate the majority of the existing parking spaces used by BART rider. The project would continue to provide and enhance pedestrian and bicycle access for the BART station as described above.

Currently, the BART station is served by Lines 14, 29, 36, and 62. All bus routes are currently accommodated within the BART station and described in **Table 5**. In addition, 7th Street also accommodates bus stops for Lines 29 and 62, as well as intercity buses (Mega Bus and Bolt), and other shuttle services.

TABLE 5
AC TRANSIT ROUTES AND HEADWAYS

Line	Description	Layover at West Oakland BART	Weekday Hours of Operation	Weekday Headways[1]	Weekend Hours of Operation	Weekend Headways[1]
14	Fruitvale BART to West Oakland BART via 14th Street	10-20 min	5:00 AM – 11:00 PM	15 min	6:30 AM – 11:15 PM	30 min
29	Emeryville Public Market to Lakeshore via Peralta Street and 10th Street	n/a	6:00 AM – 10:45 PM	20 (30) min	6:00 AM – 10:45 PM	30 min
36	UC Berkeley to West Oakland BART via Adeline Street	10-20 min	6:00 AM – 12:45 AM	30 min	6:00 AM – 12:45 AM	30 min
62	Fruitvale BART to West Oakland BART via 7th Street	10-20 min	5:45 AM – 12:45 AM	15 (20) min	6:15 AM – 12:45 AM	20 (30) min

Notes:
1. Headways in parentheses show off-peak headways if different from peak headways.

Source: AC Transit and Fehr & Peers, 2019.

The proposed project would not be able to accommodate the bus stops within the project site and proposes the following modifications:

- The project would provide a bus stop/layover zone along the project frontage on 5th Street just west of Mandela Parkway. The bus zone would be at least 170 feet long and a concrete bus pad would also be installed in the roadway. The bus stop and layover for AC Transit Lines 36 and 62 could be relocated to this location.

- The existing bus stop on eastbound 7th Street west of Mandel Parkway would be retained and extended for an approximate length of 270 feet. This stop could serve AC Transit Lines 29, 36, and 62 and could serve as both a stop and layover space for AC Transit Line 14. The bus stop would be located on a 10-foot bus island that separates the Class 4 cycletrack along this segment of 7th Street. A new bus stop would be installed on westbound 7th Street just west of Center Street that could serve AC Transit Line 29. The bus stop would be about 130 feet long. The bus stop would be located on a 10-foot bus island that separates the Class 4 cycletrack along this segment of 7th Street.

- The sidewalks along project frontage on 5th and 7th Street would have adequate width and would accommodate a high level of passenger amenities, including shelters with seating, maps and other information, and real-time bus arrival information; trash receptacles; and lighting. In addition, the roadway pavement would be upgraded to provide concrete pads for the bus stops.

- To facilitate buses turning from northbound Chester Street to eastbound 7th Street, Chester Street is redesigned so that buses are positioned closer to the center line of Chester Street, which would improve current conditions for buses. Due to the tight turning radius of the corner, buses cannot make the turn from Chester Street to 7th Street when positioned close to the curb on northbound Chester Street.

  Recommendation 6: While not required to address a CEQA impact, the following should be considered as part of the final design for the project:

  - Consider designating a bus stop for intercity coaches (e.g., Megabus and Bolt) and other shuttles on 7th Street between Henry and Chester Streets.

Off-street Automobile Parking Requirements

The *City of Oakland Municipal Code* sets minimum and maximum parking requirements. According to Section 17.116.060, the residential component of the project has minimum required parking of 0.5 spaces per unit and maximum allowable parking of 1.25 spaces per unit. According to Section 17.116.110, this parking requirement can be reduced by 30 percent for projects within a Transit Accessible Area[2] and by 20 percent for projects that provide on-site carshare spaces at the level

[2] "Transit Accessible Area" means the area within one-half mile of a: (1) BART Station; (2) BRT Station; (3) designated rapid bus line; or (4) transit stop served by a frequency of service interval of fifteen (15) minutes or less during the morning and afternoon peak commute periods. (Section 17.09.040)

described in Section 17.116.105. For projects with 600 to 800 residential units, Section 17.116.105 requires four carshare spaces.

For the retail and office components of the project, Section 17.116.090 does not require any parking to be provided, maximum allowable parking of 1.0 spaces for each 300 square feet of ground floor area and 1.0 spaces per 500 square feet of above ground floor area.

Table 6 presents the off-street automobile parking requirements for the proposed project, per City of Oakland Municipal Code. Because the project is located within one-half mile of a BART station and provides six on-site carshare spaces, residential parking requirements are reduced by a total of 50 percent. Overall, the project is required to provide a minimum of 191 spaces, with a maximum of 1,968 spaces allowed. The proposed project would include 400 off-street parking spaces, more than the minimum requirement and less than the maximum allowed by City Code. Consistent with Code Section 17.116.310, all parking spaces would be leased separately from the rent of the dwelling units.

TABLE 6
AUTOMOBILE PARKING CODE REQUIREMENTS

Land Use	Size[1]	Required Off-Street Parking Supply		Provided Off-Street Parking Supply	Within Range?
		Minimum	Maximum		
Residential[2]	762 DU	191	953		
Office[3]	382.5 DU	0	765		
Retail[3]	75.0 KSF	0	250		
Total		**191**	**1,968**	**400**	**Yes**

Notes:

1. DU = Dwelling Unit, KSF = 1,000 square feet
2. The City of Oakland off-street parking requirement for two-family and multi-family residential in the S-15W zone is a minimum of 0.5 spaces per unit, with a maximum of 1.25 spaces per unit (Section 17.116.060). The minimum is reduced to 0.25 spaces per unit for this project due to its location in a Transit Accessible Area and because it provides at least four carshare space for a project between 600 and 800 multifamily units (Section 17.116.110).
3. The City of Oakland does not have a minimum off-street parking requirement for Commercial Activities in the S-15W zone and allows a maximum of 1.0 spaces per 300 square feet of ground floor area and 1.0 spaces per 500 feet of above ground floor area.

Source: Fehr & Peers, 2019.

On-Street Parking and Curb Use

Most streets currently provide unrestricted parking along both sides of the street in the vicinity of the project side except the following:

- On-street parking is currently prohibited along the project frontage on 7th Street and the east side of Mandela Parkway between 5th and 7th Streets.
- On-street parking along the north side of 7th Street between Mandela Parkway and Center Street is limited to two-hours from 8:00 AM to 6:00 PM Monday through Saturday
- On-Street parking on south side of 5th Street between Chester and Center Street, on the west side Chester Street between 5th and 7th Street and many of the residential streets to the south, west, and north of the site is controlled by residential parking permit (RPP), where vehicles without RPP are restricted to a two-hour time limit between 8:00 AM and 6:00 PM Monday through Saturday except for those with a residential parking permit.

The project site currently contains surface parking lots providing 413 parking spaces for BART riders. About 80 feet of white curb for passenger loading/unloading and about 20 feet of blue curb for accessible loading/unloading is provided on an internal drive aisle adjacent to the BART station entrance. The project would eliminate the internal loading zones and surface parking lots. The project would relocate the passenger loading zones to the streets along the project frontage, which can be used for both BART riders and project residents, workers, and visitors. The project proposes the following uses for the curbs in the project vicinity:

- The following would be designated for passenger loading and unloading:
  - Approximately 100 feet of linear curb along the north side of 5th street east of Center Street and about 200 feet west of Center Street
  - Approximately 250 feet of linear curb along eastbound 7th Street between Chester and Center Streets, with about 50 feet of curb on eastbound 7th Street just west of Center Street designated as a blue accessible loading zone
- Parking would be prohibited at the following locations:
  - On both sides of Mandela Parkway between 5th and 7th Street
  - On the east side of Chester Street between 5th and 7th Streets and on the west side of Chester Street for about 100 feet south of 7th Street.

The proposed space for passenger loading is much greater than the approximately 100 feet of linear white curb currently available at the station. The West Oakland station has one of the highest shares of pick-up/drop-off access modes, and that condition is likely to continue in the future considering the removal of parking and the station's location within the BART system and its proximity to I-880.

INTERSECTION OPERATIONS

Intersection operations under Existing Conditions and Existing Plus Project conditions were analyzed for the six study intersections. The traffic volumes, intersection lane configurations, and traffic controls presented on **Figure 1** form the basis for the intersection level of service (LOS) analysis under Existing Conditions.[3] The project trip assignment was added to the Existing Conditions peak hour traffic volumes to estimate the Existing plus Project peak hour traffic volumes, as shown on **Figure 2**.

The Existing Plus Project analysis also accounts for the modifications to the streets as proposed by the project or as recommended in this memorandum. The main modifications that would affect intersection operations include:

- 7th Street/Mandela Parkway intersection:
  - Convert the existing through/right-turn lane on the westbound 7th Street approach to a right-turn/bus only lane, and remove the merge lane on westbound 7th Street west of the intersection
  - Modify the signal timings at the intersection to provide a bus only phase for the westbound approach, and reduce the signal cycle length to 90 seconds
- 7th Street/Center Street intersection:
  - Modify signal timings at the intersection to provide a pedestrian scramble phase.
- 7th Street/Chester Street intersection:
  - Convert intersection from side-street stop-controlled to signalized operations with protected left-turn phasing for the east/west 7th Street approaches.

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[3] The operations of roadway facilities are typically described with the term level of service (LOS), a qualitative description of traffic flow based on factors such as speed, travel time, delay, and freedom to maneuver. Six levels are defined from LOS A, which reflects free-flow conditions where there is very little interaction between vehicles, to LOS F, where the vehicle demand exceeds the capacity and high levels of vehicle delay result. LOS E represents "at-capacity" operations. When traffic volumes exceed the intersection capacity, stop-and-go conditions result and a vehicle may wait through multiple signal cycles before passing through the intersection; these operations are designated as LOS F.

- 5th Street/Chester Street and 5th Street/Center Street:
  - Convert intersections from side-street stop-controlled to all-way stop-controlled.

Table 7 summarizes the results of the intersection operations analysis under Existing Conditions and Existing Plus Project conditions. **Appendix B** provides the detailed intersection LOS calculation worksheets.

TABLE 7
EXISTING AND EXISTING PLUS PROJECT CONDITIONS
STUDY INTERSECTION LOS SUMMARY

Intersection	Traffic Control[1]	Peak Hour	Existing		Exiting Plus Project	
			Delay[2] (seconds)	LOS[2]	Delay[2] (seconds)	LOS[2]
1. 7th Street/Chester Street	SSSC/ Signalized[4]	AM PM	10 (23) 8 (29)	A (C) A (D)	26 27	C C
2. 7th Street/Center Street[3]	Signalized	AM PM	3 4	A A	3 3	A A
3. 7th Street/Mandela Parkway	Signalized	AM PM	33 34	C C	29 28	C C
4. 5th Street/Chester Street	SSSC/ AWSC[5]	AM PM	4 (10) 4 (11)	A (A) A (B)	8 5	A A
5. 5th Street/Center Street	SSSC/ AWSC[5]	AM PM	1 (9) 1 (10)	A (A) A (A)	9 9	A A
6. 5th Street/Mandela Parkway	Signalized	AM PM	8 9	A A	9 9	A A

1. SSSC = Side-Street Stop-Controlled; AWSC = All-Way Stop-Controlled
2. Average intersection delay and LOS based on the 2010 HCM method except where noted. Average delay is reported for signalized intersections. Average and worst-approach delays, respectively, are reported for side-street stop controlled intersections.
3. Average intersection delay and LOS based on HCM 2000 because the intersection cannot be accurately evaluated in the 2010 HCM.
4. Side-street stop-controlled under Existing conditions; signalized under Existing Plus Project conditions.
5. Side-street stop-controlled under Existing conditions; all-way stop-controlled under Existing Plus Project conditions.

Source: Fehr & Peers, 2019.

All study intersections operate at LOS D or better under both Existing Conditions and Existing Plus Project conditions. Note that the northbound approach at the 7th Street/Chester Street intersection would operate at LOS F during both the AM and PM peak hours under Existing Plus Project conditions if the intersection remains side-street stop-controlled. The 7th Street/Chester Street intersection would meet the MUTCD Peak Hour Signal Warrant under Existing Plus Project conditions. The intersection would operate at LOS C during both AM and PM peak hours with a signalized intersection.

COLLISION ANALYSIS

A five-year history (January 1, 2013 to December 31, 2017) of collision data in the study area was obtained from the Statewide Integrated Traffic Records System (SWITRS) and evaluated for this collision analysis. **Table 8** summarizes the collision data by type and location, and **Table 9** summarizes the collision data by severity and location.

As shown in Table 8, 24 collisions were reported adjacent to the project site during this five-year period. The most common collision type was broadside (25 percent), and the most frequent primary collision factor violation category was vehicles making an improper turn (33 percent). Pedestrians were involved in three (13 percent) and bicyclists were also involved in three (13 percent) of the reported collisions. Of the 24 reported collisions, 12 (50 percent) resulted in injuries, and none resulted in fatalities, as shown in Table 9.

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 roadway and intersection characteristics like vehicle and pedestrian volumes, number of lanes, signal phasing, on-street parking, and number of driveways. **Table 10** presents the predicted collision frequencies for the six study intersections and six study segments using the HSM Predictive Method for Urban and Suburban Arterials and compares predicted collision frequencies to reported collision frequencies. **Appendix C** provides detailed predicted collision frequency calculation sheets based on the HSM methodology. Intersections or roadway segments with collision frequency greater than the predicted frequency should have their collision trends and potential roadway or intersection modifications evaluated in greater detail.

TABLE 8
SUMMARY OF COLLISIONS BY TYPE

Location	Head-on	Sideswipe	Rear-End	Broadside	Hit Object	Pedestrian-Involved	Bicycle-Involved	Total
Intersection								
7th Street/Chester Street	0	1	1	1	0	0	0	3
7th Street/Center Street	0	0	1	0	0	0	0	1
7th Street/Mandela Parkway	0	3	1	0	0	2	2	8
5th Street/Chester Street	0	0	0	0	0	0	0	0
5th Street/Center Street	0	0	0	0	0	0	0	0
5th Street/Mandela Parkway	0	0	0	1	1	1	0	3
Roadway Segment								
7th Street between Chester Street and Center Street	0	0	0	1	0	0	0	1
7th Street between Center Street and Mandela Parkway	0	0	0	0	0	0	0	0
5th Street between Chester Street and Center Street	0	0	0	0	0	0	0	0
5th Street between Center Street and Mandela Parkway	0	0	0	0	1	0	0	1
Chester Street between 7th Street and 5th Street	0	0	0	0	0	0	1	1
Mandela Parkway between 7th Street and 5th Street	1	1	1	3	0	0	0	6
Total	**1**	**5**	**4**	**6**	**2**	**3**	**3**	**24**

Notes:
1. Based on SWITRS five-year collision data reported from January 1, 2013 to December 31, 2017.

Source: SWITRS, Fehr & Peers, 2019.

TABLE 9
SUMMARY OF COLLISION SEVERITY

Location	Property Damage Only	Injury Collisions	Fatality Collisions	Total	Person-Injuries			
					Bike	Ped	Driver/ Passenger	Total
Intersection								
7th Street/Chester Street	2	1	0	3	0	0	1	1
7th Street/Center Street	1	0	0	1	0	0	0	0
7th Street/Mandela Parkway	2	6	0	8	2	2	3	7
5th Street/Chester Street	0	0	0	0	0	0	0	0
5th Street/Center Street	0	0	0	0	0	0	0	0
5th Street/Mandela Parkway	2	1	0	3	0	1	0	1
Roadway Segment								
7th Street between Chester Street and Center Street	0	1	0	1	0	0	3	3
7th Street between Center Street and Mandela Parkway	0	0	0	0	0	0	0	0
5th Street between Chester Street and Center Street	0	0	0	0	0	0	0	0
5th Street between Center Street and Mandela Parkway	1	0	0	1	0	0	0	0
Chester Street between 7th Street and 5th Street	0	1	0	1	1	0	0	1
Mandela Parkway between 7th Street and 5th Street	4	2	0	6	0	0	2	2
Total	**12**	**12**	**0**	**24**	**3**	**3**	**9**	**15**

Notes:

1. Based on SWITRS five-year collision data reported from January 1, 2013 to December 31, 2017.

Source: SWITRS, Fehr & Peers, 2019.

TABLE 10
PREDICTED AND ACTUAL COLLISION FREQUENCIES

Location	Predicted Collision Frequency[1] (per year)	Actual Collision Frequency[2] (per year)	Difference	Higher Than Predicted?
Intersection				
7th Street/Chester Street	0.8	0.6	-0.2	No
7th Street/Center Street	0.6	0.2	-0.4	No
7th Street/Mandela Parkway	2.0	1.6	-0.4	No
5th Street/Chester Street	0.4	0.0	-0.4	No
5th Street/Center Street	0.2	0.0	-0.2	No
5th Street/Mandela Parkway	1.3	0.6	-0.7	No
Roadway Segment				
7th Street between Chester Street and Center Street	0.3	0.2	-0.1	No
7th Street between Center Street and Mandela Parkway	0.2	0.0	-0.2	No
5th Street between Chester Street and Center Street	0.1	0.0	-0.1	No
5th Street between Center Street and Mandela Parkway	0.6	0.2	-0.4	No
Chester Street between 7th Street and 5th Street	0.1	0.0	-0.1	No
Mandela Parkway between 7th Street and 5th Street	0.4	1.2	0.8	**Yes**

Notes:

1. Based on the Highway Safety Manual Predictive Method (Volume 2, Part C)
2. Based on five-year collision data reported from January 1, 2013 to December 31, 2017.

Source: Fehr & Peers, 2019

As shown in Table 10, all study locations had a lower reported collision frequency than predicted by the HSM, except for Mandela Parkway between 7th Street and 5th Street. The collisions along this segment mostly occurred near the BART station driveway on the west side of the street. Sight distance between the vehicles exiting the BART driveway and vehicles traveling northbound on Mandela Parkway is limited due to on-street parking on the west side street. Half of the collisions along this street segment were broadside collisions, which is consistent with the limited sight distance at the BART driveway. The project would eliminate the BART station driveway, and on-street parking, which would improve safety along this segment of Mandela Parkway. Thus, no additional modifications related to roadway safety beyond the ones provided in this memorandum are recommended.

CONCLUSION

Per the site plan review, the project would have adequate automobile, bicycle, pedestrian, and transit access and circulation with the inclusion of **Recommendations 1** through **6**.

Please contact Sam Tabibnia (s.tabibnia@fehrandpeers.com or 510-835-1943) with questions or comments.

ATTACHMENTS

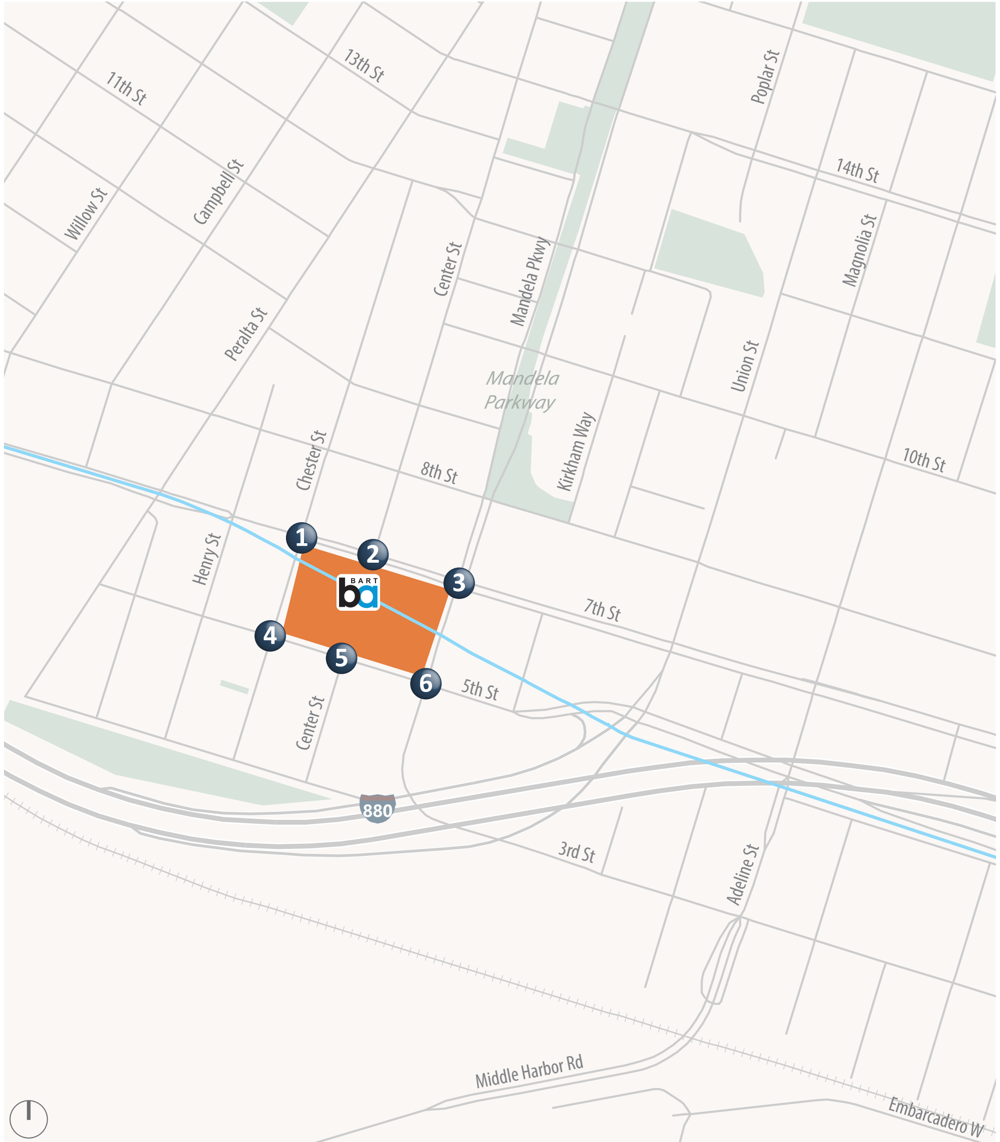
Figure 1 - Existing Conditions Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

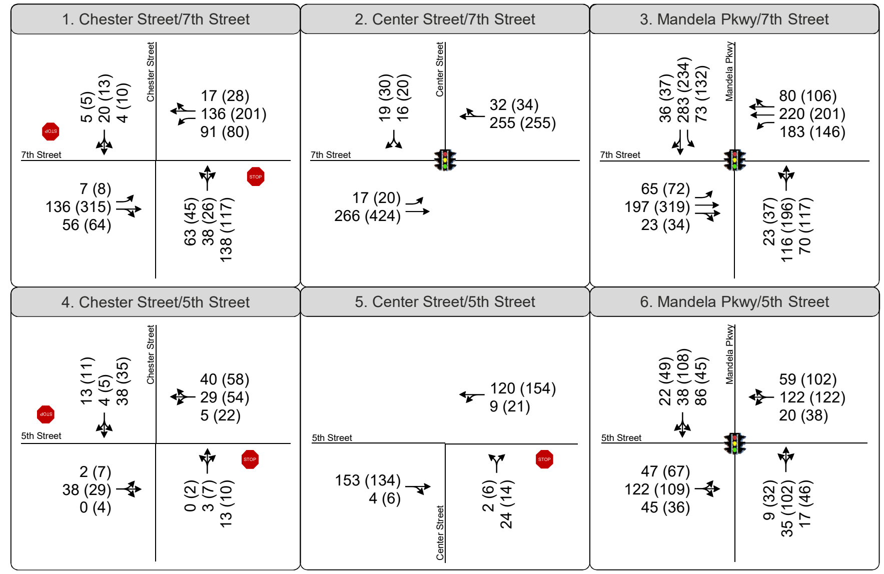
Figure 2 - Existing Plus Project Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

Appendix A – Traffic Counts

Appendix B – Intersection Analysis Worksheets

Appendix C – Predicted Crash Frequency Calculation Sheets





XX (YY) AM (PM) Peak Hour Traffic Volumes

Signalized Intersection

Stop Sign

Project Site

Study Intersection

Figure 1

Existing Peak Hour
Intersection Traffic Volumes, Lane Configurations and Traffic Controls

OK18-0294_X_Volumes

XX (YY) AM (PM) Peak Hour Traffic Volumes | Signalized Intersection | Stop Sign

Project Site | Study Intersection

Figure 2

Existing with Project Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

OK18-0294_X_Volumes

APPENDIX A

TRAFFIC COUNTS

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chester St & 7th St
City: Oakland
Control: 2-Way Stop(NB/SB)

Project ID: 18-08661-001
Date: 12/12/2018

Total

NS/EW Streets:	Chester St				Chester St				7th St				7th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	11	6	16	0	2	4	0	0	0	29	12	0	13	41	4	0	138
7:15 AM	19	4	26	0	2	4	3	0	0	30	13	0	16	24	0	0	141
7:30 AM	9	13	31	2	2	7	1	0	0	35	11	0	20	30	5	1	167
7:45 AM	17	7	41	0	2	2	0	0	0	28	10	0	19	29	6	0	161
8:00 AM	17	6	27	0	0	4	0	0	2	36	13	2	24	33	5	0	169
8:15 AM	18	18	32	0	0	8	2	0	1	33	19	0	20	37	2	1	191
8:30 AM	11	7	38	0	2	6	3	0	2	39	14	0	27	37	4	0	190
8:45 AM	12	12	33	1	1	8	1	0	0	28	4	0	12	29	3	0	144
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	114	73	244	3	11	43	10	0	5	258	96	2	151	260	29	2	1301
APPROACH %'s :	26.27%	16.82%	56.22%	0.69%	17.19%	67.19%	15.63%	0.00%	1.39%	71.47%	26.59%	0.55%	34.16%	58.82%	6.56%	0.45%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	63	38	138	0	4	20	5	0	5	136	56	2	90	136	17	1	711
PEAK HR FACTOR :	0.875	0.528	0.841	0.000	0.500	0.625	0.417	0.000	0.625	0.872	0.737	0.250	0.833	0.919	0.708	0.250	0.931
	0.879				0.659				0.905				0.897				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	9	3	14	0	1	4	2	0	0	54	6	0	8	37	6	1	145
4:15 PM	8	4	27	0	2	6	1	0	4	64	10	0	10	29	3	0	168
4:30 PM	8	7	21	0	2	1	1	0	4	75	18	0	8	45	5	1	196
4:45 PM	10	10	24	0	2	3	3	0	4	87	12	0	10	43	3	0	211
5:00 PM	6	7	25	0	1	1	2	0	2	86	16	0	21	46	6	0	219
5:15 PM	16	8	34	0	2	3	1	0	2	73	17	0	20	58	3	1	238
5:30 PM	9	8	30	0	4	4	1	0	2	77	16	0	19	49	7	0	226
5:45 PM	14	3	28	0	3	5	1	0	2	79	15	0	18	48	12	1	229
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	80	50	203	0	17	27	12	0	20	595	110	0	114	355	45	4	1632
APPROACH %'s :	24.02%	15.02%	60.96%	0.00%	30.36%	48.21%	21.43%	0.00%	2.76%	82.07%	15.17%	0.00%	22.01%	68.53%	8.69%	0.77%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	45	26	117	0	10	13	5	0	8	315	64	0	78	201	28	2	912
PEAK HR FACTOR :	0.703	0.813	0.860	0.000	0.625	0.650	0.625	0.000	1.000	0.916	0.941	0.000	0.929	0.866	0.583	0.500	0.958
	0.810				0.778				0.930				0.942				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chester St & 7th St
City: Oakland
Control: 2-Way Stop(NB/SB)

Project ID: 18-08661-001
Date: 12/12/2018

Bikes

NS/EW Streets:	Chester St				Chester St				7th St				7th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
7:30 AM	0	0	0	0	1	1	0	0	0	2	0	0	0	1	1	0	6
7:45 AM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	3
8:15 AM	0	0	0	0	0	1	0	0	0	1	1	0	0	1	0	0	4
8:30 AM	1	0	0	0	1	1	0	0	0	2	1	0	0	0	0	0	6
8:45 AM	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	0	0	0	2	5	0	0	0	12	6	0	0	4	1	0	31
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	28.57%	71.43%	0.00%	0.00%	0.00%	66.67%	33.33%	0.00%	0.00%	80.00%	20.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	1	0	0	0	1	4	0	0	0	5	4	0	0	1	0	0	16
PEAK HR FACTOR :	0.250	0.000	0.000	0.000	0.250	1.000	0.000	0.000	0.000	0.625	1.000	0.000	0.000	0.250	0.000	0.000	0.667
	0.250				0.625				0.750				0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	1	1	0	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	3	2	0	7
4:15 PM	1	1	2	0	0	0	0	0	0	0	1	0	0	1	0	0	6
4:30 PM	1	0	0	0	0	0	1	0	0	1	0	0	1	2	0	0	6
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	3	1	0	5
5:00 PM	0	0	0	0	0	0	1	0	1	0	0	0	1	2	2	0	7
5:15 PM	3	0	4	0	0	0	0	0	0	1	1	0	0	3	0	0	12
5:30 PM	2	0	1	0	1	0	0	0	0	1	2	0	1	4	0	0	12
5:45 PM	0	0	2	0	0	0	0	0	0	2	1	0	0	3	0	0	8
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	2	9	0	1	0	2	0	1	7	5	0	3	21	5	0	63
APPROACH %'s :	38.89%	11.11%	50.00%	0.00%	33.33%	0.00%	66.67%	0.00%	7.69%	53.85%	38.46%	0.00%	10.34%	72.41%	17.24%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	5	0	7	0	1	0	1	0	1	4	4	0	2	12	2	0	39
PEAK HR FACTOR :	0.42	0.000	0.438	0.000	0.250	0.000	0.250	0.000	0.250	0.500	0.500	0.000	0.500	0.750	0.250	0.000	0.813
	0.429				0.500				0.750				0.800				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chester St & 7th St
City: Oakland
Project ID: 18-08661-001
Date: 12/12/2018

Pedestrians (Crosswalks)

NS/EW Streets:	Chester St		Chester St		7th St		7th St		

AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	5	1	19	3	2	9	0	3	42
7:15 AM	6	2	21	3	1	19	0	0	52
7:30 AM	3	2	24	3	2	19	0	3	56
7:45 AM	5	3	18	1	2	18	1	3	51
8:00 AM	6	3	22	3	1	31	1	4	71
8:15 AM	3	2	22	1	1	17	0	2	48
8:30 AM	3	0	21	0	3	22	1	5	55
8:45 AM	4	2	26	5	2	13	1	4	57
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	35	15	173	19	14	148	4	24	432
APPROACH %'s :	70.00%	30.00%	90.10%	9.90%	8.64%	91.36%	14.29%	85.71%	
PEAK HR :	07:45 AM - 08:45 AM								TOTAL
PEAK HR VOL :	17	8	83	5	7	88	3	14	225
PEAK HR FACTOR :	0.708	0.667	0.943	0.417	0.583	0.710	0.750	0.700	0.792
	0.694		0.880		0.742		0.708		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	2	9	4	6	8	2	4	0	35
4:15 PM	5	8	7	9	10	4	0	0	43
4:30 PM	0	10	7	18	14	0	3	0	52
4:45 PM	5	8	9	16	7	3	4	3	55
5:00 PM	4	10	2	14	19	3	3	0	55
5:15 PM	5	12	6	21	22	2	2	2	72
5:30 PM	2	11	13	20	14	9	2	0	71
5:45 PM	8	15	4	13	14	5	1	0	60
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	31	83	52	117	108	28	19	5	443
APPROACH %'s :	27.19%	72.81%	30.77%	69.23%	79.41%	20.59%	79.17%	20.83%	
PEAK HR :	05:00 PM - 06:00 PM								TOTAL
PEAK HR VOL :	19	48	25	68	69	19	8	2	258
PEAK HR FACTOR :	0.594	0.800	0.481	0.810	0.784	0.528	0.667	0.250	0.896
	0.728		0.705		0.917		0.625		

National Data & Surveying Services

Intersection Turning Movement Count

Location: Center St & 7th St
City: Oakland
Control: Signalized

Project ID: 18-08661-002
Date: 12/12/2018

Total

NS/EW Streets:	Center St				Center St				7th St				7th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	3	0	2	42	0	0	0	46	3	0	96
7:15 AM	0	0	0	0	6	0	4	0	2	58	0	0	0	41	7	0	118
7:30 AM	0	0	0	0	7	0	5	0	6	58	0	0	0	59	9	0	144
7:45 AM	0	0	0	0	2	0	3	0	3	73	0	0	0	58	3	0	142
8:00 AM	0	0	0	0	5	0	6	0	3	61	0	1	0	64	15	0	155
8:15 AM	0	0	0	0	4	0	7	0	5	59	0	0	0	59	10	0	144
8:30 AM	0	0	0	0	5	0	3	0	5	73	0	0	0	74	4	0	164
8:45 AM	0	0	0	0	5	0	4	0	1	62	0	0	0	50	10	0	132
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	34	0	35	0	27	486	0	1	0	451	61	0	1095
APPROACH %'s :					49.28%	0.00%	50.72%	0.00%	5.25%	94.55%	0.00%	0.19%	0.00%	88.09%	11.91%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	16	0	19	0	16	266	0	1	0	255	32	0	605
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.800	0.000	0.679	0.000	0.800	0.911	0.000	0.250	0.000	0.861	0.533	0.000	0.922
					0.795				0.907				0.908				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	7	0	6	0	3	67	0	0	0	40	13	0	136
4:15 PM	0	0	0	0	6	0	5	0	2	101	0	0	0	36	11	1	162
4:30 PM	0	0	0	0	6	0	3	0	1	99	0	0	0	49	12	0	170
4:45 PM	0	0	0	0	5	0	4	0	6	101	0	1	0	48	10	0	175
5:00 PM	0	0	0	0	7	0	8	0	6	114	0	0	0	61	7	1	204
5:15 PM	0	0	0	0	6	0	10	0	3	102	0	0	0	68	11	0	200
5:30 PM	0	0	0	0	3	0	8	0	6	101	0	0	0	64	8	0	190
5:45 PM	0	0	0	0	4	0	4	0	3	107	0	2	0	61	8	0	189
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	44	0	48	0	30	792	0	3	0	427	80	2	1426
APPROACH %'s :					47.83%	0.00%	52.17%	0.00%	3.64%	96.00%	0.00%	0.36%	0.00%	83.89%	15.72%	0.39%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	20	0	30	0	18	424	0	2	0	254	34	1	783
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.714	0.000	0.750	0.000	0.750	0.930	0.000	0.250	0.000	0.934	0.773	0.250	0.960
					0.781				0.925				0.915				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Center St & 7th St
City: Oakland
Control: Signalized

Project ID: 18-08661-002
Date: 12/12/2018

Bikes

NS/EW Streets:	Center St				Center St				7th St				7th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	4	0	0	0	0	1	0	3	2	0	0	10
7:15 AM	0	6	0	0	0	2	0	0	0	0	0	0	2	2	0	0	12
7:30 AM	0	1	4	0	0	0	0	0	0	2	0	0	8	0	0	0	15
7:45 AM	0	0	1	0	0	7	0	0	0	1	0	0	0	1	0	0	10
8:00 AM	0	10	2	0	0	5	0	0	0	0	0	0	11	1	0	0	29
8:15 AM	0	2	1	0	0	3	0	0	0	0	0	0	8	0	0	0	14
8:30 AM	0	5	6	0	0	6	0	0	0	1	0	0	7	0	0	0	25
8:45 AM	0	1	1	0	0	4	0	0	0	1	0	0	10	0	0	0	17
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	25	15	0	0	31	0	0	0	5	1	0	49	6	0	0	132
APPROACH %'s :	0.00%	62.50%	37.50%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	83.33%	16.67%	0.00%	89.09%	10.91%	0.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	17	10	0	0	21	0	0	0	2	0	0	26	2	0	0	78
PEAK HR FACTOR :	0.000	0.425	0.417	0.000	0.000	0.750	0.000	0.000	0.000	0.500	0.000	0.000	0.591	0.500	0.000	0.000	0.672
	0.563				0.750				0.500				0.583				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	1	2	0	0	1	0	0	1	1	0	0	0	0	0	0	8
4:15 PM	0	1	4	0	0	1	0	0	0	2	0	0	2	1	0	0	11
4:30 PM	2	1	5	0	0	4	1	0	0	1	0	0	2	0	0	0	16
4:45 PM	1	3	8	0	0	4	1	0	0	0	0	0	3	1	0	0	21
5:00 PM	1	1	8	0	1	2	0	0	0	1	0	0	6	1	0	1	22
5:15 PM	1	2	9	0	0	1	0	0	0	1	0	0	5	4	0	0	23
5:30 PM	0	4	3	0	0	1	0	0	0	2	0	0	7	2	1	0	20
5:45 PM	0	6	6	0	0	3	0	0	0	0	0	0	3	3	0	0	21
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	19	45	0	1	17	2	0	1	8	0	0	28	12	1	1	142
APPROACH %'s :	9.86%	26.76%	63.38%	0.00%	5.00%	85.00%	10.00%	0.00%	11.11%	88.89%	0.00%	0.00%	66.67%	28.57%	2.38%	2.38%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	2	13	26	0	1	7	0	0	0	4	0	0	21	10	1	1	86
PEAK HR FACTOR :	0.50	0.542	0.722	0.000	0.250	0.583	0.000	0.000	0.000	0.500	0.000	0.000	0.750	0.625	0.250	0.250	0.935
	0.854				0.667				0.500				0.825				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Center St & 7th St **Project ID:** 18-08661-002
City: Oakland **Date:** 12/12/2018

Pedestrians (Crosswalks)

NS/EW Streets:	Center St		Center St		7th St		7th St		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	4	1	0	0	1	7	7	14	34
7:15 AM	5	5	0	0	5	10	19	32	76
7:30 AM	3	1	0	0	3	17	15	26	65
7:45 AM	2	3	0	0	4	12	8	22	51
8:00 AM	1	1	0	0	6	17	5	29	59
8:15 AM	2	2	0	0	4	17	11	33	69
8:30 AM	2	2	0	0	5	17	1	25	52
8:45 AM	3	3	0	0	2	16	5	19	48
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	22	18	0	0	30	113	71	200	454
APPROACH %'s :	55.00%	45.00%			20.98%	79.02%	26.20%	73.80%	
PEAK HR :	07:45 AM - 08:45 AM								TOTAL
PEAK HR VOL :	7	8	0	0	19	63	25	109	231
PEAK HR FACTOR :	0.875	0.667			0.792	0.926	0.568	0.826	0.837
	0.750				0.891		0.761		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	7	3	0	0	7	4	17	7	45
4:15 PM	4	10	0	0	11	0	26	4	55
4:30 PM	9	5	0	0	8	4	32	11	69
4:45 PM	8	2	0	0	8	8	32	10	68
5:00 PM	9	5	0	0	8	4	32	18	76
5:15 PM	10	4	0	0	16	5	29	9	73
5:30 PM	6	7	0	0	15	6	15	9	58
5:45 PM	9	5	0	0	26	2	42	10	94
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	62	41	0	0	99	33	225	78	538
APPROACH %'s :	60.19%	39.81%			75.00%	25.00%	74.26%	25.74%	
PEAK HR :	05:00 PM - 06:00 PM								TOTAL
PEAK HR VOL :	34	21	0	0	65	17	118	46	301
PEAK HR FACTOR :	0.850	0.750			0.625	0.708	0.702	0.639	0.801
	0.982				0.732		0.788		

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mandela Pkwy & 7th St
City: Oakland
Control: Signalized

Project ID: 18-08661-003
Date: 12/12/2018

Total

NS/EW Streets:	Mandela Pkwy					Mandela Pkwy					7th St					7th St											
AM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					NORTHBOUND2						
	0	1	0	0	0	1	1	0	0	0	1	2	0	0	0	1	2	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L	N2U	N2L2	N2T2	N2R2	N2U2	TOTAL
7:00 AM	5	17	14	0	0	10	44	4	2	3	10	30	6	0	2	30	42	8	0	5		0	0	0	1	0	233
7:15 AM	3	11	18	0	0	7	53	1	1	0	13	40	5	0	1	35	45	14	0	1		0	0	0	2	0	250
7:30 AM	2	23	15	0	0	13	55	9	0	2	11	51	7	0	0	40	57	9	1	4		0	0	0	0	0	299
7:45 AM	3	19	16	0	0	11	60	6	1	3	14	56	7	0	1	39	52	22	0	7		0	0	0	1	0	318
8:00 AM	8	29	18	0	0	13	79	5	2	4	21	40	3	0	0	44	58	20	0	9		0	0	0	0	0	353
8:15 AM	7	23	20	0	0	19	69	10	4	1	13	44	7	0	0	49	49	22	0	6		0	0	1	0	0	344
8:30 AM	5	45	16	0	0	22	75	15	1	5	17	57	6	0	0	51	61	16	0	10		0	0	0	0	0	402
8:45 AM	7	31	13	0	0	20	55	7	1	2	13	41	7	0	2	34	44	15	0	4		0	0	0	0	0	296
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L	N2U	N2L2	N2T2	N2R2	N2U2	TOTAL
TOTAL VOLUMES :	40	198	130	0	0	115	490	57	12	20	112	359	48	0	6	322	408	126	1	46	0	0	0	1	4	0	2495
APPROACH %'s :	10.87%	53.80%	35.33%	0.00%	0.00%	16.57%	70.61%	8.21%	1.73%	2.88%	21.33%	68.38%	9.14%	0.00%	1.14%	35.66%	45.18%	13.95%	0.11%	5.09%	0.00%	0.00%	0.00%	20.00%	80.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																										TOTAL
PEAK HR VOL :	23	116	70	0	0	65	283	36	8	13	65	197	23	0	1	183	220	80	0	32	0	0	0	1	1	0	1417
PEAK HR FACTOR :	0.719	0.644	0.875	0.000	0.000	0.739	0.896	0.600	0.500	0.650	0.774	0.864	0.821	0.000	0.250	0.897	0.902	0.909	0.000	0.800	0.000	0.000	0.000	0.250	0.250	0.000	0.881
			0.792					0.858					0.894					0.933					0.500				

PM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					NORTHBOUND2						
	0	1	0	0	0	1	1	0	0	0	1	2	0	0	0	1	2	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L	N2U	N2L2	N2T2	N2R2	N2U2	TOTAL
4:00 PM	7	40	20	0	0	25	38	8	1	4	19	56	4	0	2	23	39	20	0	1		0	0	0	0	0	307
4:15 PM	6	42	26	0	0	26	28	8	0	3	24	68	8	0	0	26	32	11	0	2		0	0	0	0	0	310
4:30 PM	6	42	34	0	0	31	50	10	0	5	11	93	3	0	3	34	43	23	1	0		0	0	1	0	0	390
4:45 PM	7	47	26	0	0	32	51	10	3	4	17	82	6	0	1	33	46	35	0	4		0	0	0	0	0	404
5:00 PM	8	50	36	0	0	34	51	10	1	1	21	81	6	0	3	25	41	25	1	7		0	0	1	1	0	403
5:15 PM	13	53	23	0	0	25	59	7	5	2	20	84	9	0	3	43	61	21	0	3		0	0	0	8	0	439
5:30 PM	9	46	32	0	0	31	73	10	1	4	14	72	13	0	2	43	53	25	1	3		0	0	0	2	0	434
5:45 PM	9	56	30	0	0	25	52	10	0	2	20	75	14	0	0	26	43	15	2	5		0	1	0	1	0	386
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L	N2U	N2L2	N2T2	N2R2	N2U2	TOTAL
TOTAL VOLUMES :	65	376	227	0	0	229	402	73	11	25	146	611	63	0	14	253	358	175	5	25	0	0	1	2	12	0	3073
APPROACH %'s :	9.73%	56.29%	33.98%	0.00%	0.00%	30.95%	54.32%	9.86%	1.49%	3.38%	17.51%	73.26%	7.55%	0.00%	1.68%	31.00%	43.87%	21.45%	0.61%	3.06%	0.00%	0.00%	6.67%	13.33%	80.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																										TOTAL
PEAK HR VOL :	37	196	117	0	0	122	234	37	10	11	72	319	34	0	9	144	201	106	2	17	0	0	0	1	11	0	1680
PEAK HR FACTOR :	0.712	0.925	0.813	0.000	0.000	0.897	0.801	0.925	0.500	0.688	0.857	0.949	0.654	0.000	0.750	0.837	0.824	0.757	0.500	0.607	0.000	0.000	0.000	0.250	0.344	0.000	0.957
			0.931					0.870					0.935					0.918					0.375				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mandela Pkwy & 7th St
City: Oakland
Control: Signalized

Project ID: 18-08661-003
Date: 12/12/2018

Bikes

NS/EW Streets:	Mandela Pkwy					Mandela Pkwy					7th St					7th St											
AM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					NORTHBOUND2						
	0	1	0	0	0	1	1	0	0	0	1	2	0	0	0	1	2	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L	N2U	N2L2	N2T2	N2R2	N2U2	TOTAL
7:00 AM	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	1	0	0	0	0		0	0	0	0	0	9
7:15 AM	0	1	0	0	0	0	1	2	0	0	0	1	2	0	0	0	1	0	0	0		0	0	0	0	0	8
7:30 AM	1	0	0	0	0	0	5	8	0	0	5	1	1	0	0	0	1	0	0	0		0	0	0	0	0	22
7:45 AM	0	1	0	0	0	0	3	4	0	0	3	2	0	0	0	0	0	0	0	0		0	0	0	0	0	13
8:00 AM	0	0	0	0	0	0	9	12	0	0	1	0	0	0	0	0	3	2	0	0		0	0	0	0	0	27
8:15 AM	0	1	0	0	0	0	10	6	0	0	2	0	0	0	0	0	2	0	0	0		0	0	0	0	0	21
8:30 AM	0	0	0	0	0	0	9	8	0	0	4	1	0	0	0	0	0	0	0	0		0	0	0	0	0	22
8:45 AM	0	0	0	0	0	0	8	8	0	0	5	0	0	0	0	0	0	0	0	0		0	0	0	0	0	21
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L	N2U	N2L2	N2T2	N2R2	N2U2	TOTAL
TOTAL VOLUMES :	1	3	0	0	0	0	49	52	0	0	20	5	3	0	0	1	7	2	0	0	0	0	0	0	0	0	143
APPROACH %'s :	25.00%	75.00%	0.00%	0.00%	0.00%	0.00%	48.51%	51.49%	0.00%	0.00%	71.43%	17.86%	10.71%	0.00%	0.00%	10.00%	70.00%	20.00%	0.00%	0.00%							
PEAK HR :	07:45 AM - 08:45 AM																										TOTAL
PEAK HR VOL :	0	2	0	0	0	0	31	30	0	0	10	3	0	0	0	0	5	2	0	0	0	0	0	0	0	0	83
PEAK HR FACTOR :	0.000	0.500	0.000	0.000	0.000	0.000	0.775	0.625	0.000	0.000	0.625	0.375	0.000	0.000	0.000	0.000	0.417	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.769
			0.500					0.726					0.650					0.350									

	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					NORTHBOUND2						
PM	0	1	0	0	0	1	1	0	0	0	1	2	0	0	0	1	2	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L	N2U	N2L2	N2T2	N2R2	N2U2	TOTAL
4:00 PM	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0		0	0	0	0	0	3
4:15 PM	0	4	0	0	0	0	0	0	0	0	5	3	0	0	0	0	1	0	0	0		0	0	0	0	0	13
4:30 PM	0	6	0	0	0	0	0	3	0	0	6	1	0	0	0	0	1	0	0	0		0	0	0	0	0	17
4:45 PM	0	2	0	0	0	0	2	4	0	0	6	0	0	0	0	0	1	0	0	0		0	0	0	1	0	16
5:00 PM	0	3	0	0	0	0	0	3	0	0	10	1	0	0	0	0	5	2	0	0		0	0	0	0	0	24
5:15 PM	1	8	1	0	0	0	1	5	0	0	7	1	0	0	0	0	3	0	0	0		0	0	0	0	0	27
5:30 PM	1	7	0	0	0	0	3	6	0	0	5	2	0	0	0	1	2	0	0	0		0	0	0	0	0	27
5:45 PM	0	10	1	0	0	0	1	4	0	0	5	1	0	0	0	0	0	0	0	0		0	0	0	0	0	22
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L	N2U	N2L2	N2T2	N2R2	N2U2	TOTAL
TOTAL VOLUMES :	2	41	2	0	0	0	8	25	0	0	45	9	0	0	0	1	13	2	0	0	0	0	0	0	1	0	149
APPROACH %'s :	4.44%	91.11%	4.44%	0.00%	0.00%	0.00%	24.24%	75.76%	0.00%	0.00%	83.33%	16.67%	0.00%	0.00%	0.00%	6.25%	81.25%	12.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																										TOTAL
PEAK HR VOL :	2	20	1	0	0	0	6	18	0	0	28	4	0	0	0	1	11	2	0	0	0	0	0	0	1	0	94
PEAK HR FACTOR :	0.50	0.625	0.250	0.000	0.000	0.000	0.500	0.750	0.000	0.000	0.700	0.500	0.000	0.000	0.000	0.250	0.550	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.870
			0.575					0.667					0.727					0.500					0.250				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mandela Pkwy & 7th St
City: Oakland
Project ID: 18-08651-003
Date: 12/12/2018

Pedestrians (Crosswalks)

NS/EW Streets:	Mandela Pkwy		Mandela Pkwy		7th St		7th St				
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SOUTH LEG 2		
	EB	WB	EB	WB	NB	SB	NB	SB	EB	WB	TOTAL
7:00 AM	0	0	2	5	0	0	0	0	2	5	14
7:15 AM	0	0	4	17	0	0	0	0	4	17	42
7:30 AM	0	0	5	15	0	0	0	0	5	15	40
7:45 AM	0	0	6	23	0	0	0	0	6	23	58
8:00 AM	0	0	3	7	0	0	0	0	3	7	20
8:15 AM	0	0	3	24	0	0	0	0	3	24	54
8:30 AM	0	0	1	12	0	0	0	0	1	12	26
8:45 AM	0	0	3	17	0	0	0	0	3	17	40
	EB	WB	EB	WB	NB	SB	NB	SB	EB	WB	TOTAL
TOTAL VOLUMES :	0	0	27	120	0	0	0	0	27	120	294
APPROACH %'s :			18.37%	81.63%					18.37%	81.63%	
PEAK HR :	07:45 AM - 08:45 AM										TOTAL
PEAK HR VOL :	0	0	13	66	0	0	0	0	13	66	158
PEAK HR FACTOR :			0.542	0.688					0.542	0.688	
			0.681						0.681		0.681

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		SOUTH LEG 2		
	EB	WB	EB	WB	NB	SB	NB	SB	EB	WB	TOTAL
4:00 PM	0	0	7	1	0	0	0	0	7	1	16
4:15 PM	0	0	10	1	0	0	0	0	10	1	22
4:30 PM	0	0	13	5	0	0	0	0	13	5	36
4:45 PM	0	0	10	5	0	0	0	0	10	5	30
5:00 PM	0	0	14	1	0	0	0	0	14	1	30
5:15 PM	0	0	18	5	0	0	0	0	18	5	46
5:30 PM	0	0	29	1	0	0	0	0	29	1	60
5:45 PM	0	0	14	2	0	0	0	0	14	2	32
	EB	WB	EB	WB	NB	SB	NB	SB	EB	WB	TOTAL
TOTAL VOLUMES :	0	0	115	21	0	0	0	0	115	21	272
APPROACH %'s :			84.56%	15.44%					84.56%	15.44%	
PEAK HR :	04:45 PM - 05:45 PM										TOTAL
PEAK HR VOL :	0	0	71	12	0	0	0	0	71	12	166
PEAK HR FACTOR :			0.612	0.600					0.612	0.600	
			0.692						0.692		0.692

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chester St & 5th St
City: Oakland
Control: 2-Way Stop(NB/SB)

Project ID: 18-08661-004
Date: 12/12/2018

Total

NS/EW Streets:	Chester St				Chester St				5th St				5th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	1	0	0	10	3	0	0	1	5	1	0	1	2	5	0	29
7:15 AM	0	1	2	0	8	1	2	0	1	14	0	0	1	7	6	0	43
7:30 AM	0	1	2	0	9	3	1	0	0	10	0	0	4	4	10	0	44
7:45 AM	1	0	2	0	5	2	0	0	1	10	0	0	2	6	6	0	35
8:00 AM	0	1	3	0	7	1	0	0	0	11	0	0	0	5	8	0	36
8:15 AM	0	0	4	0	9	0	4	0	2	9	0	0	4	5	12	0	49
8:30 AM	0	2	1	0	10	3	6	0	0	11	0	0	0	12	7	0	52
8:45 AM	0	0	5	0	12	0	3	0	0	7	0	0	1	7	13	0	48
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	6	19	0	70	13	16	0	5	77	1	0	13	48	67	0	336
APPROACH %'s :	3.85%	23.08%	73.08%	0.00%	70.71%	13.13%	16.16%	0.00%	6.02%	92.77%	1.20%	0.00%	10.16%	37.50%	52.34%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	3	13	0	38	4	13	0	2	38	0	0	5	29	40	0	185
PEAK HR FACTOR :	0.000	0.375	0.650	0.000	0.792	0.333	0.542	0.000	0.250	0.864	0.000	0.000	0.313	0.604	0.769	0.000	0.889
	0.800				0.724				0.909				0.881				

	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
PM	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	3	1	0	1	0	2	0	2	8	2	0	3	8	7	0	37
4:15 PM	2	3	1	0	7	1	0	0	1	8	0	0	1	4	5	0	33
4:30 PM	0	3	3	0	6	2	1	0	3	13	0	0	1	7	9	0	48
4:45 PM	0	2	2	0	7	2	2	0	1	7	0	0	3	8	7	0	41
5:00 PM	1	0	1	0	9	0	0	0	1	5	2	0	4	14	17	1	55
5:15 PM	0	3	3	0	9	1	5	0	3	6	1	0	2	12	9	1	55
5:30 PM	0	1	3	0	10	1	4	0	1	10	1	0	7	10	18	2	68
5:45 PM	1	3	3	0	7	3	2	0	1	8	0	1	4	18	14	1	66
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	18	17	0	56	10	16	0	13	65	6	1	25	81	86	5	403
APPROACH %'s :	10.26%	46.15%	43.59%	0.00%	68.29%	12.20%	19.51%	0.00%	15.29%	76.47%	7.06%	1.18%	12.69%	41.12%	43.65%	2.54%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	2	7	10	0	35	5	11	0	6	29	4	1	17	54	58	5	244
PEAK HR FACTOR :	0.500	0.583	0.833	0.000	0.875	0.417	0.550	0.000	0.500	0.725	0.500	0.250	0.607	0.750	0.806	0.625	0.897
	0.679				0.850				0.833				0.905				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chester St & 5th St
City: Oakland
Control: 2-Way Stop(NB/SB)

Project ID: 18-08661-004
Date: 12/12/2018

Bikes

NS/EW Streets:	Chester St				Chester St				5th St				5th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
7:45 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1	1	0	0	0	0	0	0	2	1	0	0	0	0	0	0	5
APPROACH %'s :	50.00%	50.00%	0.00%	0.00%					66.67%	33.33%	0.00%	0.00%					
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500
	0.250								0.250								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	2	1	0	0	0	1	0	0	4
5:00 PM	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	2	0	1	0	2	4	1	0	0	2	0	0	12
APPROACH %'s :					66.67%	0.00%	33.33%	0.00%	28.57%	57.14%	14.29%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	2	0	0	0	0	2	1	0	0	1	0	0	6
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.500	0.250	0.000	0.000	0.250	0.000	0.000	0.750
					0.500				0.750				0.250				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Chester St & 5th St **Project ID:** 18-08661-004
City: Oakland **Date:** 12/12/2018

Pedestrians (Crosswalks)

NS/EW Streets:	Chester St		Chester St		5th St		5th St		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	1	0	0	0	0	0	0	0	1
7:15 AM	3	0	0	0	0	0	0	0	3
7:30 AM	3	1	0	0	0	0	0	0	4
7:45 AM	4	0	0	0	0	0	0	0	4
8:00 AM	9	0	0	0	0	0	0	0	9
8:15 AM	3	0	0	0	0	0	0	0	3
8:30 AM	11	0	0	0	0	0	0	0	11
8:45 AM	8	0	0	0	0	0	0	0	8
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	42	1	0	0	0	0	0	0	43
APPROACH %'s :	97.67%	2.33%							
PEAK HR :	08:00 AM - 09:00 AM								TOTAL
PEAK HR VOL :	31	0	0	0	0	0	0	0	31
PEAK HR FACTOR :	0.705								0.705
	0.705								

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	6	0	0	2	1	0	5	14
4:15 PM	0	3	1	1	1	1	0	1	8
4:30 PM	1	4	0	0	0	0	0	0	5
4:45 PM	1	1	0	1	0	2	0	0	5
5:00 PM	2	5	0	1	0	0	1	3	12
5:15 PM	2	4	0	4	0	4	2	1	17
5:30 PM	4	4	0	0	2	2	2	3	17
5:45 PM	3	7	0	6	2	5	3	4	30
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	13	34	1	13	7	15	8	17	108
APPROACH %'s :	27.66%	72.34%	7.14%	92.86%	31.82%	68.18%	32.00%	68.00%	
PEAK HR :	05:00 PM - 06:00 PM								TOTAL
PEAK HR VOL :	11	20	0	11	4	11	8	11	76
PEAK HR FACTOR :	0.688	0.714		0.458	0.500	0.550	0.667	0.688	0.633
	0.775		0.458		0.536		0.679		

National Data & Surveying Services

Intersection Turning Movement Count

Location: Center St & 5th St
City: Oakland
Control: 1-Way Stop(NB)

Project ID: 18-08661-005
Date: 12/12/2018

Total

NS/EW Streets:	Center St				Center St				5th St				5th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	1	0	1	0	0	0	0	0	0	23	1	0	3	18	0	2	49
7:15 AM	0	0	4	0	0	0	0	0	0	30	3	0	2	22	0	2	63
7:30 AM	1	0	3	0	0	0	0	0	0	25	4	0	2	29	0	0	64
7:45 AM	0	0	7	0	0	0	0	0	0	30	1	0	4	28	0	0	70
8:00 AM	0	0	5	0	0	0	0	0	0	29	0	0	2	17	0	0	53
8:15 AM	1	0	5	0	0	0	0	0	0	47	1	0	2	34	0	2	92
8:30 AM	1	0	5	0	0	0	0	0	0	37	2	0	2	34	0	0	81
8:45 AM	0	0	9	0	0	0	0	0	0	39	1	1	1	35	0	0	86
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	0	39	0	0	0	0	0	0	260	13	1	18	217	0	6	558
APPROACH %'s :	9.30%	0.00%	90.70%	0.00%					0.00%	94.89%	4.74%	0.36%	7.47%	90.04%	0.00%	2.49%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	2	0	24	0	0	0	0	0	0	152	4	1	7	120	0	2	312
PEAK HR FACTOR :	0.500	0.000	0.667	0.000	0.000	0.000	0.000	0.000	0.000	0.809	0.500	0.250	0.875	0.857	0.000	0.250	0.848
	0.722								0.818				0.849				

	Center St				Center St				5th St				5th St				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	0	7	0	0	0	0	0	0	18	0	0	5	18	0	0	50
4:15 PM	0	0	7	0	0	0	0	0	0	21	0	0	3	13	0	0	44
4:30 PM	1	0	6	0	0	0	0	0	0	33	1	0	5	23	0	1	70
4:45 PM	0	0	4	0	0	0	0	0	0	24	0	0	6	28	0	0	62
5:00 PM	2	0	0	0	0	0	0	0	0	29	1	0	1	40	0	0	73
5:15 PM	2	0	6	0	0	0	0	0	0	27	1	0	6	34	0	2	78
5:30 PM	2	0	6	0	0	0	0	0	0	43	1	0	3	36	0	3	94
5:45 PM	0	0	2	0	0	0	0	0	0	35	3	0	6	44	0	0	90
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	9	0	38	0	0	0	0	0	0	230	7	0	35	236	0	6	561
APPROACH %'s :	19.15%	0.00%	80.85%	0.00%					0.00%	97.05%	2.95%	0.00%	12.64%	85.20%	0.00%	2.17%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	6	0	14	0	0	0	0	0	0	134	6	0	16	154	0	5	335
PEAK HR FACTOR :	0.750	0.000	0.583	0.000	0.000	0.000	0.000	0.000	0.000	0.779	0.500	0.000	0.667	0.875	0.000	0.417	0.891
	0.625								0.795				0.875				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Center St & 5th St
City: Oakland
Control: 1-Way Stop(NB)

Project ID: 18-08661-005
Date: 12/12/2018

Bikes

NS/EW Streets:	Center St				Center St				5th St				5th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	0	0	0	0	0	3	0	0	1	2	0	0	7
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%					0.00%	100.00%	0.00%	0.00%	33.33%	66.67%	0.00%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	4
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.250	0.000	0.000	0.500
									0.500				0.250				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	5	1	0	0	3	0	0	9
APPROACH %'s :									0.00%	83.33%	16.67%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	5
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.500	0.000	0.000	0.625
									0.750				0.500				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Center St & 5th St
City: Oakland
Project ID: 18-08661-005
Date: 12/12/2018

Pedestrians (Crosswalks)

NS/EW Streets:	Center St		Center St		5th St		5th St		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	0	0	1	0	0	1	0	1	3
7:15 AM	0	0	2	0	3	0	0	0	5
7:30 AM	0	0	0	0	1	0	3	0	4
7:45 AM	0	0	0	0	1	0	3	0	4
8:00 AM	0	0	0	0	1	0	1	0	2
8:15 AM	0	0	0	0	0	0	3	0	3
8:30 AM	0	0	0	0	0	0	0	1	1
8:45 AM	0	0	0	0	0	0	2	2	4
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	3	0	6	1	12	4	26
APPROACH %'s :			100.00%	0.00%	85.71%	14.29%	75.00%	25.00%	
PEAK HR :	08:00 AM - 09:00 AM								TOTAL
PEAK HR VOL :	0	0	0	0	1	0	6	3	10
PEAK HR FACTOR :					0.250		0.500	0.375	0.625
					0.250		0.563		

	Center St		Center St		5th St		5th St		
PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	0	0	0	1	0	0	0	1	2
4:15 PM	0	0	0	0	0	1	0	1	2
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	0	0	0	4	2	7
5:00 PM	0	0	0	0	1	1	0	1	3
5:15 PM	0	0	2	0	0	0	0	3	5
5:30 PM	0	0	0	1	0	0	2	1	4
5:45 PM	0	0	0	0	1	0	2	0	3
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	0	0	3	2	2	2	8	9	26
APPROACH %'s :			60.00%	40.00%	50.00%	50.00%	47.06%	52.94%	
PEAK HR :	05:00 PM - 06:00 PM								TOTAL
PEAK HR VOL :	0	0	2	1	2	1	4	5	15
PEAK HR FACTOR :			0.250	0.250	0.500	0.250	0.500	0.417	0.750
			0.375		0.375		0.750		

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mandela Pkwy & 5th St
City: Oakland
Control: Signalized

Project ID: 18-08661-006
Date: 12/12/2018

Total

NS/EW Streets:	Mandela Pkwy				Mandela Pkwy				5th St				5th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	3	6	6	0	22	8	5	0	6	23	3	0	3	23	10	0	118
7:15 AM	0	9	3	0	23	4	6	0	7	31	5	0	10	22	21	0	141
7:30 AM	2	6	2	0	20	11	10	0	3	28	3	0	10	29	19	0	143
7:45 AM	3	4	8	0	17	12	8	0	6	31	7	0	1	23	19	0	139
8:00 AM	1	7	3	0	23	7	4	0	8	26	9	0	3	19	13	0	123
8:15 AM	4	10	4	0	17	11	9	0	11	41	10	0	8	35	13	1	174
8:30 AM	3	12	7	0	30	10	7	0	13	31	8	0	5	36	17	0	179
8:45 AM	1	6	3	0	16	10	2	0	15	24	18	0	3	32	16	0	146
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	17	60	36	0	168	73	51	0	69	235	63	0	43	219	128	1	1163
APPROACH %'s :	15.04%	53.10%	31.86%	0.00%	57.53%	25.00%	17.47%	0.00%	18.80%	64.03%	17.17%	0.00%	11.00%	56.01%	32.74%	0.26%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	9	35	17	0	86	38	22	0	47	122	45	0	19	122	59	1	622
PEAK HR FACTOR :	0.563	0.729	0.607	0.000	0.717	0.864	0.611	0.000	0.783	0.744	0.625	0.000	0.594	0.847	0.868	0.250	0.869
	0.693				0.777				0.863				0.866				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	12	4	0	11	12	9	1	13	14	7	0	1	17	9	0	112
4:15 PM	0	19	4	0	9	15	4	0	10	29	7	0	6	19	18	0	140
4:30 PM	8	17	10	0	16	19	10	0	15	24	7	0	9	22	28	0	185
4:45 PM	6	16	16	0	11	18	6	0	9	20	3	0	4	26	27	0	162
5:00 PM	13	31	20	0	11	15	12	0	8	25	11	0	9	31	31	0	217
5:15 PM	3	28	16	0	13	25	13	0	21	24	9	0	4	37	26	0	219
5:30 PM	7	18	6	0	10	35	12	0	19	37	13	0	13	23	23	0	216
5:45 PM	9	25	4	0	11	33	12	0	19	23	3	0	12	31	22	0	204
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	48	166	80	0	92	172	78	1	114	196	60	0	58	206	184	0	1455
APPROACH %'s :	16.33%	56.46%	27.21%	0.00%	26.82%	50.15%	22.74%	0.29%	30.81%	52.97%	16.22%	0.00%	12.95%	45.98%	41.07%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	32	102	46	0	45	108	49	0	67	109	36	0	38	122	102	0	856
PEAK HR FACTOR :	0.615	0.823	0.575	0.000	0.865	0.771	0.942	0.000	0.798	0.736	0.692	0.000	0.731	0.824	0.823	0.000	0.977
	0.703				0.886				0.768				0.923				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mandela Pkwy & 5th St
City: Oakland
Control: Signalized

Project ID: 18-08661-006
Date: 12/12/2018

Bikes

NS/EW Streets:	Mandela Pkwy				Mandela Pkwy				5th St				5th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	3
7:30 AM	0	1	0	0	0	2	0	0	0	1	0	0	0	0	0	0	4
7:45 AM	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	0	1	0	6
8:15 AM	0	2	0	0	0	4	0	0	0	0	2	0	0	0	0	0	8
8:30 AM	2	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	5
8:45 AM	0	1	0	0	0	1	1	0	0	1	0	0	0	0	0	0	4
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	5	0	0	0	17	1	0	0	3	2	0	0	1	3	0	34
APPROACH %'s :	28.57%	71.43%	0.00%	0.00%	0.00%	94.44%	5.56%	0.00%	0.00%	60.00%	40.00%	0.00%	0.00%	25.00%	75.00%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	2	3	0	0	0	11	1	0	0	1	2	0	0	0	3	0	23
PEAK HR FACTOR :	0.250	0.375	0.000	0.000	0.000	0.550	0.250	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.375	0.000	0.719
		0.625				0.600				0.375				0.375			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
4:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
4:45 PM	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	3
5:00 PM	1	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4
5:15 PM	2	4	0	0	0	0	0	0	0	0	2	0	0	0	1	0	9
5:30 PM	1	3	0	0	2	4	0	0	0	1	0	0	0	0	0	0	11
5:45 PM	0	2	0	0	0	3	0	0	0	0	1	0	0	0	0	0	6
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	6	13	0	0	3	11	0	0	2	1	3	0	0	0	1	0	40
APPROACH %'s :	31.58%	68.42%	0.00%	0.00%	21.43%	78.57%	0.00%	0.00%	33.33%	16.67%	50.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	4	11	0	0	3	7	0	0	0	1	3	0	0	0	1	0	30
PEAK HR FACTOR :	0.50	0.688	0.000	0.000	0.375	0.438	0.000	0.000	0.000	0.250	0.375	0.000	0.000	0.000	0.250	0.000	0.682
		0.625				0.417				0.500				0.250			

National Data & Surveying Services

Intersection Turning Movement Count

Location: Mandela Pkwy & 5th St
City: Oakland

Project ID: 18-08661-006
Date: 12/12/2018

Pedestrians (Crosswalks)

NS/EW Streets:	Mandela Pkwy		Mandela Pkwy		5th St		5th St		
AM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
7:00 AM	2	9	0	5	7	2	6	2	33
7:15 AM	0	7	0	14	8	2	13	2	46
7:30 AM	1	7	0	18	7	0	20	1	54
7:45 AM	2	19	1	22	16	2	20	8	90
8:00 AM	0	23	1	25	18	0	24	5	96
8:15 AM	3	28	0	24	24	3	24	0	106
8:30 AM	0	28	0	19	28	0	19	1	95
8:45 AM	0	29	1	21	28	0	20	5	104
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	8	150	3	148	136	9	146	24	624
APPROACH %'s :	5.06%	94.94%	1.99%	98.01%	93.79%	6.21%	85.88%	14.12%	
PEAK HR :	**08:00 AM - 09:00 AM**								TOTAL
PEAK HR VOL :	3	108	2	89	98	3	87	11	401
PEAK HR FACTOR :	0.250	0.931	0.500	0.890	0.875	0.250	0.906	0.550	0.946
	0.895		0.875		0.902		0.845		

PM	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG		
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
4:00 PM	6	0	7	0	0	8	1	4	26
4:15 PM	15	3	8	1	1	12	6	8	54
4:30 PM	21	1	18	0	2	20	3	15	80
4:45 PM	15	1	12	1	0	13	3	13	58
5:00 PM	26	1	4	2	1	21	5	5	65
5:15 PM	14	2	8	1	2	18	6	9	60
5:30 PM	25	5	17	4	1	18	2	20	92
5:45 PM	17	6	10	0	3	20	1	11	68
	EB	WB	EB	WB	NB	SB	NB	SB	TOTAL
TOTAL VOLUMES :	139	19	84	9	10	130	27	85	503
APPROACH %'s :	87.97%	12.03%	90.32%	9.68%	7.14%	92.86%	24.11%	75.89%	
PEAK HR :	**05:00 PM - 06:00 PM**								TOTAL
PEAK HR VOL :	82	14	39	7	7	77	14	45	285
PEAK HR FACTOR :	0.788	0.583	0.574	0.438	0.583	0.917	0.583	0.563	0.774
	0.800		0.548		0.913		0.670		

APPENDIX B

INTERSECTION OPERATIONS

WORKSHEETS

Intersection	
Int Delay, s/veh	9.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	136	56	91	136	17	63	38	138	4	20	5
Future Vol, veh/h	7	136	56	91	136	17	63	38	138	4	20	5
Conflicting Peds, #/hr	67	0	93	93	0	67	10	0	88	88	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	60	-	-	55	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	7	136	56	91	136	17	63	38	138	4	20	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	220	0	0	285	0	0	620	673	345	748	693	222
Stage 1	-	-	-	-	-	-	271	271	-	394	394	-
Stage 2	-	-	-	-	-	-	349	402	-	354	299	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1343	-	-	1271	-	-	399	375	696	327	366	815
Stage 1	-	-	-	-	-	-	733	683	-	629	603	-
Stage 2	-	-	-	-	-	-	665	599	-	661	664	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1332	-	-	1178	-	-	322	300	595	186	293	763
Mov Cap-2 Maneuver	-	-	-	-	-	-	322	300	-	186	293	-
Stage 1	-	-	-	-	-	-	673	627	-	591	525	-
Stage 2	-	-	-	-	-	-	581	522	-	440	609	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	3.1	23.3	18.2
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	431	1332	-	-	1178	-	-	301
HCM Lane V/C Ratio	0.555	0.005	-	-	0.077	-	-	0.096
HCM Control Delay (s)	23.3	7.7	-	-	8.3	-	-	18.2
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	3.3	0	-	-	0.3	-	-	0.3

HCM Signalized Intersection Capacity Analysis
2: 7th Street & Center Street

01/11/2019

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	17	266	255	32	16	19
Future Volume (vph)	17	266	255	32	16	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		3.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.99		0.90	
Flpb, ped/bikes	0.94	1.00	1.00		1.00	
Frt	1.00	1.00	0.98		0.93	
Flt Protected	0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1656	1845	1796		1501	
Flt Permitted	0.58	1.00	1.00		0.98	
Satd. Flow (perm)	1018	1845	1796		1501	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	17	266	255	32	16	19
RTOR Reduction (vph)	0	0	5	0	17	0
Lane Group Flow (vph)	17	266	282	0	18	0
Confl. Peds. (#/hr)	55			55	82	164
Confl. Bikes (#/hr)				10		7
Turn Type	Perm	NA	NA		Prot	
Protected Phases		6	2		4	
Permitted Phases	6					
Actuated Green, G (s)	24.4	24.4	24.4		3.4	
Effective Green, g (s)	24.4	24.4	24.4		3.4	
Actuated g/C Ratio	0.68	0.68	0.68		0.09	
Clearance Time (s)	5.0	5.0	5.0		3.0	
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	693	1257	1224		142	
v/s Ratio Prot		0.14	c0.16		c0.01	
v/s Ratio Perm	0.02					
v/c Ratio	0.02	0.21	0.23		0.13	
Uniform Delay, d1	1.8	2.1	2.2		14.8	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.0	0.0	0.0		0.1	
Delay (s)	1.9	2.2	2.2		15.0	
Level of Service	A	A	A		B	
Approach Delay (s)		2.1	2.2		15.0	
Approach LOS		A	A		B	

Intersection Summary			
HCM 2000 Control Delay	2.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	35.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	197	23	183	220	80	23	116	70	73	283	36
Future Volume (veh/h)	65	197	23	183	220	80	23	116	70	73	283	36
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.90	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	65	197	23	183	220	80	23	116	70	73	283	36
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	139	1721	198	214	1438	498	49	156	83	190	353	45
Arrive On Green	0.08	0.55	0.55	0.12	0.58	0.58	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1757	3146	361	1757	2479	859	42	709	378	1181	1601	204
Grp Volume(v), veh/h	65	108	112	183	152	148	209	0	0	73	0	319
Grp Sat Flow(s),veh/h/ln	1757	1752	1755	1757	1752	1585	1129	0	0	1181	0	1804
Q Serve(g_s), s	3.5	3.0	3.1	10.2	4.0	4.3	2.4	0.0	0.0	0.0	0.0	16.7
Cycle Q Clear(g_c), s	3.5	3.0	3.1	10.2	4.0	4.3	19.2	0.0	0.0	15.5	0.0	16.7
Prop In Lane	1.00		0.21	1.00		0.54	0.11		0.33	1.00		0.11
Lane Grp Cap(c), veh/h	139	959	960	214	1016	919	289	0	0	190	0	398
V/C Ratio(X)	0.47	0.11	0.12	0.85	0.15	0.16	0.72	0.00	0.00	0.38	0.00	0.80
Avail Cap(c_a), veh/h	139	959	960	264	1016	919	336	0	0	225	0	451
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.0	10.9	10.9	43.0	9.7	9.7	35.6	0.0	0.0	36.4	0.0	36.9
Incr Delay (d2), s/veh	0.9	0.2	0.2	17.0	0.3	0.4	4.8	0.0	0.0	0.5	0.0	7.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.5	1.6	5.9	2.0	2.0	6.0	0.0	0.0	1.9	0.0	9.2
LnGrp Delay(d),s/veh	44.9	11.2	11.2	60.1	10.0	10.1	40.4	0.0	0.0	36.9	0.0	44.6
LnGrp LOS	D	B	B	E	A	B	D			D		D
Approach Vol, veh/h		285			483			209			392	
Approach Delay, s/veh		18.9			29.0			40.4			43.2	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.9	62.0		26.1	15.2	58.7		26.1
Change Period (Y+Rc), s	4.0	* 4		4.0	3.0	4.0		4.0
Max Green Setting (Gmax), s	6.0	* 58		25.0	15.0	49.0		25.0
Max Q Clear Time (g_c+I1), s	5.5	6.3		18.7	12.2	5.1		21.2
Green Ext Time (p_c), s	0.0	1.3		1.3	0.1	0.9		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	32.7
HCM 2010 LOS	C

Notes

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	38	0	5	29	40	0	3	13	38	4	13
Future Vol, veh/h	2	38	0	5	29	40	0	3	13	38	4	13
Conflicting Peds, #/hr	31	0	11	11	0	31	19	0	15	15	0	19
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	38	0	5	29	40	0	3	13	38	4	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	100	0	0	49	0	0	140	163	64	155	143	99
Stage 1	-	-	-	-	-	-	53	53	-	90	90	-
Stage 2	-	-	-	-	-	-	87	110	-	65	53	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1486	-	-	1551	-	-	828	728	998	809	746	954
Stage 1	-	-	-	-	-	-	957	849	-	915	818	-
Stage 2	-	-	-	-	-	-	918	802	-	943	849	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1462	-	-	1532	-	-	790	700	976	763	717	915
Mov Cap-2 Maneuver	-	-	-	-	-	-	790	700	-	763	717	-
Stage 1	-	-	-	-	-	-	947	840	-	890	794	-
Stage 2	-	-	-	-	-	-	883	779	-	915	840	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.5	9	9.9
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	909	1462	-	-	1532	-	-	790
HCM Lane V/C Ratio	0.018	0.001	-	-	0.003	-	-	0.07
HCM Control Delay (s)	9	7.5	0	-	7.4	0	-	9.9
HCM Lane LOS	A	A	A	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	153	4	9	120	2	24
Future Vol, veh/h	153	4	9	120	2	24
Conflicting Peds, #/hr	0	3	3	0	9	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	153	4	9	120	2	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	160	0	305	161
Stage 1	-	-	-	-	158	-
Stage 2	-	-	-	-	147	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1413	-	685	881
Stage 1	-	-	-	-	868	-
Stage 2	-	-	-	-	878	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1409	-	673	877
Mov Cap-2 Maneuver	-	-	-	-	673	-
Stage 1	-	-	-	-	866	-
Stage 2	-	-	-	-	865	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	857	-	-	1409	-
HCM Lane V/C Ratio	0.03	-	-	0.006	-
HCM Control Delay (s)	9.3	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	122	45	20	122	59	9	35	17	86	38	22
Future Volume (veh/h)	47	122	45	20	122	59	9	35	17	86	38	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.92		0.87	0.92		0.88	0.91		0.87	0.90		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	47	122	45	20	122	59	9	35	17	86	38	22
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	193	432	138	122	456	201	143	414	177	422	176	81
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	210	1038	332	64	1097	482	111	1059	452	726	449	209
Grp Volume(v), veh/h	214	0	0	201	0	0	61	0	0	146	0	0
Grp Sat Flow(s),veh/h/ln	1580	0	0	1643	0	0	1623	0	0	1385	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0
Cycle Q Clear(g_c), s	3.4	0.0	0.0	3.3	0.0	0.0	1.0	0.0	0.0	2.6	0.0	0.0
Prop In Lane	0.22		0.21	0.10		0.29	0.15		0.28	0.59		0.15
Lane Grp Cap(c), veh/h	763	0	0	779	0	0	734	0	0	679	0	0
V/C Ratio(X)	0.28	0.00	0.00	0.26	0.00	0.00	0.08	0.00	0.00	0.21	0.00	0.00
Avail Cap(c_a), veh/h	1047	0	0	1078	0	0	1258	0	0	1131	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.1	0.0	0.0	8.0	0.0	0.0	8.0	0.0	0.0	8.4	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.0	1.5	0.0	0.0	0.4	0.0	0.0	1.1	0.0	0.0
LnGrp Delay(d),s/veh	8.1	0.0	0.0	8.1	0.0	0.0	8.0	0.0	0.0	8.5	0.0	0.0
LnGrp LOS	A			A			A			A		
Approach Vol, veh/h		214			201			61			146	
Approach Delay, s/veh		8.1			8.1			8.0			8.5	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.1		21.2		20.1		21.2
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		30.0		25.0		30.0		25.0
Max Q Clear Time (g_c+I1), s		3.0		5.4		4.6		5.3
Green Ext Time (p_c), s		0.8		1.8		0.8		1.8

Intersection Summary			
HCM 2010 Ctrl Delay			8.2
HCM 2010 LOS			A

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	315	64	80	201	28	45	26	117	10	13	5
Future Vol, veh/h	8	315	64	80	201	28	45	26	117	10	13	5
Conflicting Peds, #/hr	67	0	93	93	0	67	10	0	88	88	0	10
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	60	-	-	55	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	8	315	64	80	201	28	45	26	117	10	13	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	296	0	0	472	0	0	850	912	528	965	930	292
Stage 1	-	-	-	-	-	-	456	456	-	442	442	-
Stage 2	-	-	-	-	-	-	394	456	-	523	488	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1260	-	-	1085	-	-	279	273	548	233	266	745
Stage 1	-	-	-	-	-	-	582	566	-	592	575	-
Stage 2	-	-	-	-	-	-	629	566	-	535	548	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1250	-	-	1005	-	-	226	217	468	130	212	698
Mov Cap-2 Maneuver	-	-	-	-	-	-	226	217	-	130	212	-
Stage 1	-	-	-	-	-	-	533	519	-	555	500	-
Stage 2	-	-	-	-	-	-	555	492	-	351	502	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	2.3	29.4	26.8
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	330	1250	-	-	1005	-	-	193
HCM Lane V/C Ratio	0.57	0.006	-	-	0.08	-	-	0.145
HCM Control Delay (s)	29.4	7.9	-	-	8.9	-	-	26.8
HCM Lane LOS	D	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	3.3	0	-	-	0.3	-	-	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	20	424	255	34	20	30
Future Volume (vph)	20	424	255	34	20	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		3.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.99		0.88	
Flpb, ped/bikes	0.94	1.00	1.00		1.00	
Frt	1.00	1.00	0.98		0.92	
Flt Protected	0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1648	1845	1791		1468	
Flt Permitted	0.58	1.00	1.00		0.98	
Satd. Flow (perm)	1011	1845	1791		1468	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	20	424	255	34	20	30
RTOR Reduction (vph)	0	0	6	0	26	0
Lane Group Flow (vph)	20	424	283	0	24	0
Confl. Peds. (#/hr)	55			55	82	164
Confl. Bikes (#/hr)				10		7
Turn Type	Perm	NA	NA		Prot	
Protected Phases		6	2		4	
Permitted Phases	6					
Actuated Green, G (s)	26.2	26.2	26.2		4.7	
Effective Green, g (s)	26.2	26.2	26.2		4.7	
Actuated g/C Ratio	0.67	0.67	0.67		0.12	
Clearance Time (s)	5.0	5.0	5.0		3.0	
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	680	1242	1206		177	
v/s Ratio Prot		c0.23	0.16		c0.02	
v/s Ratio Perm	0.02					
v/c Ratio	0.03	0.34	0.24		0.13	
Uniform Delay, d1	2.1	2.7	2.5		15.3	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.0	0.1	0.0		0.1	
Delay (s)	2.1	2.8	2.5		15.4	
Level of Service	A	A	A		B	
Approach Delay (s)		2.7	2.5		15.4	
Approach LOS		A	A		B	

Intersection Summary			
HCM 2000 Control Delay	3.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	38.9	Sum of lost time (s)	8.0
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	319	34	146	201	106	37	196	117	132	234	37
Future Volume (veh/h)	72	319	34	146	201	106	37	196	117	132	234	37
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.88	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	72	319	34	146	201	106	37	196	117	132	234	37
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	196	1626	172	137	1017	498	72	267	148	251	447	71
Arrive On Green	0.11	0.51	0.51	0.08	0.47	0.47	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1757	3177	335	1757	2179	1067	96	926	513	1052	1551	245
Grp Volume(v), veh/h	72	174	179	146	159	148	350	0	0	132	0	271
Grp Sat Flow(s),veh/h/ln	1757	1752	1760	1757	1752	1493	1536	0	0	1052	0	1796
Q Serve(g_s), s	3.4	4.9	5.0	7.0	4.8	5.3	8.0	0.0	0.0	2.9	0.0	11.4
Cycle Q Clear(g_c), s	3.4	4.9	5.0	7.0	4.8	5.3	19.3	0.0	0.0	22.2	0.0	11.4
Prop In Lane	1.00		0.19	1.00		0.71	0.11		0.33	1.00		0.14
Lane Grp Cap(c), veh/h	196	897	901	137	818	697	487	0	0	251	0	518
V/C Ratio(X)	0.37	0.19	0.20	1.07	0.19	0.21	0.72	0.00	0.00	0.53	0.00	0.52
Avail Cap(c_a), veh/h	196	897	901	137	818	697	578	0	0	310	0	619
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.0	11.9	11.9	41.5	14.1	14.2	29.5	0.0	0.0	32.1	0.0	26.9
Incr Delay (d2), s/veh	0.4	0.5	0.5	96.5	0.5	0.7	2.5	0.0	0.0	0.6	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	2.4	2.5	7.0	2.4	2.3	8.4	0.0	0.0	3.2	0.0	5.7
LnGrp Delay(d),s/veh	37.4	12.4	12.4	138.0	14.6	14.9	31.9	0.0	0.0	32.8	0.0	27.2
LnGrp LOS	D	B	B	F	B	B	C			C		C

Approach	EB			WB			NB			SB		
Approach Vol, veh/h		425			453			350			403	
Approach Delay, s/veh		16.7			54.5			31.9			29.0	
Approach LOS		B			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.1	46.0		29.9	10.0	50.1		29.9
Change Period (Y+Rc), s	4.0	* 4		4.0	3.0	4.0		4.0
Max Green Setting (Gmax), s	6.0	* 42		31.0	7.0	41.0		31.0
Max Q Clear Time (g_c+I1), s	5.4	7.3		24.2	9.0	7.0		21.3
Green Ext Time (p_c), s	0.1	1.3		1.8	0.0	1.5		2.1

Intersection Summary	
HCM 2010 Ctrl Delay	33.5
HCM 2010 LOS	C

Notes

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	29	4	22	54	58	2	7	10	35	5	11
Future Vol, veh/h	7	29	4	22	54	58	2	7	10	35	5	11
Conflicting Peds, #/hr	31	0	11	11	0	31	19	0	15	15	0	19
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	7	29	4	22	54	58	2	7	10	35	5	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	143	0	0	44	0	0	210	243	57	227	216	133
Stage 1	-	-	-	-	-	-	56	56	-	158	158	-
Stage 2	-	-	-	-	-	-	154	187	-	69	58	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1434	-	-	1558	-	-	745	657	1006	726	680	913
Stage 1	-	-	-	-	-	-	954	846	-	842	765	-
Stage 2	-	-	-	-	-	-	846	743	-	939	845	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1411	-	-	1539	-	-	702	622	984	675	643	875
Mov Cap-2 Maneuver	-	-	-	-	-	-	702	622	-	675	643	-
Stage 1	-	-	-	-	-	-	941	834	-	816	734	-
Stage 2	-	-	-	-	-	-	804	713	-	906	833	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.3	1.2	9.7	10.5
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	783	1411	-	-	1539	-	-	706
HCM Lane V/C Ratio	0.024	0.005	-	-	0.014	-	-	0.072
HCM Control Delay (s)	9.7	7.6	0	-	7.4	0	-	10.5
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.2

Intersection						
Int Delay, s/veh	1					

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	134	6	21	154	6	14
Future Vol, veh/h	134	6	21	154	6	14
Conflicting Peds, #/hr	0	3	3	0	9	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	134	6	21	154	6	14

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	143	0	345	143
Stage 1	-	-	-	-	140	-
Stage 2	-	-	-	-	205	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1434	-	650	902
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	827	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1430	-	633	897
Mov Cap-2 Maneuver	-	-	-	-	633	-
Stage 1	-	-	-	-	882	-
Stage 2	-	-	-	-	808	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	9.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	797	-	-	1430	-
HCM Lane V/C Ratio	0.025	-	-	0.015	-
HCM Control Delay (s)	9.6	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	109	36	38	122	102	32	102	46	45	108	49
Future Volume (veh/h)	67	109	36	38	122	102	32	102	46	45	108	49
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.93		0.87	0.92		0.89	0.92		0.87	0.92		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	67	109	36	38	122	102	32	102	46	45	108	49
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	258	381	108	145	356	258	159	406	159	186	383	149
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	347	904	256	113	846	612	150	1042	409	211	982	382
Grp Volume(v), veh/h	212	0	0	262	0	0	180	0	0	202	0	0
Grp Sat Flow(s),veh/h/ln	1508	0	0	1571	0	0	1600	0	0	1575	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.4	0.0	0.0	4.7	0.0	0.0	3.1	0.0	0.0	3.5	0.0	0.0
Prop In Lane	0.32		0.17	0.15		0.39	0.18		0.26	0.22		0.24
Lane Grp Cap(c), veh/h	747	0	0	759	0	0	724	0	0	718	0	0
V/C Ratio(X)	0.28	0.00	0.00	0.35	0.00	0.00	0.25	0.00	0.00	0.28	0.00	0.00
Avail Cap(c_a), veh/h	988	0	0	1015	0	0	1211	0	0	1197	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.1	0.0	0.0	8.4	0.0	0.0	8.8	0.0	0.0	8.9	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.0	2.1	0.0	0.0	1.4	0.0	0.0	1.6	0.0	0.0
LnGrp Delay(d),s/veh	8.2	0.0	0.0	8.5	0.0	0.0	8.9	0.0	0.0	9.0	0.0	0.0
LnGrp LOS	A			A			A			A		
Approach Vol, veh/h		212			262			180			202	
Approach Delay, s/veh		8.2			8.5			8.9			9.0	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.5		21.8		20.5		21.8
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		30.0		25.0		30.0		25.0
Max Q Clear Time (g_c+I1), s		5.1		5.4		5.5		6.7
Green Ext Time (p_c), s		1.6		2.2		1.6		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	8.6
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	136	118	209	136	17	97	41	217	4	24	5
Future Volume (veh/h)	7	136	118	209	136	17	97	41	217	4	24	5
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.80	1.00		0.88	0.87		0.86	0.98		0.86
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	7	136	118	209	136	17	97	41	217	4	24	5
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	13	208	181	452	802	100	159	74	263	90	425	82
Arrive On Green	0.01	0.26	0.26	0.26	0.51	0.51	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1757	809	702	1757	1581	198	298	235	837	102	1354	260
Grp Volume(v), veh/h	7	0	254	209	0	153	355	0	0	33	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1512	1757	0	1779	1370	0	0	1716	0	0
Q Serve(g_s), s	0.3	0.0	10.5	7.0	0.0	3.2	12.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	0.0	10.5	7.0	0.0	3.2	16.6	0.0	0.0	0.9	0.0	0.0
Prop In Lane	1.00		0.46	1.00		0.11	0.27		0.61	0.12		0.15
Lane Grp Cap(c), veh/h	13	0	389	452	0	902	496	0	0	597	0	0
V/C Ratio(X)	0.55	0.00	0.65	0.46	0.00	0.17	0.72	0.00	0.00	0.06	0.00	0.00
Avail Cap(c_a), veh/h	100	0	389	452	0	902	496	0	0	597	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.97	0.00	0.97	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	34.6	0.0	23.2	21.9	0.0	9.3	22.0	0.0	0.0	16.8	0.0	0.0
Incr Delay (d2), s/veh	12.9	0.0	8.3	0.3	0.0	0.4	8.6	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	5.3	3.4	0.0	1.7	7.5	0.0	0.0	0.5	0.0	0.0
LnGrp Delay(d),s/veh	47.5	0.0	31.5	22.2	0.0	9.7	30.5	0.0	0.0	17.0	0.0	0.0
LnGrp LOS	D		C	C		A	C			B		
Approach Vol, veh/h		261			362			355			33	
Approach Delay, s/veh		31.9			16.9			30.5			17.0	
Approach LOS		C			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.5	39.5		26.0	22.0	22.0		26.0
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	4.0	32.0		22.0	18.0	18.0		22.0
Max Q Clear Time (g_c+I1), s	2.3	5.2		2.9	9.0	12.5		18.6
Green Ext Time (p_c), s	0.0	0.8		1.9	0.6	0.5		0.7

Intersection Summary		
HCM 2010 Ctrl Delay		25.6
HCM 2010 LOS		C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	20	342	369	32	16	23
Future Volume (vph)	20	342	369	32	16	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		3.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.99		0.88	
Flpb, ped/bikes	0.95	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.92	
Flt Protected	0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1659	1845	1808		1465	
Flt Permitted	0.53	1.00	1.00		0.98	
Satd. Flow (perm)	918	1845	1808		1465	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	20	342	369	32	16	23
RTOR Reduction (vph)	0	0	2	0	20	0
Lane Group Flow (vph)	20	342	399	0	19	0
Confl. Peds. (#/hr)	55			55	82	164
Confl. Bikes (#/hr)				10		7
Turn Type	Perm	NA	NA		Prot	
Protected Phases		6	2		4	
Permitted Phases	6					
Actuated Green, G (s)	28.1	28.1	28.1		4.7	
Effective Green, g (s)	28.1	28.1	28.1		4.7	
Actuated g/C Ratio	0.69	0.69	0.69		0.12	
Clearance Time (s)	5.0	5.0	5.0		3.0	
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	632	1270	1245		168	
v/s Ratio Prot		0.19	c0.22		c0.01	
v/s Ratio Perm	0.02					
v/c Ratio	0.03	0.27	0.32		0.11	
Uniform Delay, d1	2.0	2.4	2.5		16.2	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.0	0.0	0.1		0.1	
Delay (s)	2.0	2.5	2.6		16.3	
Level of Service	A	A	A		B	
Approach Delay (s)		2.4	2.6		16.3	
Approach LOS		A	A		B	

Intersection Summary			
HCM 2000 Control Delay	3.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	40.8	Sum of lost time (s)	10.0
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	260	23	183	313	80	23	116	70	73	283	58
Future Volume (veh/h)	78	260	23	183	313	80	23	116	70	73	283	58
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		0.87	1.00		0.95	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1900	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	78	260	23	183	313	80	23	116	70	73	283	58
Adj No. of Lanes	1	1	0	1	1	1	0	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	310	769	68	218	738	545	54	167	89	220	348	71
Arrive On Green	0.18	0.46	0.46	0.12	0.40	0.40	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1757	1660	147	1757	1845	1363	40	713	379	1181	1481	304
Grp Volume(v), veh/h	78	0	283	183	313	80	209	0	0	73	0	341
Grp Sat Flow(s),veh/h/ln	1757	0	1806	1757	1845	1363	1132	0	0	1181	0	1785
Q Serve(g_s), s	3.4	0.0	9.0	9.2	11.0	3.4	1.1	0.0	0.0	0.0	0.0	16.3
Cycle Q Clear(g_c), s	3.4	0.0	9.0	9.2	11.0	3.4	17.4	0.0	0.0	12.6	0.0	16.3
Prop In Lane	1.00		0.08	1.00		1.00	0.11		0.33	1.00		0.17
Lane Grp Cap(c), veh/h	310	0	837	218	738	545	310	0	0	220	0	419
V/C Ratio(X)	0.25	0.00	0.34	0.84	0.42	0.15	0.67	0.00	0.00	0.33	0.00	0.81
Avail Cap(c_a), veh/h	310	0	837	332	738	545	448	0	0	323	0	575
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.9	0.0	15.4	38.5	19.5	17.2	30.4	0.0	0.0	31.2	0.0	32.6
Incr Delay (d2), s/veh	0.2	0.0	1.1	6.9	1.8	0.6	1.0	0.0	0.0	0.3	0.0	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	4.7	4.8	5.9	1.4	5.1	0.0	0.0	1.7	0.0	8.5
LnGrp Delay(d),s/veh	32.1	0.0	16.5	45.4	21.3	17.8	31.3	0.0	0.0	31.5	0.0	37.1
LnGrp LOS	C		B	D	C	B	C			C		D
Approach Vol, veh/h		361			576			209			414	
Approach Delay, s/veh		19.8			28.5			31.3			36.1	
Approach LOS		B			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.9	40.0		30.1	14.2	45.7		30.1
Change Period (Y+Rc), s	4.0	* 4		9.0	3.0	4.0		9.0
Max Green Setting (Gmax), s	9.0	* 36		29.0	17.0	28.0		29.0
Max Q Clear Time (g_c+I1), s	5.4	13.0		18.3	11.2	11.0		19.4
Green Ext Time (p_c), s	0.1	1.4		1.8	0.1	1.1		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	28.9
HCM 2010 LOS	C

Notes

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Traffic Vol, veh/h	2	38	0	5	29	152	0	3	13	92	4	13
Future Vol, veh/h	2	38	0	5	29	152	0	3	13	92	4	13
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	38	0	5	29	152	0	3	13	92	4	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.7	7.7	7.1	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	5%	3%	84%
Vol Thru, %	19%	95%	16%	4%
Vol Right, %	81%	0%	82%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	16	40	186	109
LT Vol	0	2	5	92
Through Vol	3	38	29	4
RT Vol	13	0	152	13
Lane Flow Rate	16	40	186	109
Geometry Grp	1	1	1	1
Degree of Util (X)	0.018	0.049	0.192	0.135
Departure Headway (Hd)	4.053	4.433	3.713	4.452
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	888	813	949	796
Service Time	2.055	2.433	1.807	2.532
HCM Lane V/C Ratio	0.018	0.049	0.196	0.137
HCM Control Delay	7.1	7.7	7.7	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.7	0.5

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	207	4	9	232	2	24
Future Vol, veh/h	207	4	9	232	2	24
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	207	4	9	232	2	24
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.6	8.9	7.5
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	8%	0%	4%
Vol Thru, %	0%	98%	96%
Vol Right, %	92%	2%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	26	211	241
LT Vol	2	0	9
Through Vol	0	207	232
RT Vol	24	4	0
Lane Flow Rate	26	211	241
Geometry Grp	1	1	1
Degree of Util (X)	0.032	0.244	0.279
Departure Headway (Hd)	4.383	4.165	4.162
Convergence, Y/N	Yes	Yes	Yes
Cap	822	852	856
Service Time	2.383	2.239	2.228
HCM Lane V/C Ratio	0.032	0.248	0.282
HCM Control Delay	7.5	8.6	8.9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	1	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	173	47	20	231	59	12	35	17	86	38	22
Future Volume (veh/h)	47	173	47	20	231	59	12	35	17	86	38	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.94		0.87	0.93		0.89	0.91		0.86	0.90		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	47	173	47	20	231	59	12	35	17	86	38	22
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	165	503	122	109	572	139	164	389	164	414	172	80
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	154	1177	284	43	1339	325	164	1013	426	726	448	208
Grp Volume(v), veh/h	267	0	0	310	0	0	64	0	0	146	0	0
Grp Sat Flow(s),veh/h/ln	1616	0	0	1707	0	0	1603	0	0	1382	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0
Cycle Q Clear(g_c), s	4.4	0.0	0.0	5.3	0.0	0.0	1.0	0.0	0.0	2.7	0.0	0.0
Prop In Lane	0.18		0.18	0.06		0.19	0.19		0.27	0.59		0.15
Lane Grp Cap(c), veh/h	790	0	0	820	0	0	717	0	0	666	0	0
V/C Ratio(X)	0.34	0.00	0.00	0.38	0.00	0.00	0.09	0.00	0.00	0.22	0.00	0.00
Avail Cap(c_a), veh/h	1036	0	0	1087	0	0	1212	0	0	1100	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.2	0.0	0.0	8.5	0.0	0.0	8.4	0.0	0.0	8.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	0.0	2.5	0.0	0.0	0.5	0.0	0.0	1.1	0.0	0.0
LnGrp Delay(d),s/veh	8.3	0.0	0.0	8.6	0.0	0.0	8.4	0.0	0.0	8.9	0.0	0.0
LnGrp LOS	A			A			A			A		
Approach Vol, veh/h		267			310			64			146	
Approach Delay, s/veh		8.3			8.6			8.4			8.9	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.3		22.2		20.3		22.2
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		30.0		25.0		30.0		25.0
Max Q Clear Time (g_c+I1), s		3.0		6.4		4.7		7.3
Green Ext Time (p_c), s		0.8		2.6		0.8		2.5

Intersection Summary			
HCM 2010 Ctrl Delay			8.5
HCM 2010 LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	315	106	160	201	28	108	30	271	10	16	5
Future Volume (veh/h)	8	315	106	160	201	28	108	30	271	10	16	5
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.84	1.00		0.88	0.87		0.87	1.00		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	8	315	106	160	201	28	108	30	271	10	16	5
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	14	430	145	276	765	107	162	54	297	173	254	69
Arrive On Green	0.01	0.34	0.34	0.16	0.49	0.49	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1757	1255	422	1757	1555	217	294	166	903	318	773	210
Grp Volume(v), veh/h	8	0	421	160	0	229	409	0	0	31	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1678	1757	0	1771	1362	0	0	1302	0	0
Q Serve(g_s), s	0.3	0.0	15.4	5.9	0.0	5.3	16.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	0.0	15.4	5.9	0.0	5.3	20.1	0.0	0.0	0.9	0.0	0.0
Prop In Lane	1.00		0.25	1.00		0.12	0.26		0.66	0.32		0.16
Lane Grp Cap(c), veh/h	14	0	575	276	0	871	513	0	0	496	0	0
V/C Ratio(X)	0.55	0.00	0.73	0.58	0.00	0.26	0.80	0.00	0.00	0.06	0.00	0.00
Avail Cap(c_a), veh/h	100	0	575	276	0	871	513	0	0	496	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.98	0.00	0.98	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	34.6	0.0	20.2	27.4	0.0	10.4	22.4	0.0	0.0	16.1	0.0	0.0
Incr Delay (d2), s/veh	11.7	0.0	8.0	2.0	0.0	0.7	12.2	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	8.4	3.0	0.0	2.7	9.2	0.0	0.0	0.4	0.0	0.0
LnGrp Delay(d),s/veh	46.3	0.0	28.2	29.3	0.0	11.1	34.6	0.0	0.0	16.3	0.0	0.0
LnGrp LOS	D		C	C		B	C			B		
Approach Vol, veh/h		429			389			409			31	
Approach Delay, s/veh		28.5			18.6			34.6			16.3	
Approach LOS		C			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	4.6	38.4		27.0	15.0	28.0		27.0
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	4.0	31.0		23.0	11.0	24.0		23.0
Max Q Clear Time (g_c+I1), s	2.3	7.3		2.9	7.9	17.4		22.1
Green Ext Time (p_c), s	0.0	1.1		2.3	0.2	1.1		0.2

Intersection Summary		
HCM 2010 Ctrl Delay		27.1
HCM 2010 LOS		C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	24	574	337	34	20	33
Future Volume (vph)	24	574	337	34	20	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		3.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.99		0.85	
Flpb, ped/bikes	0.93	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.92	
Flt Protected	0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1631	1845	1799		1407	
Flt Permitted	0.54	1.00	1.00		0.98	
Satd. Flow (perm)	928	1845	1799		1407	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	24	574	337	34	20	33
RTOR Reduction (vph)	0	0	2	0	29	0
Lane Group Flow (vph)	24	574	369	0	24	0
Confl. Peds. (#/hr)	55			55	82	164
Confl. Bikes (#/hr)				10		7
Turn Type	Perm	NA	NA		Prot	
Protected Phases		6	2		4	
Permitted Phases	6					
Actuated Green, G (s)	37.4	37.4	37.4		5.4	
Effective Green, g (s)	37.4	37.4	37.4		5.4	
Actuated g/C Ratio	0.74	0.74	0.74		0.11	
Clearance Time (s)	5.0	5.0	5.0		3.0	
Vehicle Extension (s)	2.0	2.0	2.0		2.0	
Lane Grp Cap (vph)	683	1358	1324		149	
v/s Ratio Prot		c0.31	0.21		c0.02	
v/s Ratio Perm	0.03					
v/c Ratio	0.04	0.42	0.28		0.16	
Uniform Delay, d1	1.8	2.6	2.2		20.6	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.0	0.1	0.0		0.2	
Delay (s)	1.8	2.6	2.3		20.8	
Level of Service	A	A	A		C	
Approach Delay (s)		2.6	2.3		20.8	
Approach LOS		A	A		C	

Intersection Summary			
HCM 2000 Control Delay	3.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	50.8	Sum of lost time (s)	10.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	445	34	146	263	106	37	196	117	132	234	51
Future Volume (veh/h)	95	445	34	146	263	106	37	196	117	132	234	51
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		0.87	1.00		0.95	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1845	1900	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	95	445	34	146	263	106	37	196	117	132	234	51
Adj No. of Lanes	1	1	0	1	1	1	0	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	209	720	55	179	738	545	71	262	145	245	427	93
Arrive On Green	0.12	0.43	0.43	0.10	0.40	0.40	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1757	1682	129	1757	1845	1363	91	899	497	1052	1463	319
Grp Volume(v), veh/h	95	0	479	146	263	106	350	0	0	132	0	285
Grp Sat Flow(s),veh/h/ln	1757	0	1810	1757	1845	1363	1487	0	0	1052	0	1782
Q Serve(g_s), s	4.5	0.0	18.5	7.3	9.0	4.6	8.1	0.0	0.0	2.8	0.0	12.1
Cycle Q Clear(g_c), s	4.5	0.0	18.5	7.3	9.0	4.6	20.2	0.0	0.0	23.0	0.0	12.1
Prop In Lane	1.00		0.07	1.00		1.00	0.11		0.33	1.00		0.18
Lane Grp Cap(c), veh/h	209	0	775	179	738	545	478	0	0	245	0	520
V/C Ratio(X)	0.45	0.00	0.62	0.81	0.36	0.19	0.73	0.00	0.00	0.54	0.00	0.55
Avail Cap(c_a), veh/h	209	0	775	332	738	545	527	0	0	277	0	574
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.97	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.9	0.0	20.0	39.6	18.9	17.6	29.4	0.0	0.0	32.2	0.0	26.9
Incr Delay (d2), s/veh	0.6	0.0	3.7	3.4	1.3	0.8	3.7	0.0	0.0	0.7	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	10.0	3.7	4.8	1.8	8.6	0.0	0.0	3.2	0.0	6.0
LnGrp Delay(d),s/veh	37.5	0.0	23.7	43.0	20.2	18.4	33.1	0.0	0.0	32.9	0.0	27.2
LnGrp LOS	D		C	D	C	B	C			C		C
Approach Vol, veh/h		574			515			350			417	
Approach Delay, s/veh		26.0			26.3			33.1			29.0	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.7	40.0		35.3	12.2	42.5		35.3				
Change Period (Y+Rc), s	4.0	* 4		9.0	3.0	4.0		9.0				
Max Green Setting (Gmax), s	9.0	* 36		29.0	17.0	28.0		29.0				
Max Q Clear Time (g_c+I1), s	6.5	11.0		25.0	9.3	20.5		22.2				
Green Ext Time (p_c), s	0.1	1.2		1.2	0.1	1.4		1.8				
Intersection Summary												
HCM 2010 Ctrl Delay			28.1									
HCM 2010 LOS			C									
Notes												

Intersection	
Int Delay, s/veh	5.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	29	4	22	54	134	2	7	10	135	5	11
Future Vol, veh/h	7	29	4	22	54	134	2	7	10	135	5	11
Conflicting Peds, #/hr	31	0	11	11	0	31	19	0	15	15	0	19
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	7	29	4	22	54	134	2	7	10	135	5	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	219	0	0	44	0	0	248	319	57	265	254	171
Stage 1	-	-	-	-	-	-	56	56	-	196	196	-
Stage 2	-	-	-	-	-	-	192	263	-	69	58	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.13	6.53	6.23	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.13	5.53	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.527	4.027	3.327	3.527	4.027	3.327
Pot Cap-1 Maneuver	1344	-	-	1558	-	-	704	596	1006	686	648	870
Stage 1	-	-	-	-	-	-	954	846	-	803	737	-
Stage 2	-	-	-	-	-	-	807	689	-	939	845	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1323	-	-	1539	-	-	662	563	984	637	612	834
Mov Cap-2 Maneuver	-	-	-	-	-	-	662	563	-	637	612	-
Stage 1	-	-	-	-	-	-	941	834	-	778	706	-
Stage 2	-	-	-	-	-	-	766	660	-	906	833	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	0.8	10	12.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	742	1323	-	-	1539	-	-	647
HCM Lane V/C Ratio	0.026	0.005	-	-	0.014	-	-	0.233
HCM Control Delay (s)	10	7.7	0	-	7.4	0	-	12.3
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.9

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	234	6	21	230	6	14
Future Vol, veh/h	234	6	21	230	6	14
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	234	6	21	230	6	14
Number of Lanes	1	0	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.8	9	7.8
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	30%	0%	8%
Vol Thru, %	0%	97%	92%
Vol Right, %	70%	3%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	20	240	251
LT Vol	6	0	21
Through Vol	0	234	230
RT Vol	14	6	0
Lane Flow Rate	20	240	251
Geometry Grp	1	1	1
Degree of Util (X)	0.026	0.277	0.292
Departure Headway (Hd)	4.644	4.159	4.182
Convergence, Y/N	Yes	Yes	Yes
Cap	775	854	851
Service Time	2.644	2.234	2.253
HCM Lane V/C Ratio	0.026	0.281	0.295
HCM Control Delay	7.8	8.8	9
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	1.1	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	206	39	38	196	102	34	102	46	45	108	49
Future Volume (veh/h)	67	206	39	38	196	102	34	102	46	45	108	49
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.94		0.87	0.93		0.89	0.92		0.86	0.92		0.87
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1900	1900	1845	1900	1900	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	67	206	39	38	196	102	34	102	46	45	108	49
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	191	511	86	132	445	211	161	396	155	183	377	147
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	210	1188	200	91	1034	491	162	1028	403	212	980	382
Grp Volume(v), veh/h	312	0	0	336	0	0	182	0	0	202	0	0
Grp Sat Flow(s),veh/h/ln	1597	0	0	1616	0	0	1593	0	0	1573	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.3	0.0	0.0	6.2	0.0	0.0	3.2	0.0	0.0	3.6	0.0	0.0
Prop In Lane	0.21		0.12	0.11		0.30	0.19		0.25	0.22		0.24
Lane Grp Cap(c), veh/h	788	0	0	788	0	0	712	0	0	707	0	0
V/C Ratio(X)	0.40	0.00	0.00	0.43	0.00	0.00	0.26	0.00	0.00	0.29	0.00	0.00
Avail Cap(c_a), veh/h	1009	0	0	1016	0	0	1179	0	0	1168	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.5	0.0	0.0	8.8	0.0	0.0	9.2	0.0	0.0	9.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0	2.8	0.0	0.0	1.5	0.0	0.0	1.7	0.0	0.0
LnGrp Delay(d),s/veh	8.7	0.0	0.0	8.9	0.0	0.0	9.3	0.0	0.0	9.4	0.0	0.0
LnGrp LOS	A			A			A			A		
Approach Vol, veh/h		312			336			182			202	
Approach Delay, s/veh		8.7			8.9			9.3			9.4	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		20.7		22.6		20.7		22.6
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s		30.0		25.0		30.0		25.0
Max Q Clear Time (g_c+I1), s		5.2		7.3		5.6		8.2
Green Ext Time (p_c), s		1.6		3.0		1.6		2.9

Intersection Summary	
HCM 2010 Ctrl Delay	9.0
HCM 2010 LOS	A

APPENDIX C

PREDICTED CRASH FREQUENCY CALCULATION

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments			
General Information		**Location Information**	
Analyst	Jordan Brooks	Roadway	7th Street
Agency or Company	Fehr & Peers	Roadway Section	Between Chester Street and Center Street
Date Performed	01/02/19	Jurisdiction	Oakland, CA
		Analysis Year	2019

Input Data		**Base Conditions**	**Site Conditions**
Roadway type (2U, 3T, 4U, 4D, ST)		--	3T
Length of segment, L (mi)		--	0.06
AADT (veh/day)	$AADT_{MAX}$ = 32,900 (veh/day)	--	7,415
Type of on-street parking (none/parallel/angle)		None	Parallel (Comm/Ind)
Proportion of curb length with on-street parking		--	0.34
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	3
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed 30 mph or Lower
Roadside fixed object density (fixed objects / mi)		0	132
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	14
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.36	1.28	1.00	0.93	1.00	1.63

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments									
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.40	1.41	0.66	0.073	1.000	0.073	1.63	1.00	0.119
Fatal and Injury (FI)	-16.45	1.69	0.59	0.015	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.216	0.016	1.63	1.00	0.026
Property Damage Only (PDO)	-11.95	1.33	0.59	0.056	$(5)_{TOTAL}-(5)_{FI}$ 0.784	0.057	1.63	1.00	0.093

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.026	1.000	0.093	0.119
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.845	0.022	0.842	0.078	0.100
Head-on collision	0.034	0.001	0.020	0.002	0.003
Angle collision	0.069	0.002	0.020	0.002	0.004
Sideswipe, same direction	0.001	0.000	0.078	0.007	0.007
Sideswipe, opposite direction	0.017	0.000	0.020	0.002	0.002
Other multiple-vehicle collision	0.034	0.001	0.020	0.002	0.003

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments									
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.74	0.54	1.37	0.024	1.000	0.024	1.63	1.00	0.040
Fatal and Injury (FI)	-6.37	0.47	1.06	0.007	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.293	0.007	1.63	1.00	0.012
Property Damage Only (PDO)	-6.29	0.56	1.93	0.017	$(5)_{TOTAL}-(5)_{FI}$ 0.707	0.017	1.63	1.00	0.028

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.012	1.000	0.028	0.040
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.001	0.000	0.000
Collision with fixed object	0.688	0.008	0.963	0.027	0.035
Collision with other object	0.001	0.000	0.001	0.000	0.000
Other single-vehicle collision	0.310	0.004	0.035	0.001	0.005

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 n_j * N_j * $(AADT/15{,}000)^t$	from Table 12-7
Major commercial	0	0.102	1.000	0.000	--
Minor commercial	3	0.032	1.000	0.047	
Major industrial/institutional	0	0.110	1.000	0.000	
Minor industrial/institutional	0	0.015	1.000	0.000	
Major residential	0	0.053	1.000	0.000	
Minor residential	0	0.010	1.000	0.000	
Other	0	0.016	1.000	0.000	
Total	--	--	--	0.047	1.10

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.047	1.000	0.047	1.63	1.00	0.078
Fatal and injury (FI)	--	0.243	0.012	1.63	1.00	0.019
Property damage only (PDO)	--	0.757	0.036	1.63	1.00	0.059

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	0.119	0.040	0.078	0.236	0.041	1.00	0.010
Fatal and injury (FI)	--	--	--	--	--	1.00	0.010

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	0.119	0.040	0.078	0.236	0.027	1.00	0.006
Fatal and injury (FI)	--	--	--	--	--	1.00	0.006

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.022	0.078	0.100
Head-on collisions (from Worksheet 1D)	0.001	0.002	0.003
Angle collisions (from Worksheet 1D)	0.002	0.002	0.004
Sideswipe, same direction (from Worksheet 1D)	0.000	0.007	0.007
Sideswipe, opposite direction (from Worksheet 1D)	0.000	0.002	0.002
Driveway-related collisions (from Worksheet 1H)	0.019	0.059	0.078
Other multiple-vehicle collision (from Worksheet 1D)	0.001	0.002	0.003
Subtotal	0.044	0.152	0.196
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 1F)	0.008	0.027	0.035
Collision with other object (from Worksheet 1F)	0.000	0.000	0.000
Other single-vehicle collision (from Worksheet 1F)	0.004	0.001	0.005
Collision with pedestrian (from Worksheet 1I)	0.010	0.000	0.010
Collision with bicycle (from Worksheet 1J)	0.006	0.000	0.006
Subtotal	0.028	0.028	0.056
Total	0.072	0.180	0.252

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.252	0.06	4.1
Fatal and injury (FI)	0.1	0.06	1.2
Property damage only (PDO)	0.2	0.06	2.9

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments			
General Information		**Location Information**	
Analyst	Jordan Brooks	Roadway	7th Street
Agency or Company	Fehr & Peers	Roadway Section	Between Center Street and Mandela Parkway
Date Performed	01/02/19	Jurisdiction	Oakland, CA
		Analysis Year	2019

Input Data		**Base Conditions**	**Site Conditions**
Roadway type (2U, 3T, 4U, 4D, ST)		--	3T
Length of segment, L (mi)		--	0.08
AADT (veh/day)	$AADT_{MAX}$ = 32,900 (veh/day)	--	7,170
Type of on-street parking (none/parallel/angle)		None	Parallel (Comm/Ind)
Proportion of curb length with on-street parking		--	0.35
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	0
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed 30 mph or Lower
Roadside fixed object density (fixed objects / mi)		0	151
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	19
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.37	1.27	1.00	0.93	1.00	1.62

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-12.40	1.41	0.66	0.085	1.000	0.085	1.62	1.00	0.138
Fatal and Injury (FI)	-16.45	1.69	0.59	0.018	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.213	0.018	1.62	1.00	0.030
Property Damage Only (PDO)	-11.95	1.33	0.59	0.066	$(5)_{TOTAL}-(5)_{FI}$ 0.787	0.067	1.62	1.00	0.109

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted $N_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted $N_{brmv\ (PDO)}$ (crashes/year)**	**Predicted $N_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.030	1.000	0.109	0.138
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.845	0.025	0.842	0.092	0.117
Head-on collision	0.034	0.001	0.020	0.002	0.003
Angle collision	0.069	0.002	0.020	0.002	0.004
Sideswipe, same direction	0.001	0.000	0.078	0.008	0.009
Sideswipe, opposite direction	0.017	0.001	0.020	0.002	0.003
Other multiple-vehicle collision	0.034	0.001	0.020	0.002	0.003

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments									
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.74	0.54	1.37	0.029	1.000	0.029	1.62	1.00	0.048
Fatal and Injury (FI)	-6.37	0.47	1.06	0.008	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.293	0.009	1.62	1.00	0.014
Property Damage Only (PDO)	-6.29	0.56	1.93	0.020	$(5)_{TOTAL}-(5)_{FI}$ 0.707	0.021	1.62	1.00	0.034

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted $N_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted $N_{brsv\ (PDO)}$ (crashes/year)**	**Predicted $N_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.014	1.000	0.034	0.048
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.001	0.000	0.000
Collision with fixed object	0.688	0.010	0.963	0.033	0.042
Collision with other object	0.001	0.000	0.001	0.000	0.000
Other single-vehicle collision	0.310	0.004	0.035	0.001	0.006

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.102	1.000	0.000	--
Minor commercial	0	0.032	1.000	0.000	
Major industrial/institutional	0	0.110	1.000	0.000	
Minor industrial/institutional	0	0.015	1.000	0.000	
Major residential	0	0.053	1.000	0.000	
Minor residential	0	0.010	1.000	0.000	
Other	0	0.016	1.000	0.000	
Total	--	--	--	0.000	1.10

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.000	1.000	0.000	1.62	1.00	0.000
Fatal and injury (FI)	--	0.243	0.000	1.62	1.00	0.000
Property damage only (PDO)	--	0.757	0.000	1.62	1.00	0.000

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	0.138	0.048	0.000	0.186	0.041	1.00	0.008
Fatal and injury (FI)	--	--	--	--	--	1.00	0.008

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	0.138	0.048	0.000	0.186	0.027	1.00	0.005
Fatal and injury (FI)	--	--	--	--	--	1.00	0.005

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.025	0.092	0.117
Head-on collisions (from Worksheet 1D)	0.001	0.002	0.003
Angle collisions (from Worksheet 1D)	0.002	0.002	0.004
Sideswipe, same direction (from Worksheet 1D)	0.000	0.008	0.009
Sideswipe, opposite direction (from Worksheet 1D)	0.001	0.002	0.003
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.001	0.002	0.003
Subtotal	0.030	0.109	0.138
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.000	0.000
Collision with fixed object (from Worksheet 1F)	0.010	0.033	0.042
Collision with other object (from Worksheet 1F)	0.000	0.000	0.000
Other single-vehicle collision (from Worksheet 1F)	0.004	0.001	0.006
Collision with pedestrian (from Worksheet 1I)	0.008	0.000	0.008
Collision with bicycle (from Worksheet 1J)	0.005	0.000	0.005
Subtotal	0.027	0.034	0.060
Total	0.056	0.143	0.199

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.199	0.08	2.6
Fatal and injury (FI)	0.1	0.08	0.7
Property damage only (PDO)	0.1	0.08	1.9

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments			
General Information		**Location Information**	
Analyst	Jordan Brooks	Roadway	5th Street
Agency or Company	Fehr & Peers	Roadway Section	Between Chester Street and Center Street
Date Performed	01/02/19	Jurisdiction	Oakland, CA
		Analysis Year	2019

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	2U
Length of segment, L (mi)		--	0.06
AADT (veh/day)	$AADT_{MAX}$ = 32,600 (veh/day)	--	2,565
Type of on-street parking (none/parallel/angle)		None	Parallel (Residential)
Proportion of curb length with on-street parking		--	0.95
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	1
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	4
Other driveways (number)		--	0
Speed Category		--	Posted Speed 30 mph or Lower
Roadside fixed object density (fixed objects / mi)		0	27
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	15
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.44	1.05	1.00	0.93	1.00	1.41

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments									
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-15.22	1.68	0.84	0.008	1.000	0.008	1.41	1.00	0.012
Fatal and Injury (FI)	-16.22	1.66	0.65	0.003	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.302	0.002	1.41	1.00	0.003
Property Damage Only (PDO)	-15.62	1.69	0.87	0.006	$(5)_{TOTAL}-(5)_{FI}$ 0.698	0.006	1.41	1.00	0.008

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brmv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	(9)$_{FI}$ from Worksheet 1C	from Table 12-4	(9)$_{PDO}$ from Worksheet 1C	(9)$_{TOTAL}$ from Worksheet 1C
Total	1.000	0.003	1.000	0.008	0.012
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Rear-end collision	0.730	0.003	0.778	0.006	0.009
Head-on collision	0.068	0.000	0.004	0.000	0.000
Angle collision	0.085	0.000	0.079	0.001	0.001
Sideswipe, same direction	0.015	0.000	0.031	0.000	0.000
Sideswipe, opposite direction	0.073	0.000	0.055	0.000	0.001
Other multiple-vehicle collision	0.029	0.000	0.053	0.000	0.001

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N$_{brsv}$**	**Proportion of Total Crashes**	**Adjusted N$_{brsv}$**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N$_{brsv}$**
	from Table 12-5		from Table 12-5	from Equation 12-13		(4)$_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.47	0.56	0.81	0.021	1.000	0.021	1.41	1.00	0.030
Fatal and Injury (FI)	-3.96	0.23	0.50	0.007	(4)$_{FI}$/((4)$_{FI}$+(4)$_{PDO}$) 0.339	0.007	1.41	1.00	0.010
Property Damage Only (PDO)	-6.51	0.64	0.87	0.014	(5)$_{TOTAL}$-(5)$_{FI}$ 0.661	0.014	1.41	1.00	0.020

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{brsv\ (PDO)}$ (crashes/year)**	**Predicted N $_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	(9)$_{FI}$ from Worksheet 1E	from Table 12-6	(9)$_{PDO}$ from Worksheet 1E	(9)$_{TOTAL}$ from Worksheet 1E
Total	1.000	0.010	1.000	0.020	0.030
		(2)*(3)$_{FI}$		(4)*(5)$_{PDO}$	(3)+(5)
Collision with animal	0.026	0.000	0.066	0.001	0.002
Collision with fixed object	0.723	0.007	0.759	0.015	0.022
Collision with other object	0.010	0.000	0.013	0.000	0.000
Other single-vehicle collision	0.241	0.002	0.162	0.003	0.006

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 n_j * N_j * $(AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.158	1.000	0.000	--
Minor commercial	0	0.050	1.000	0.000	
Major industrial/institutional	1	0.172	1.000	0.029	
Minor industrial/institutional	0	0.023	1.000	0.000	
Major residential	0	0.083	1.000	0.000	
Minor residential	4	0.016	1.000	0.011	
Other	0	0.025	1.000	0.000	
Total	--	--	--	0.040	0.81

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.040	1.000	0.040	1.41	1.00	0.057
Fatal and injury (FI)	--	0.323	0.013	1.41	1.00	0.018
Property damage only (PDO)	--	0.677	0.027	1.41	1.00	0.039

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	0.012	0.030	0.057	0.099	0.036	1.00	0.004
Fatal and injury (FI)	--	--	--	--	--	1.00	0.004

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	0.012	0.030	0.057	0.099	0.018	1.00	0.002
Fatal and injury (FI)	--	--	--	--	--	1.00	0.002

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.003	0.006	0.009
Head-on collisions (from Worksheet 1D)	0.000	0.000	0.000
Angle collisions (from Worksheet 1D)	0.000	0.001	0.001
Sideswipe, same direction (from Worksheet 1D)	0.000	0.000	0.000
Sideswipe, opposite direction (from Worksheet 1D)	0.000	0.000	0.001
Driveway-related collisions (from Worksheet 1H)	0.018	0.039	0.057
Other multiple-vehicle collision (from Worksheet 1D)	0.000	0.000	0.001
Subtotal	0.022	0.047	0.068
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.001	0.002
Collision with fixed object (from Worksheet 1F)	0.007	0.015	0.022
Collision with other object (from Worksheet 1F)	0.000	0.000	0.000
Other single-vehicle collision (from Worksheet 1F)	0.002	0.003	0.006
Collision with pedestrian (from Worksheet 1I)	0.004	0.000	0.004
Collision with bicycle (from Worksheet 1J)	0.002	0.000	0.002
Subtotal	0.016	0.020	0.035
Total	0.037	0.066	0.104

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.104	0.06	1.7
Fatal and injury (FI)	0.0	0.06	0.6
Property damage only (PDO)	0.1	0.06	1.1

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments			
General Information		**Location Information**	
Analyst	Jordan Brooks	Roadway	5th Street
Agency or Company	Fehr & Peers	Roadway Section	Between Center Street and Mandela Parkway
Date Performed	01/02/19	Jurisdiction	Oakland, CA
		Analysis Year	2019

Input Data		**Base Conditions**	**Site Conditions**
Roadway type (2U, 3T, 4U, 4D, ST)		--	2U
Length of segment, L (mi)		--	0.07
AADT (veh/day)	$AADT_{MAX}$ = 32,600 (veh/day)	--	3,715
Type of on-street parking (none/parallel/angle)		None	Angle (Comm/Ind)
Proportion of curb length with on-street parking		--	0.84
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	1
Minor industrial / institutional driveways (number)		--	4
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed 30 mph or Lower
Roadside fixed object density (fixed objects / mi)		0	75
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	20
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
4.23	1.19	1.00	0.93	1.00	4.70

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments									
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-15.22	1.68	0.84	0.017	1.000	0.017	4.70	1.00	0.082
Fatal and Injury (FI)	-16.22	1.66	0.65	0.005	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.300	0.005	4.70	1.00	0.024
Property Damage Only (PDO)	-15.62	1.69	0.87	0.013	$(5)_{TOTAL}-(5)_{FI}$ 0.700	0.012	4.70	1.00	0.057

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted $N_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted $N_{brmv\ (PDO)}$ (crashes/year)**	**Predicted $N_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.024	1.000	0.057	0.082
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.730	0.018	0.778	0.044	0.062
Head-on collision	0.068	0.002	0.004	0.000	0.002
Angle collision	0.085	0.002	0.079	0.005	0.007
Sideswipe, same direction	0.015	0.000	0.031	0.002	0.002
Sideswipe, opposite direction	0.073	0.002	0.055	0.003	0.005
Other multiple-vehicle collision	0.029	0.001	0.053	0.003	0.004

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments									
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.47	0.56	0.81	0.030	1.000	0.030	4.70	1.00	0.140
Fatal and Injury (FI)	-3.96	0.23	0.50	0.009	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.306	0.009	4.70	1.00	0.043
Property Damage Only (PDO)	-6.51	0.64	0.87	0.020	$(5)_{TOTAL}-(5)_{FI}$ 0.694	0.021	4.70	1.00	0.097

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted $N_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted $N_{brsv\ (PDO)}$ (crashes/year)**	**Predicted $N_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.043	1.000	0.097	0.140
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.026	0.001	0.066	0.006	0.008
Collision with fixed object	0.723	0.031	0.759	0.074	0.105
Collision with other object	0.010	0.000	0.013	0.001	0.002
Other single-vehicle collision	0.241	0.010	0.162	0.016	0.026

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 n_j * N_j * $(AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.158	1.000	0.000	
Minor commercial	0	0.050	1.000	0.000	
Major industrial/institutional	1	0.172	1.000	0.043	
Minor industrial/institutional	4	0.023	1.000	0.023	--
Major residential	0	0.083	1.000	0.000	
Minor residential	0	0.016	1.000	0.000	
Other	0	0.025	1.000	0.000	
Total	--	--	--	0.065	0.81

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.065	1.000	0.065	4.70	1.00	0.307
Fatal and injury (FI)	--	0.323	0.021	4.70	1.00	0.099
Property damage only (PDO)	--	0.677	0.044	4.70	1.00	0.208

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	0.082	0.140	0.307	0.529	0.036	1.00	0.019
Fatal and injury (FI)	--	--	--	--	--	1.00	0.019

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	0.082	0.140	0.307	0.529	0.018	1.00	0.010
Fatal and injury (FI)	--	--	--	--	--	1.00	0.010

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)**	**Property damage only (PDO)**	**Total**
	(3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	(5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	(6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
MULTIPLE-VEHICLE			
Rear-end collisions (from Worksheet 1D)	0.018	0.044	0.062
Head-on collisions (from Worksheet 1D)	0.002	0.000	0.002
Angle collisions (from Worksheet 1D)	0.002	0.005	0.007
Sideswipe, same direction (from Worksheet 1D)	0.000	0.002	0.002
Sideswipe, opposite direction (from Worksheet 1D)	0.002	0.003	0.005
Driveway-related collisions (from Worksheet 1H)	0.099	0.208	0.307
Other multiple-vehicle collision (from Worksheet 1D)	0.001	0.003	0.004
Subtotal	0.124	0.265	0.389
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.001	0.006	0.008
Collision with fixed object (from Worksheet 1F)	0.031	0.074	0.105
Collision with other object (from Worksheet 1F)	0.000	0.001	0.002
Other single-vehicle collision (from Worksheet 1F)	0.010	0.016	0.026
Collision with pedestrian (from Worksheet 1I)	0.019	0.000	0.019
Collision with bicycle (from Worksheet 1J)	0.010	0.000	0.010
Subtotal	0.071	0.097	0.169
Total	0.195	0.363	0.558

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.558	0.07	7.9
Fatal and injury (FI)	0.2	0.07	2.7
Property damage only (PDO)	0.4	0.07	5.1

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments

General Information		Location Information	
Analyst	Jordan Brooks	Roadway	Chester Street
Agency or Company	Fehr & Peers	Roadway Section	Between 7th Street and 5th Street
Date Performed	01/02/19	Jurisdiction	Oakland, CA
		Analysis Year	2019

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	2U
Length of segment, L (mi)		--	0.09
AADT (veh/day)	$AADT_{MAX}$ = 32,600 (veh/day)	--	2,325
Type of on-street parking (none/parallel/angle)		None	Parallel (Residential)
Proportion of curb length with on-street parking		--	0.76
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	0
Minor commercial driveways (number)		--	0
Major industrial / institutional driveways (number)		--	1
Minor industrial / institutional driveways (number)		--	1
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	4
Other driveways (number)		--	0
Speed Category		--	Posted Speed 30 mph or Lower
Roadside fixed object density (fixed objects / mi)		0	39
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	15
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.35	1.10	1.00	0.93	1.00	1.38

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-15.22	1.68	0.84	0.010	1.000	0.010	1.38	1.00	0.013
Fatal and Injury (FI)	-16.22	1.66	0.65	0.003	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.303	0.003	1.38	1.00	0.004
Property Damage Only (PDO)	-15.62	1.69	0.87	0.007	$(5)_{TOTAL}-(5)_{FI}$ 0.697	0.007	1.38	1.00	0.009

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted $N_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted $N_{brmv\ (PDO)}$ (crashes/year)**	**Predicted $N_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.004	1.000	0.009	0.013
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.730	0.003	0.778	0.007	0.010
Head-on collision	0.068	0.000	0.004	0.000	0.000
Angle collision	0.085	0.000	0.079	0.001	0.001
Sideswipe, same direction	0.015	0.000	0.031	0.000	0.000
Sideswipe, opposite direction	0.073	0.000	0.055	0.001	0.001
Other multiple-vehicle collision	0.029	0.000	0.053	0.000	0.001

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.47	0.56	0.81	0.028	1.000	0.028	1.38	1.00	0.039
Fatal and Injury (FI)	-3.96	0.23	0.50	0.010	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.348	0.010	1.38	1.00	0.014
Property Damage Only (PDO)	-6.51	0.64	0.87	0.019	$(5)_{TOTAL}-(5)_{FI}$ 0.652	0.018	1.38	1.00	0.025

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted $N_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted $N_{brsv\ (PDO)}$ (crashes/year)**	**Predicted $N_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.014	1.000	0.025	0.039
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.026	0.000	0.066	0.002	0.002
Collision with fixed object	0.723	0.010	0.759	0.019	0.029
Collision with other object	0.010	0.000	0.013	0.000	0.000
Other single-vehicle collision	0.241	0.003	0.162	0.004	0.007

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 n_j * N_j * $(AADT/15,000)^t$	from Table 12-7
Major commercial	0	0.158	1.000	0.000	--
Minor commercial	0	0.050	1.000	0.000	
Major industrial/institutional	1	0.172	1.000	0.027	
Minor industrial/institutional	1	0.023	1.000	0.004	
Major residential	0	0.083	1.000	0.000	
Minor residential	4	0.016	1.000	0.010	
Other	0	0.025	1.000	0.000	
Total	--	--	--	0.040	0.81

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.040	1.000	0.040	1.38	1.00	0.055
Fatal and injury (FI)	--	0.323	0.013	1.38	1.00	0.018
Property damage only (PDO)	--	0.677	0.027	1.38	1.00	0.037

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	0.013	0.039	0.055	0.108	0.036	1.00	0.004
Fatal and injury (FI)	--	--	--	--	--	1.00	0.004

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	0.013	0.039	0.055	0.108	0.018	1.00	0.002
Fatal and injury (FI)	--	--	--	--	--	1.00	0.002

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)** (3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	**Property damage only (PDO)** (5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	**Total** (6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
	MULTIPLE-VEHICLE		
Rear-end collisions (from Worksheet 1D)	0.003	0.007	0.010
Head-on collisions (from Worksheet 1D)	0.000	0.000	0.000
Angle collisions (from Worksheet 1D)	0.000	0.001	0.001
Sideswipe, same direction (from Worksheet 1D)	0.000	0.000	0.000
Sideswipe, opposite direction (from Worksheet 1D)	0.000	0.001	0.001
Driveway-related collisions (from Worksheet 1H)	0.018	0.037	0.055
Other multiple-vehicle collision (from Worksheet 1D)	0.000	0.000	0.001
Subtotal	0.022	0.047	0.069
	SINGLE-VEHICLE		
Collision with animal (from Worksheet 1F)	0.000	0.002	0.002
Collision with fixed object (from Worksheet 1F)	0.010	0.019	0.029
Collision with other object (from Worksheet 1F)	0.000	0.000	0.000
Other single-vehicle collision (from Worksheet 1F)	0.003	0.004	0.007
Collision with pedestrian (from Worksheet 1I)	0.004	0.000	0.004
Collision with bicycle (from Worksheet 1J)	0.002	0.000	0.002
Subtotal	0.019	0.025	0.045
Total	0.041	0.072	0.113

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments			
(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.113	0.09	1.3
Fatal and injury (FI)	0.0	0.09	0.5
Property damage only (PDO)	0.1	0.09	0.8

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments			
General Information		**Location Information**	
Analyst	Jordan Brooks	Roadway	Mandela Parkway
Agency or Company	Fehr & Peers	Roadway Section	Between 7th Street and 5th Street
Date Performed	01/02/19	Jurisdiction	Oakland, CA
		Analysis Year	2019

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	2U
Length of segment, L (mi)		--	0.09
AADT (veh/day)	$AADT_{MAX}$ = 32,600 (veh/day)	--	6,175
Type of on-street parking (none/parallel/angle)		None	Parallel (Comm/Ind)
Proportion of curb length with on-street parking		--	0.36
Median width (ft) - for divided only		15	Not Present
Lighting (present / not present)		Not Present	Present
Auto speed enforcement (present / not present)		Not Present	Not Present
Major commercial driveways (number)		--	1
Minor commercial driveways (number)		--	2
Major industrial / institutional driveways (number)		--	1
Minor industrial / institutional driveways (number)		--	0
Major residential driveways (number)		--	0
Minor residential driveways (number)		--	0
Other driveways (number)		--	0
Speed Category		--	Posted Speed 30 mph or Lower
Roadside fixed object density (fixed objects / mi)		0	79
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	25
Calibration Factor, Cr		1.00	1.00

Worksheet 1B -- Crash Modification Factors for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
CMF for On-Street Parking	CMF for Roadside Fixed Objects	CMF for Median Width	CMF for Lighting	CMF for Automated Speed Enforcement	Combined CMF
CMF 1r	*CMF 2r*	*CMF 3r*	*CMF 4r*	*CMF 5r*	*CMF comb*
from Equation 12-32	from Equation 12-33	from Table 12-22	from Equation 12-34	from Section 12.7.1	(1)*(2)*(3)*(4)*(5)
1.39	1.17	1.00	0.93	1.00	1.52

Worksheet 1C -- Multiple-Vehicle Nondriveway Collisions by Severity Level for Urban and Suburban Roadway Segments									
(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brmv}**	**Proportion of Total Crashes**	**Adjusted N_{brmv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brmv}**
	from Table 12-3		from Table 12-3	from Equation 12-10		$(4)_{TOTAL}$*(5)	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-15.22	1.68	0.84	0.050	1.000	0.050	1.52	1.00	0.076
Fatal and Injury (FI)	-16.22	1.66	0.65	0.015	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.297	0.015	1.52	1.00	0.022
Property Damage Only (PDO)	-15.62	1.69	0.87	0.037	$(5)_{TOTAL}-(5)_{FI}$ 0.703	0.035	1.52	1.00	0.053

Worksheet 1D -- Multiple-Vehicle Nondriveway Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted $N_{brmv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted $N_{brmv\ (PDO)}$ (crashes/year)**	**Predicted $N_{brmv\ (TOTAL)}$ (crashes/year)**
	from Table 12-4	$(9)_{FI}$ from Worksheet 1C	from Table 12-4	$(9)_{PDO}$ from Worksheet 1C	$(9)_{TOTAL}$ from Worksheet 1C
Total	1.000	0.022	1.000	0.053	0.076
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.730	0.016	0.778	0.041	0.058
Head-on collision	0.068	0.002	0.004	0.000	0.002
Angle collision	0.085	0.002	0.079	0.004	0.006
Sideswipe, same direction	0.015	0.000	0.031	0.002	0.002
Sideswipe, opposite direction	0.073	0.002	0.055	0.003	0.005
Other multiple-vehicle collision	0.029	0.001	0.053	0.003	0.003

Worksheet 1E -- Single-Vehicle Collisions by Severity Level for Urban and Suburban Roadway Segments

(1)	(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)
Crash Severity Level	**SPF Coefficients**		**Overdispersion Parameter, k**	**Initial N_{brsv}**	**Proportion of Total Crashes**	**Adjusted N_{brsv}**	**Combined CMFs**	**Calibration Factor, Cr**	**Predicted N_{brsv}**
	from Table 12-5		from Table 12-5	from Equation 12-13		$(4)_{TOTAL}*(5)$	(6) from Worksheet 1B		(6)*(7)*(8)
	a	b							
Total	-5.47	0.56	0.81	0.049	1.000	0.049	1.52	1.00	0.074
Fatal and Injury (FI)	-3.96	0.23	0.50	0.012	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.263	0.013	1.52	1.00	0.019
Property Damage Only (PDO)	-6.51	0.64	0.87	0.035	$(5)_{TOTAL}-(5)_{FI}$ 0.737	0.036	1.52	1.00	0.054

Worksheet 1F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted $N_{brsv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted $N_{brsv\ (PDO)}$ (crashes/year)**	**Predicted $N_{brsv\ (TOTAL)}$ (crashes/year)**
	from Table 12-6	$(9)_{FI}$ from Worksheet 1E	from Table 12-6	$(9)_{PDO}$ from Worksheet 1E	$(9)_{TOTAL}$ from Worksheet 1E
Total	1.000	0.019	1.000	0.054	0.074
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.026	0.001	0.066	0.004	0.004
Collision with fixed object	0.723	0.014	0.759	0.041	0.055
Collision with other object	0.010	0.000	0.013	0.001	0.001
Other single-vehicle collision	0.241	0.005	0.162	0.009	0.013

Worksheet 1G -- Multiple-Vehicle Driveway-Related Collisions by Driveway Type for Urban and Suburban Roadway Segments					
(1)	(2)	(3)	(4)	(5)	(6)
Driveway Type	**Number of driveways, n_j**	**Crashes per driveway per year, N_j**	**Coefficient for traffic adjustment, t**	**Initial N_{brdwy}**	**Overdispersion parameter, k**
		from Table 12-7	from Table 12-7	Equation 12-16 $n_j * N_j * (AADT/15,000)^t$	from Table 12-7
Major commercial	1	0.158	1.000	0.065	--
Minor commercial	2	0.050	1.000	0.041	
Major industrial/institutional	1	0.172	1.000	0.071	
Minor industrial/institutional	0	0.023	1.000	0.000	
Major residential	0	0.083	1.000	0.000	
Minor residential	0	0.016	1.000	0.000	
Other	0	0.025	1.000	0.000	
Total	--	--	--	0.177	0.81

Worksheet 1H -- Multiple-Vehicle Driveway-Related Collisions by Severity Level for Urban and Suburban Roadway Segments						
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Crash Severity Level	**Initial N_{brdwy}**	**Proportion of total crashes (f_{dwy})**	**Adjusted N_{brdwy}**	**Combined CMFs**	**Calibration factor, C_r**	**Predicted N_{brdwy}**
	$(5)_{TOTAL}$ from Worksheet 1G	from Table 12-7	$(2)_{TOTAL}$ * (3)	(6) from Worksheet 1B		(4)*(5)*(6)
Total	0.177	1.000	0.177	1.52	1.00	0.268
Fatal and injury (FI)	--	0.323	0.057	1.52	1.00	0.087
Property damage only (PDO)	--	0.677	0.120	1.52	1.00	0.182

Worksheet 1I -- Vehicle-Pedestrian Collisions for Urban and Suburban Roadway Segments							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Calibration factor, C_r**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8		(5)*(6)*(7)
Total	0.076	0.074	0.268	0.418	0.036	1.00	0.015
Fatal and injury (FI)	--	--	--	--	--	1.00	0.015

Worksheet 1J -- Vehicle-Bicycle Collisions for Urban and Suburban Roadway Segments							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Calibration factor, C_r**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9		(5)*(6)*(7)
Total	0.076	0.074	0.268	0.418	0.018	1.00	0.008
Fatal and injury (FI)	--	--	--	--	--	1.00	0.008

Worksheet 1K -- Crash Severity Distribution for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Collision type	**Fatal and injury (FI)** (3) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J	**Property damage only (PDO)** (5) from Worksheet 1D and 1F; and (7) from Worksheet 1H	**Total** (6) from Worksheet 1D and 1F; (7) from Worksheet 1H; and (8) from Worksheet 1I and 1J
	MULTIPLE-VEHICLE		
Rear-end collisions (from Worksheet 1D)	0.016	0.041	0.058
Head-on collisions (from Worksheet 1D)	0.002	0.000	0.002
Angle collisions (from Worksheet 1D)	0.002	0.004	0.006
Sideswipe, same direction (from Worksheet 1D)	0.000	0.002	0.002
Sideswipe, opposite direction (from Worksheet 1D)	0.002	0.003	0.005
Driveway-related collisions (from Worksheet 1H)	0.087	0.182	0.268
Other multiple-vehicle collision (from Worksheet 1D)	0.001	0.003	0.003
Subtotal	0.109	0.235	0.344
	SINGLE-VEHICLE		
Collision with animal (from Worksheet 1F)	0.001	0.004	0.004
Collision with fixed object (from Worksheet 1F)	0.014	0.041	0.055
Collision with other object (from Worksheet 1F)	0.000	0.001	0.001
Other single-vehicle collision (from Worksheet 1F)	0.005	0.009	0.013
Collision with pedestrian (from Worksheet 1I)	0.015	0.000	0.015
Collision with bicycle (from Worksheet 1J)	0.008	0.000	0.008
Subtotal	0.042	0.054	0.096
Total	0.151	0.289	0.441

Worksheet 1L -- Summary Results for Urban and Suburban Roadway Segments

(1)	(2)	(3)	(4)
Crash Severity Level	**Predicted average crash frequency, $N_{predicted\ rs}$ (crashes/year)**	**Roadway segment length, L (mi)**	**Crash rate (crashes/mi/year)**
	(Total) from Worksheet 1K		(2) / (3)
Total	0.441	0.09	5.1
Fatal and injury (FI)	0.2	0.09	1.7
Property damage only (PDO)	0.3	0.09	3.3

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections			
General Information		**Location Information**	
Analyst	Jordan Brooks	Roadway	
Agency or Company	Fehr & Peers	Intersection	7th Street and Chester Street
Date Performed	01/02/19	Jurisdiction	Oakland, CA
		Analysis Year	2019

Input Data		**Base Conditions**	**Site Conditions**
Intersection type (3ST, 3SG, 4ST, 4SG)		--	4ST
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ = 46,800 (veh/day)	--	6,960
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ = 5,900 (veh/day)	--	2,160
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	2
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	
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		0	
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]		--	
Type of left-turn signal phasing for Leg #1		Permissive	
Type of left-turn signal phasing for Leg #2		--	
Type of left-turn signal phasing for Leg #3		--	
Type of left-turn signal phasing for Leg #4 (if applicable)		--	
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]		0	
Intersection red light cameras (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})		--	
Number of bus stops within 300 m (1,000 ft) of the intersection		0	
Schools within 300 m (1,000 ft) of the intersection (present/not present)		Not Present	
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection		0	

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)
0.53	1.00	1.00	1.00	0.91	0.97	0.47

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	-8.90	0.82	0.25	0.40	1.316	1.000	1.316	0.47	1.00	0.620
Fatal and Injury (FI)	-11.13	0.93	0.28	0.48	0.472	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.357	0.469	0.47	1.00	0.221
Property Damage Only (PDO)	-8.74	0.77	0.23	0.40	0.851	$(5)_{TOTAL}-(5)_{FI}$ 0.643	0.847	0.47	1.00	0.399

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	0.221	1.000	0.399	0.620
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.338	0.075	0.374	0.149	0.224
Head-on collision	0.041	0.009	0.030	0.012	0.021
Angle collision	0.440	0.097	0.335	0.134	0.231
Sideswipe	0.121	0.027	0.044	0.018	0.044
Other multiple-vehicle collision	0.060	0.013	0.217	0.087	0.100

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	-5.33	0.33	0.12	0.65	0.226	1.000	0.226	0.47	1.00	0.106
Fatal and Injury (FI)	--	--	--	--	0.063	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.304	0.069	0.47	1.00	0.032
Property Damage Only (PDO)	-7.04	0.36	0.25	0.54	0.144	$(5)_{TOTAL}-(5)_{FI}$ 0.696	0.157	0.47	1.00	0.074

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	0.032	1.000	0.074	0.106
		(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	0.001	0.000	0.026	0.002	0.002
Collision with fixed object	0.679	0.022	0.847	0.063	0.085
Collision with other object	0.089	0.003	0.070	0.005	0.008
Other single-vehicle collision	0.051	0.002	0.007	0.001	0.002
Single-vehicle noncollision	0.179	0.006	0.049	0.004	0.009

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	0.620	0.106	0.726	0.022	1.00	0.016
Fatal and injury (FI)	--	--	--	--	1.00	0.016

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	0.620	0.106	0.726	0.018	1.00	0.013
Fatal and injury (FI)	--	--	--	--	1.00	0.013

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)	0.075	0.149	0.224
Head-on collisions (from Worksheet 2D)	0.009	0.012	0.021
Angle collisions (from Worksheet 2D)	0.097	0.134	0.231
Sideswipe (from Worksheet 2D)	0.027	0.018	0.044
Other multiple-vehicle collision (from Worksheet 2D)	0.013	0.087	0.100
Subtotal	0.221	0.399	0.620
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.002	0.002
Collision with fixed object (from Worksheet 2F)	0.022	0.063	0.085
Collision with other object (from Worksheet 2F)	0.003	0.005	0.008
Other single-vehicle collision (from Worksheet 2F)	0.002	0.001	0.002
Single-vehicle noncollision (from Worksheet 2F)	0.006	0.004	0.009
Collision with pedestrian (from Worksheet 2G or 2I)	0.016	0.000	0.016
Collision with bicycle (from Worksheet 2J)	0.013	0.000	0.013
Subtotal	0.061	0.074	0.135
Total	0.282	0.473	0.755

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	0.8
Fatal and injury (FI)	0.3
Property damage only (PDO)	0.5

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections			
General Information		**Location Information**	
Analyst	Jordan Brooks	Roadway	
Agency or Company	Fehr & Peers	Intersection	7th Street and Center Street
Date Performed	01/02/19	Jurisdiction	Oakland, CA
		Analysis Year	2019
Input Data		**Base Conditions**	**Site Conditions**
Intersection type (3ST, 3SG, 4ST, 4SG)		--	3SG
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ = 58,100 (veh/day)	--	7,330
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ = 16,400 (veh/day)	--	500
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	
Number of major-road approaches with right-turn lanes (0,1,2)		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	1
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	Permissive
Type of left-turn signal phasing for Leg #2		--	Permissive
Type of left-turn signal phasing for Leg #3		--	Not Applicable
Type of left-turn signal phasing for Leg #4 (if 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			3,010
Maximum number of lanes crossed by a pedestrian (n_{lanesx})		--	3
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	Not Present
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection		0	2

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)
0.93	1.00	1.00	1.00	0.91	1.00	0.85

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	-12.13	1.11	0.26	0.33	0.530	1.000	0.530	0.85	1.00	0.449
Fatal and Injury (FI)	-11.58	1.02	0.17	0.30	0.236	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.446	0.236	0.85	1.00	0.200
Property Damage Only (PDO)	-13.24	1.14	0.30	0.36	0.292	$(5)_{TOTAL}-(5)_{FI}$ 0.554	0.293	0.85	1.00	0.248

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	0.200	1.000	0.248	0.449
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.549	0.110	0.546	0.136	0.246
Head-on collision	0.038	0.008	0.020	0.005	0.013
Angle collision	0.280	0.056	0.204	0.051	0.107
Sideswipe	0.076	0.015	0.032	0.008	0.023
Other multiple-vehicle collision	0.057	0.011	0.198	0.049	0.061

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	-9.02	0.42	0.40	0.36	0.061	1.000	0.061	0.85	1.00	0.052
Fatal and Injury (FI)	-9.75	0.27	0.51	0.24	0.015	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.240	0.015	0.85	1.00	0.012
Property Damage Only (PDO)	-9.08	0.45	0.33	0.53	0.049	$(5)_{TOTAL}-(5)_{FI}$ 0.760	0.046	0.85	1.00	0.039

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	0.012	1.000	0.039	0.052
		(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	0.001	0.000	0.003	0.000	0.000
Collision with fixed object	0.653	0.008	0.895	0.035	0.043
Collision with other object	0.091	0.001	0.069	0.003	0.004
Other single-vehicle collision	0.045	0.001	0.018	0.001	0.001
Single-vehicle noncollision	0.209	0.003	0.014	0.001	0.003

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	1.00	1.12	3.11

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	-6.60	0.05	0.24	0.41	0.09	0.52	0.039	3.11	1.00	0.122
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.122

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	0.449	0.052	0.500	0.011	1.00	0.006
Fatal and injury (FI)	--	--	--	--	1.00	0.006

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)	0.110	0.136	0.246
Head-on collisions (from Worksheet 2D)	0.008	0.005	0.013
Angle collisions (from Worksheet 2D)	0.056	0.051	0.107
Sideswipe (from Worksheet 2D)	0.015	0.008	0.023
Other multiple-vehicle collision (from Worksheet 2D)	0.011	0.049	0.061
Subtotal	0.200	0.248	0.449
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)	0.008	0.035	0.043
Collision with other object (from Worksheet 2F)	0.001	0.003	0.004
Other single-vehicle collision (from Worksheet 2F)	0.001	0.001	0.001
Single-vehicle noncollision (from Worksheet 2F)	0.003	0.001	0.003
Collision with pedestrian (from Worksheet 2G or 2I)	0.122	0.000	0.122
Collision with bicycle (from Worksheet 2J)	0.006	0.000	0.006
Subtotal	0.140	0.039	0.179
Total	0.340	0.288	0.627

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	0.6
Fatal and injury (FI)	0.3
Property damage only (PDO)	0.3

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections			
General Information		**Location Information**	
Analyst	Jordan Brooks	Roadway	
Agency or Company	Fehr & Peers	Intersection	7th Street and Mandela Parkway
Date Performed	01/02/19	Jurisdiction	Oakland, CA
		Analysis Year	2019

Input Data		**Base Conditions**	**Site Conditions**
Intersection type (3ST, 3SG, 4ST, 4SG)		--	4SG
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ = 67,700 (veh/day)	--	8,780
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ = 33,400 (veh/day)	--	7,530
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	
Number of major-road approaches with right-turn lanes (0,1,2)		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	3
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]		--	2
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		--	Permissive
Type of left-turn signal phasing for Leg #4 (if applicable)		--	Permissive
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			1,660
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	3
Schools within 300 m (1,000 ft) of the intersection (present/not present)		Not Present	Not Present
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection		0	2

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)
0.73	0.88	1.00	1.00	0.91	1.00	0.59

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	2.179	1.000	2.179	0.59	1.00	1.280
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	0.630	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.300	0.655	0.59	1.00	0.384
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	1.468	$(5)_{TOTAL}-(5)_{FI}$ 0.700	1.525	0.59	1.00	0.896

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	0.384	1.000	0.896	1.280
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.173	0.483	0.433	0.606
Head-on collision	0.049	0.019	0.030	0.027	0.046
Angle collision	0.347	0.133	0.244	0.219	0.352
Sideswipe	0.099	0.038	0.032	0.029	0.067
Other multiple-vehicle collision	0.055	0.021	0.211	0.189	0.210

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	0.197	1.000	0.197	0.59	1.00	0.116
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.063	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.325	0.064	0.59	1.00	0.038
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.132	$(5)_{TOTAL}-(5)_{FI}$ 0.675	0.133	0.59	1.00	0.078

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	0.038	1.000	0.078	0.116
		(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	0.028	0.870	0.068	0.096
Collision with other object	0.072	0.003	0.070	0.005	0.008
Other single-vehicle collision	0.040	0.002	0.023	0.002	0.003
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)
4.15	1.00	1.12	4.65

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	0.116	4.65	1.00	0.539
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.539

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	1.280	0.116	1.396	0.015	1.00	0.021
Fatal and injury (FI)	--	--	--	--	1.00	0.021

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)	0.173	0.433	0.606
Head-on collisions (from Worksheet 2D)	0.019	0.027	0.046
Angle collisions (from Worksheet 2D)	0.133	0.219	0.352
Sideswipe (from Worksheet 2D)	0.038	0.029	0.067
Other multiple-vehicle collision (from Worksheet 2D)	0.021	0.189	0.210
Subtotal	0.384	0.896	1.280
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)	0.028	0.068	0.096
Collision with other object (from Worksheet 2F)	0.003	0.005	0.008
Other single-vehicle collision (from Worksheet 2F)	0.002	0.002	0.003
Single-vehicle noncollision (from Worksheet 2F)	0.005	0.003	0.008
Collision with pedestrian (from Worksheet 2G or 2I)	0.539	0.000	0.539
Collision with bicycle (from Worksheet 2J)	0.021	0.000	0.021
Subtotal	0.598	0.078	0.676
Total	0.982	0.974	1.956

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	2.0
Fatal and injury (FI)	1.0
Property damage only (PDO)	1.0

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections				
General Information		**Location Information**		
Analyst	Jordan Brooks	Roadway		
Agency or Company	Fehr & Peers	Intersection	5th Street and Chester Street	
Date Performed	01/02/19	Jurisdiction	Oakland, CA	
		Analysis Year	2019	
Input Data		**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)		--	4ST	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ = 46,800 (veh/day)	--	1,740	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ = 5,900 (veh/day)	--	700	
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		
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		0		
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]		--		
Type of left-turn signal phasing for Leg #1		Permissive		
Type of left-turn signal phasing for Leg #2		--		
Type of left-turn signal phasing for Leg #3		--		
Type of left-turn signal phasing for Leg #4 (if applicable)		--		
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]		0		
Intersection red light cameras (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})		--		
Number of bus stops within 300 m (1,000 ft) of the intersection		0		
Schools within 300 m (1,000 ft) of the intersection (present/not present)		Not Present		
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection		0		

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	0.98	0.89

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	-8.90	0.82	0.25	0.40	0.319	1.000	0.319	0.89	1.00	0.285
Fatal and Injury (FI)	-11.13	0.93	0.28	0.48	0.095	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.296	0.094	0.89	1.00	0.084
Property Damage Only (PDO)	-8.74	0.77	0.23	0.40	0.226	$(5)_{TOTAL}-(5)_{FI}$ 0.704	0.224	0.89	1.00	0.201

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	0.084	1.000	0.201	0.285
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.338	0.028	0.374	0.075	0.103
Head-on collision	0.041	0.003	0.030	0.006	0.009
Angle collision	0.440	0.037	0.335	0.067	0.104
Sideswipe	0.121	0.010	0.044	0.009	0.019
Other multiple-vehicle collision	0.060	0.005	0.217	0.044	0.049

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	-5.33	0.33	0.12	0.65	0.125	1.000	0.125	0.89	1.00	0.111
Fatal and Injury (FI)	--	--	--	--	0.035	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.346	0.043	0.89	1.00	0.039
Property Damage Only (PDO)	-7.04	0.36	0.25	0.54	0.066	$(5)_{TOTAL}-(5)_{FI}$ 0.654	0.082	0.89	1.00	0.073

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	0.039	1.000	0.073	0.111
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with parked vehicle	0.001	0.000	0.001	0.000	0.000
Collision with animal	0.001	0.000	0.026	0.002	0.002
Collision with fixed object	0.679	0.026	0.847	0.062	0.088
Collision with other object	0.089	0.003	0.070	0.005	0.009
Other single-vehicle collision	0.051	0.002	0.007	0.001	0.002
Single-vehicle noncollision	0.179	0.007	0.049	0.004	0.010

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	0.285	0.111	0.396	0.022	1.00	0.009
Fatal and injury (FI)	--	--	--	--	1.00	0.009

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	0.285	0.111	0.396	0.018	1.00	0.007
Fatal and injury (FI)	--	--	--	--	1.00	0.007

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)	0.028	0.075	0.103
Head-on collisions (from Worksheet 2D)	0.003	0.006	0.009
Angle collisions (from Worksheet 2D)	0.037	0.067	0.104
Sideswipe (from Worksheet 2D)	0.010	0.009	0.019
Other multiple-vehicle collision (from Worksheet 2D)	0.005	0.044	0.049
Subtotal	0.084	0.201	0.285
SINGLE-VEHICLE			
Collision with parked vehicle (from Worksheet 2F)	0.000	0.000	0.000
Collision with animal (from Worksheet 2F)	0.000	0.002	0.002
Collision with fixed object (from Worksheet 2F)	0.026	0.062	0.088
Collision with other object (from Worksheet 2F)	0.003	0.005	0.009
Other single-vehicle collision (from Worksheet 2F)	0.002	0.001	0.002
Single-vehicle noncollision (from Worksheet 2F)	0.007	0.004	0.010
Collision with pedestrian (from Worksheet 2G or 2I)	0.009	0.000	0.009
Collision with bicycle (from Worksheet 2J)	0.007	0.000	0.007
Subtotal	0.054	0.073	0.127
Total	0.139	0.273	0.412

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	0.4
Fatal and injury (FI)	0.1
Property damage only (PDO)	0.3

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections				
General Information		**Location Information**		
Analyst	Jordan Brooks	Roadway		
Agency or Company	Fehr & Peers	Intersection	5th Street and Center Street	
Date Performed	01/02/19	Jurisdiction	Oakland, CA	
		Analysis Year	2019	
Input Data		**Base Conditions**	**Site Conditions**	
Intersection type (3ST, 3SG, 4ST, 4SG)		--	3ST	
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ = 45,700 (veh/day)	--	3,150	
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ = 9,300 (veh/day)	--	200	
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		
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		0		
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]		--		
Type of left-turn signal phasing for Leg #1		Permissive		
Type of left-turn signal phasing for Leg #2		--		
Type of left-turn signal phasing for Leg #3		--		
Type of left-turn signal phasing for Leg #4 (if applicable)		--		
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]		0		
Intersection red light cameras (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})		--		
Number of bus stops within 300 m (1,000 ft) of the intersection		0		
Schools within 300 m (1,000 ft) of the intersection (present/not present)		Not Present		
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection		0		

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	0.106	1.000	0.106	0.91	1.00	0.096
Fatal and Injury (FI)	-14.01	1.16	0.30	0.69	0.046	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.484	0.051	0.91	1.00	0.047
Property Damage Only (PDO)	-15.38	1.20	0.51	0.77	0.049	$(5)_{TOTAL}-(5)_{FI}$ 0.516	0.055	0.91	1.00	0.050

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	0.047	1.000	0.050	0.096
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.421	0.020	0.440	0.022	0.041
Head-on collision	0.045	0.002	0.023	0.001	0.003
Angle collision	0.343	0.016	0.262	0.013	0.029
Sideswipe	0.126	0.006	0.040	0.002	0.008
Other multiple-vehicle collision	0.065	0.003	0.235	0.012	0.015

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	0.060	1.000	0.060	0.91	1.00	0.054
Fatal and Injury (FI)	--	--	--	--	0.018	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.364	0.022	0.91	1.00	0.020
Property Damage Only (PDO)	-8.36	0.25	0.55	1.29	0.032	$(5)_{TOTAL}-(5)_{FI}$ 0.636	0.038	0.91	1.00	0.034

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	0.020	1.000	0.034	0.054
		(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	0.015	0.834	0.029	0.044
Collision with other object	0.090	0.002	0.092	0.003	0.005
Other single-vehicle collision	0.039	0.001	0.023	0.001	0.002
Single-vehicle noncollision	0.105	0.002	0.030	0.001	0.003

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	0.096	0.054	0.150	0.021	1.00	0.003
Fatal and injury (FI)	--	--	--	--	1.00	0.003

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	0.096	0.054	0.150	0.016	1.00	0.002
Fatal and injury (FI)	--	--	--	--	1.00	0.002

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)	0.020	0.022	0.041
Head-on collisions (from Worksheet 2D)	0.002	0.001	0.003
Angle collisions (from Worksheet 2D)	0.016	0.013	0.029
Sideswipe (from Worksheet 2D)	0.006	0.002	0.008
Other multiple-vehicle collision (from Worksheet 2D)	0.003	0.012	0.015
Subtotal	0.047	0.050	0.096
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)	0.015	0.029	0.044
Collision with other object (from Worksheet 2F)	0.002	0.003	0.005
Other single-vehicle collision (from Worksheet 2F)	0.001	0.001	0.002
Single-vehicle noncollision (from Worksheet 2F)	0.002	0.001	0.003
Collision with pedestrian (from Worksheet 2G or 2I)	0.003	0.000	0.003
Collision with bicycle (from Worksheet 2J)	0.002	0.000	0.002
Subtotal	0.025	0.035	0.060
Total	0.072	0.084	0.156

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

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections			
General Information		**Location Information**	
Analyst	Jordan Brooks	Roadway	
Agency or Company	Fehr & Peers	Intersection	5th Street and Mandela Parkway
Date Performed	01/02/19	Jurisdiction	Oakland, CA
		Analysis Year	2019

Input Data		Base Conditions	Site Conditions
Intersection type (3ST, 3SG, 4ST, 4SG)		--	4SG
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ = 67,700 (veh/day)	--	4,740
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ = 33,400 (veh/day)	--	3,820
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	
Number of major-road approaches with right-turn lanes (0,1,2)		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	Permissive
Type of left-turn signal phasing for Leg #2		--	Permissive
Type of left-turn signal phasing for Leg #3		--	Permissive
Type of left-turn signal phasing for Leg #4 (if applicable)		--	Permissive
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			2,850
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	2
Schools within 300 m (1,000 ft) of the intersection (present/not present)		Not Present	Not Present
Number of alcohol sales establishments within 300 m (1,000 ft) of the intersection		0	2

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	-10.99	1.07	0.23	0.39	0.964		1.000	0.964	0.91	1.00	0.878
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	0.262	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$	0.283	0.273	0.91	1.00	0.248
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	0.665	$(5)_{TOTAL}-(5)_{FI}$	0.717	0.691	0.91	1.00	0.630

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	0.248	1.000	0.630	0.878
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.112	0.483	0.304	0.416
Head-on collision	0.049	0.012	0.030	0.019	0.031
Angle collision	0.347	0.086	0.244	0.154	0.240
Sideswipe	0.099	0.025	0.032	0.020	0.045
Other multiple-vehicle collision	0.055	0.014	0.211	0.133	0.147

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	0.108		1.000	0.108	0.91	1.00	0.098
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.040	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$	0.368	0.040	0.91	1.00	0.036
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.069	$(5)_{TOTAL}-(5)_{FI}$	0.632	0.068	0.91	1.00	0.062

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	0.062	0.098
		(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	0.054	0.081
Collision with other object	0.072	0.003	0.070	0.004	0.007
Other single-vehicle collision	0.040	0.001	0.023	0.001	0.003
Single-vehicle noncollision	0.141	0.005	0.034	0.002	0.007

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	1.00	1.12	3.11

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	0.100	3.11	1.00	0.311
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.311

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	0.878	0.098	0.976	0.015	1.00	0.015
Fatal and injury (FI)	--	--	--	--	1.00	0.015

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)	0.112	0.304	0.416
Head-on collisions (from Worksheet 2D)	0.012	0.019	0.031
Angle collisions (from Worksheet 2D)	0.086	0.154	0.240
Sideswipe (from Worksheet 2D)	0.025	0.020	0.045
Other multiple-vehicle collision (from Worksheet 2D)	0.014	0.133	0.147
Subtotal	0.248	0.630	0.878
	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	0.054	0.081
Collision with other object (from Worksheet 2F)	0.003	0.004	0.007
Other single-vehicle collision (from Worksheet 2F)	0.001	0.001	0.003
Single-vehicle noncollision (from Worksheet 2F)	0.005	0.002	0.007
Collision with pedestrian (from Worksheet 2G or 2I)	0.311	0.000	0.311
Collision with bicycle (from Worksheet 2J)	0.015	0.000	0.015
Subtotal	0.362	0.062	0.424
Total	0.610	0.692	1.301

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	1.3
Fatal and injury (FI)	0.6
Property damage only (PDO)	0.7

FEHR PEERS

MEMORANDUM

Date: January 29, 2019

To: Rebecca Auld, Lamphier-Gregory

From: Sam Tabibnia and Jordan Brooks, Fehr & Peers

Subject: West Oakland BART TOD – Transportation and Parking Demand Management Plan

OK18-0294

The proposed West Oakland BART TOD project is required to prepare a Transportation and Parking Demand Management (TDM) Plan per the *City of Oakland's Transportation Impact Review Guidelines* and the City's Standard Conditions of Approval because the project would generate more than 50 net new peak hour trips. Since the project would generate more than 100 net new peak hour trips, the goal of the TDM Plan is to achieve a 20 percent vehicle trip reduction (VTR). This memorandum describes the project and its setting, lists the mandatory TDM strategies that the project shall implement to achieve the 20 percent VTR, provides the additional strategies that should be considered if the 20 percent VTR is not achieved, and describes the monitoring, evaluation, and enforcement of the TDM Plan.

PROJECT DESCRIPTION

The proposed project would be located adjacent to the West Oakland BART station, bounded by 7th Street to the north, Mandela Parkway to the east, 5th Street to the south, and Chester Street to the west. The project would consist of four buildings that would include:

- 762 multi-family dwelling units
- approximately 382,000 square feet of office space
- approximately 75,000 square feet of ground-level commercial space

The project would also include 400 automobile parking spaces in a garage accessible via a driveway on Chester Street.

The project site is currently occupied by surface parking lots that provide 413 parking spaces for the West Oakland BART station, which the project would eliminate.

The following infrastructure improvements in the project vicinity are assumed to be part of the project because they are shown on the project site plan:

- Raised one-way Class 4 separated bikeways on both sides of 7th Street between Chester Street and Mandela Parkway.
- One-way Class 4 separated bikeways on both sides of Mandela Parkway between 7th and 5th Streets.
- A bike station on the east side of the existing BART station under the BART tracks and adjacent to a mid-block crossing on Mandela Parkway. The bike station is estimated to accommodate at least 500 bicycles, and would provide a repair station.
- The project proposes a 19-foot sidewalk along the project frontage on 5th Street, between Chester Street and Mandela Parkway. The sidewalk would have a minimum eight-foot pedestrian through zone, and the sidewalk width would accommodate the needs of pedestrians, bus passengers, and curbside passenger loading.
- The project proposes a sidewalk along the project frontage on 7th Street with a minimum eight-foot pedestrian through zone between Chester Street and Mandela Parkway. The sidewalk would provide adequate width to accommodate the high level of pedestrians with pedestrian amenities such as seating, real-time bus arrival information, trash receptacles, and pedestrian-lighting.
- The project proposes an 11 to 15-foot sidewalk along the project frontage on Chester Street and a 15-foot sidewalk along Mandela Parkway between 5th and 7th Street. All sidewalks would have a minimum eight-foot pedestrian through zone.
- As part of implementing a Class 4 cycletrack along westbound 7th Street, the project would eliminate the second receiving lane west of Mandela Parkway and shorten the pedestrian crossing distance for the west crosswalk at the 7th Street/Mandela Parkway intersection.
- The sidewalks along the project frontage and the internal pedestrian plazas would provide pedestrian-scale lighting and street trees/plantings.
- At the intersections of 5th Street with Chester Street, Center Street and Mandela Parkway, the project would provide high-visibility crosswalks, and directional ramps along all approaches.
- At the 5th Street/Center Street intersection, project would provide curb extensions (bulb-outs) at all four intersection corners.

- High-visibility, mid-block pedestrian crossing would be provided on Mandela Parkway between 5th and 7th Streets to align with the east-west pedestrian path within the project site. The midblock crossing would also allow access between the bike station and the northbound Class 4 cycletrack on Mandela Parkway.

- The project would provide a bus stop/layover zone along the project frontage on 5th Street just west of Mandela Parkway. The bus zone would be at least 170 feet long and a concrete bus pad would also be installed in the roadway. The bus stop and layover for AC Transit Lines 36 and 62 could be relocated to this location.

- The existing bus stop on eastbound 7th Street west of Mandel Parkway would be retained and extended for an approximate length of 270 feet. This stop could serve AC Transit Lines 29, 36, and 62 and could serve as both a stop and layover space for AC Transit Line 14. The bus stop would be located on a 10-foot bus island that separates the Class 4 cycletrack along this segment of 7th Street.

- A new bus stop would be installed on westbound 7th Street just west of Center Street that could serve AC Transit Line 29. The bus stop would be about 130 feet long. The bus stop would be located on a 10-foot bus island that separates the Class 4 cycletrack along this segment of 7th Street.

- The sidewalks along project frontage on 5th and 7th Street would have adequate width and would accommodate a high level of passenger amenities, including shelters with seating, maps and other information, and real-time bus arrival information; trash receptacles; and lighting. In addition, the roadway pavement would be upgraded to provide concrete pads for the bus stops.

- To facilitate buses turning from northbound Chester Street to eastbound 7th Street, Chester Street is redesigned so that buses are positioned closer to the center line of Chester Street, which would improve current conditions for buses. Due to the tight turning radius of the corner, buses cannot make the turn from Chester Street to 7th Street when positioned close to the curb on northbound Chester Street.

- The following would be designated for passenger loading and unloading:

    - Approximately 100 feet of linear curb along the north side of 5th street east of Center Street and about 200 feet west of Center Street
    - Approximately 250 feet of linear curb along the south side of 7th Street between Chester and Center Streets, with about 50 feet of curb on eastbound 7th Street just west of Center Street designated as a blue accessible loading zone.
- Parking would be prohibited at the following locations:

    - On the west side of Mandela Parkway between 5th and 7th Street

- On the east side of Chester Street between 5th and 7th Streets and on the west side of Chester Street between the mid-block crossing and 7th Street.

PROJECT LOCATION

The project is located in a moderately dense area with streets generally laid out in a grid and sidewalks on most streets. It is located near some existing neighborhood-serving retail and industrial uses, and there are several proposed projects in the area that would increase residential density and provide neighborhood-serving retail uses. Additionally, the project is located within two miles of Downtown Oakland, a dense employment center.

The project is adjacent to the West Oakland BART Station, which is served by four BART lines and four AC Transit local bus lines. AC Transit Lines 14 and 62 have 15-minute peak headways, while Line 29 has 20-minute peak headways, and Line 36 has 30-minute peak headways. The Line 800 overnight bus also operates adjacent to the project site. No major changes to the bus routes operating near the project site are planned, though the project would involve relocating the bus stops within the site to the adjacent streets.

The project's proximity to regional transit and dense employment centers is likely to result in relatively high rates of walking, bicycling and transit use by residents and visitors. This is evidenced in part by the travel patterns of the area's existing residents. Based on US Census data, **Table 1** summarizes the transportation mode split for employed residents' journey to work for the census tracts in the project vicinity. About 46 percent of employed residents report driving alone to work. A high proportion of residents, approximately 29 percent, used public transportation to travel to work. The proportion of residents who walk or bike to work was also relatively high, with 12 percent reporting walking or biking to work. **Table 2** summarizes vehicle ownership for renter households for the census tracts in the project vicinity. About 38 percent of renter households near the project do not own vehicles, and the average automobile ownership is about 0.8 vehicles per renter household.

The number of automobile trips generated by the project is estimated to be slightly more than half the trips generated by a typical suburban residential development, as shown in **Table 3**. The project would also be expected to generate a vehicle-miles traveled (VMT) per resident that is about 83 percent of the regional VMT per worker, as the residential VMT per capita in the project TAZ is 12.5, comparted to the regional average of 15.0, as documented in the Project CEQA Analysis document.

TABLE 1
JOURNEY TO WORK FOR EMPLOYED RESIDENTS

Transportation Mode	Percent of Households with Employed Residents
Drove Alone	46%
Carpooled	5%
Public transportation	29%
Motorcycle	2%
Bicycle	7%
Walked	5%
Other	6%
Total	**100%**

Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates, Census Tracts 4018, 4022, 4024, 4025, and 4105, Table B08006.

TABLE 2
VEHICLE OWNERSHIP FOR EMPLOYED RESIDENTS

Vehicles Available	Percent of Renter Households with Employed Residents
No vehicle available	38%
1 vehicle available	46%
2 vehicles available	14%
3+ vehicles available	2%
Total	**100%**

Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates, Census Tracts 4018, 4022, 4024, 4025, and 4105, Table B08203.

TABLE 3
WEST OAKLAND BART TOD PROJECT TRIP GENERATION BY TRAVEL MODE[1]

Mode	Mode Share Adjustment Factors[2]	Daily	AM Peak Hour	PM Peak Hour
Automobile	53.1%	6,650	472	628
Transit	29.7%	3,720	264	351
Bike	5.1%	640	45	60
Walk	10.5%	1,310	93	124
	Total Trips	**12,320**	**874**	**1,163**

Notes:

1. See West Oakland BART TOD – Transportation Assessment (non-CEQA) Memorandum for detailed assumptions and calculations.
2. Based on *City of Oakland Transportation Impact Study Guidelines* assuming project site is in an urban environment less than 0.5 miles from a BART station.

Source: Fehr & Peers, 2019.

MANDATORY TDM STRATEGIES

This section describes the mandatory strategies that shall be implemented as part of the project. These strategies shall be directly implemented by the project applicant and building management. **Table 4** describes all mandatory TDM strategies that apply to the project, as well as the effectiveness of each strategy based on research compiled in Quantifying Greenhouse Gas Mitigation Measures (California Air Pollution Control Officers Association (CAPCOA), August 2010). The CAPCOA report is a resource for local agencies to quantify the benefit, in terms of reduced travel demand, of implementing various TDM strategies.

The City of Oakland Standard Conditions of Approval lists infrastructure and operational strategies that must be incorporated into a TDM plan based on project location and other characteristics. **Appendix A** presents these strategies and indicates if and how they apply to the proposed project.

TABLE 4
MANDATORY TDM PROGRAM COMPONENTS

TDM Strategy	Description	Estimated Vehicle Trip Reduction[1]	
		Residents	Workers
Infrastructure Improvements	Various improvements	--[3]	--[3]
Limited Residential Parking Supply	Project would provide a maximum of 0.5 parking spaces per unit, compared to average vehicle ownership of 0.8 in the surrounding neighborhood	8 – 15%[2]	N/A
Unbundled Parking	Parking spaces leased separately from unit rent		
No or Minimal Parking for Office/Commercial Uses	No or minimal parking is provided for the office or commercial uses	N/A	10 – 15%
Commercial Parking Management	No monthly permits and market-rate parking rates		
Carshare Parking Spaces	Dedicated on-site carshare parking spaces	<1%	<1%
Guaranteed Ride Home	Promotion of and enrollment of employees in Alameda County's Guaranteed Ride Home program	N/A	--[3]
Bicycle Parking Supply and Monitoring	Provide bicycle parking above the minimum requirement and monitor usage of the bicycle parking facilities	<1%	<1%
Transit Operations	Contribute to AC Transit service enhancement	N/A	N/A
Transit Fare Subsidy	Provide transit subsidy to residents and employees[4]	5 – 10%	10 – 15%
Pre-Tax Commuter Benefit	Enroll in a service to assist with employees deducting transit passes using pre-tax income	N/A	--[3]
TDM Marketing and Education	Active marketing of carpooling, BART, AC Transit, bikesharing, and other non-auto modes	--[3]	1%
On-Site TDM Coordinator	Coordinator responsible for implementing and managing the TDM Plan		
	Component Estimated Vehicle Trip Reduction	13 – 25%	21 – 31%
	Percent of Total Trip Generation	44%	56%

Total Estimated Vehicle Trip Generation	**17 – 28%**

Notes:

1. The focus of the CAPCOA document is reductions to VMT but the research used to generate the reductions also indicates vehicle trip reductions are applicable as well. For the purposes of this analysis the VTR is assumed to equal the VMT reduction. See the cited CAPCOA research for more information and related information on page 8 of the BAAQMD *Transportation Demand Management Tool User's Guide* (June 2012).
2. CAPCOA document suggest that limited parking supply combined with unbundled parking can result in up to 20% VTR. However, the CAPCOA results assume minimal other parking facilities in the area. Thus, the CAPCOA-based results are adjusted because some free unrestricted on-street parking is available in the project area.
3. The effectiveness of this strategy cannot be quantified at this time. This does not necessarily imply that the strategy is ineffective. It only demonstrates that at the time of the CAPCOA report development, existing literature did not provide a robust methodology for calculating its effectiveness. In addition, many strategies are complementary to each other and isolating their specific effectiveness may not be feasible.
4. Assuming a subsidy of about $1.50 per unit and per employee per day available to all residents and employees.

Source: Fehr & Peers, 2019.

The mandatory operational strategies in Table 4 are generally targeted at project residents and employees. While some of the mandatory operational strategies would also affect the travel behavior of retail customers and residential and office visitors, these groups are not directly targeted with TDM programs. The majority of the retail customers would likely be local residents and workers who would walk or bike to the site, and most residential and office visitors would visit the project too infrequently to be aware of the TDM benefits or to make them cost effective. The TDM program also includes infrastructure improvements that would benefit all site residents, employees, and visitors, as well residents, employees, and visitors in the surrounding areas, and BART riders at the West Oakland BART Station.

The VTR estimates in Table 4 represent conservative assumptions about potential trip reduction at the low end of the range. Due to the project’s location in an area with very good transit, bicycle, and pedestrian access, it is expected that the high end of the VTR range would be achieved with this TDM program.

The TDM strategies include both one-time physical improvements and on-going operational strategies. Physical improvements will be constructed as part of the project and are therefore anticipated to have a one-time capital cost. Some level of ongoing maintenance cost may also be required for certain improvements. Operational strategies provide on-going incentives and support for the use of non-auto transportation modes. These TDM measures have monthly or annual costs and will require on-going management. A more detailed description of the TDM measures that comprise the mandatory TDM program is provided below:

- *Infrastructure Improvements* – the following infrastructure improvements in the project vicinity were identified as part of the Site Plan Review for the project, and improve the bicycling, walking, and transit systems in the area and further encourage the use of these mode:
    - Review the final site plans for the project to ensure that the garage driveway on Chester Street and the loading docks for each project building would provide adequate sight distance between vehicles exiting the garage and pedestrians on the adjacent sidewalk.
    - Implement the following at the 7th Street/Mandela Parkway intersection:
        - Convert the existing through/right-turn lane on the westbound 7th Street approach to a right-turn/bus only lane, and remove the merge lane on westbound 7th Street west of the intersection
        - Modify the signal timings at the intersection to provide a bus only phase for the westbound approach, and reduce the signal cycle length to 90 seconds
    - After the completion of the first phase of the project, conduct a signal warrant analysis at the 7th Street/Chester Street intersection to determine if and when the intersection should be signalized. If signalization is warranted, the project shall signalize the intersection with protected left-turn phasing for the east/west 7th Street approaches. In addition and as determined by the City of Oakland staff, the signal may be interconnected with existing adjacent signals along 7th Street. If signalization is not warranted, the project shall conduct an analysis to determine if other control devices, such as all-way stop controls, or rectangular rapid flash beacon (RRFB) should be installed at the intersection. The project shall implement the recommended improvement at the intersection as approved by the City of Oakland.
    - Ensure that the Ford GoBike station currently located in-street on 7th Street just east of Center Street is relocated on the BART Station Plaza to provide close and convenient access to the West Oakland BART station and the bicycle facilities adjacent to the project site.
    - Explore the feasibility of (and implement, if feasible) installing curb extensions (bulb-outs) and directional curb ramps with truncated domes at the following locations:
        - Southwest corner of the 7th Street/Chester Street intersection.
        - All four corners of the 5th Street/Mandela Parkway intersection and curb extensions (bulb-outs) across the 5th Street approaches of the southwest and northeast corners.
    - Provide all-way stop control at the 5th Street/Center Street and 5th Street/Chester Street intersection.

- If reviewed and approved by BART and Oakland Fire Department, provide rolled curb instead of curb cuts for emergency vehicle access points on Chester Street and Mandela Parkway.
- Install a pedestrian scramble at the 7th Street/Center Street intersection.
- Install improvement measures at the proposed mid-block crossing on Mandela Parkway, such as raised crosswalk, RRFB, or other measures as approved by the City of Oakland.
- Coordinate with the City of Oakland and the appropriate property owners to determine the feasibility of and if deemed feasible, complete the sidewalk gap on the south side of 5th Street just east of Center Street.
- Consider designating a bus stop for intercity coaches (e.g., Megabus and Bolt) and other shuttles on 7th Street between Henry and Chester Streets.

- *Limited Residetial Parking Supply* – The project would provide up to 400 off-street automobile parking spaces for the residential component of the project, which corresponds to a maximum of 0.5 spaces per unit. This is less than the current average auto ownership of 0.8 vehicles per household in the project area, as shown in Table 1, and would attract households with no vehicles.
- *Unbundled Parking* – Unbundle parking costs from housing costs (as required by Oakland Municipal Code, Section 17.116.310). This would result in residents paying one price for the residential unit and a separate price for parking, should they opt for a space. The price of a parking space can be adjusted so that resident parking demand matches the building's parking supply.
- *No or Minimal Parking for Office/Commercial Uses* – The project would provide none or minimal automobile parking for the office/commercial component.
- *Commercial Parking* Management – If the project provides parking for the commercial and retail components of the project, or parking for the general public, the following shall also be implemented:
    - *No monthly permits and establish minimum price floor for any public parking* — required by the City of Oakland if proposed parking ratio exceeds 1:1,000 square feet (commercial) but should be implemented regardless.
    - *Price parking to achieve desired usage goals* - parking should be priced at the market rate at a minimum and ideally set at a level that makes driving more expensive than non-automobile modes of transportation

- *Carshare Parking Spaces* – Offer to dedicate for free at least six on-site parking spaces available for carsharing. Monitor the usage of the carsharing spaces and adjust if necessary.
- *Guaranteed Ride Home* – Encourage project commercial tenants to register their employees and promote the Alameda County Transportation Commission Guaranteed Ride Home (GRH) program. GRH programs encourage the use of alternative modes of transportation by offering free rides home if an illness or crisis occurs, if the employee is required to work unscheduled overtime, if a carpool or vanpool is unexpectedly unavailable, or if a bicycle problem arises. The Alameda County Transportation Commission offers their GRH service for all registered permanent employees who are employed within Alameda County, live within 100 miles of their worksite, and do not drive alone to work. The GRH program is offered at no cost to the employer, and employers are not required to register in order for their employees to enroll and use the program.
- *Bicycle Parking Supply and Monitoring* – The project would include long-term on-site parking for project residents and employees, a bike station at the BART station, and short-term parking in the form of bike racks along the project frontages, exceeding the City's minimum requirements for bicycle parking. Building management shall monitor the usage of these facilities and provide additional bicycle parking, if necessary.
- *Transit Operations* – The project applicant shall, if feasible, contribute its fair share to AC Transit service enhancements to meet access goals outlined in the City of Oakland West Oakland Specific Plan and AC Transit's ACgo expanded service plan and improve connections to local goods and services. Alternatively, the project applicant may explore and propose other TDM measure(s), including those already set forth in the TDM plan, in lieu of this fair share contribution. The City may approve the substitute TDM measure(s) if the City, in its discretion, deems the measure(s) more feasible, reasonably related and roughly proportional to the transportation impacts of the development.
- *Transit Fare Subsidy (Residents)* – Provide a monthly transit benefit to each dwelling unit. Options include providing discounted Adult 31-Day AC Transit Pass (valued at $84.60 as of January 2019), AC Transit EasyPass, or monthly Clipper Card contributions.
- *Transit Fare Subsidy (Workers)* – Building management shall either offer to provide or require project tenants to provide free or reduced cost transit in order to increase transit mode share. This analysis assumes that a subsidy of $1.50 per weekday per worker (value to worker) would be available to all site workers. Options include:
    - Building management or employers can offer a monthly commuter check (or alternatively Clipper Card, which is accepted by BART, AC Transit, and other major transit providers in the Bay Area) to employees to use public transit. Note that as of 2018, IRS allows up to $260 per employee per month.

    - Building management or employers can participate in AC Transit's EasyPass program, which enables employers to purchase annual bus passes for their employees in bulk at a deep discount. The passes allow unlimited rides on all AC Transit buses for all employees. For more information, see www.actransit.org/rider-info/easypass.

- *Pre-tax Commuter Benefits* – Building management shall encourage project tenants to enroll in a service (such as WageWorks) to help with pre-tax commuter savings. This strategy allows employees to deduct monthly transit passes or other amount using pre-tax dollars. This can help to lower payroll taxes and allows employees to save on transit.

- *TDM Marketing and Resident Education* – Site management shall provide residents and employees information about transportation options. This information would also be posted at central location(s) and be updated as necessary. This information shall include:

    - *Transit Routes* – Promote the use of transit by providing user-focused maps. These maps provide residents with wayfinding to nearby transit stops and transit-accessible destinations and are particularly useful for those without access to portable mapping applications. The project should consider installing real-time transit information, such as TransitScreen, in a visible location to provide residents with up-to-date transit arrival and departure times.

    - *Transit Fare Discounts* – Provide information about local discounted fare options offered by BART and AC Transit, including discounts for youth, elderly, persons with disabilities, and Medicare cardholders.

    - *Car Sharing* – Promote accessible car sharing programs, such as Zipcar, and Getaround by informing residents and employees of on-site and nearby car sharing locations and applicable membership information.

    - *Ridesharing* – Provide residents and employees with phone numbers and contact information for ride sharing options including Uber, Lyft, and Oakland taxi cab services.

    - *Carpooling* – Provide residents and employees with phone numbers and contact information for carpool matching services such as the Metropolitan Transportation Commission's 511 RideMatching.

    - *Walking and Biking Events* – Provide information about local biking and walking events, such as Oaklavia, as events are planned.

    - *Bikeshare* – Educate residents and employees about nearby bike sharing station locations and membership information.

- *On-Site TDM Coordinator* – The project shall provide an on-site TDM coordinator responsible for implementing and managing the TDM Plan. The TDM coordinator would also be responsible for ensuring that all residents, employees, and visitors are aware of their transportation options and would serve as a point of contact for hotel guests and employees regarding TDM programs.

ADDITIONAL OPERATIONAL STRATEGIES

If the mandatory measures do not meet the required goal of 20 percent VTR, and additional vehicle trip reduction is needed, the project shall consider the implementation of some or all of the following additional strategies to limit automobile use and encourage non-automotive travel.

- *Residential Parking Management* – Restrict parking to one parking space per unit or less, thereby discouraging multiple car ownership and/or use. Exceptions will only be made for residents with management approved Reasonable Accommodation Requests. A Reasonable Accommodation Request shall need to demonstrate a hardship wherein a household requires more than one vehicle per unit. Examples could include households with multiple disabled residents requiring vehicles or households with multiple residents with places of work inaccessible via transit. Additionally, if a residential parking permit (RPP) program is implemented in the project vicinity, project residents shall not be eligible for parking permits.
- *Bikeshare/Scooter Membership* – Provide tenants and residents a subsidy to offset the cost of bikeshare and/or scooter membership and encourage the use of non-automobile modes.
- *Carshare Memberships* – Provide residents with free or discounted carshare membership to offset the cost of car sharing programs and reduce the demand for private vehicle ownership.
- *Increased Transit Fare Subsidy* – Increase the transit fare subsidy for project residents and employes.
- *Personalized Trip Planning* – In the form of in-person assistance or as a web tool, provides residents and employees with a customized menu of options for commuting. Trip planning reduces the barriers the residents and employees see to making a walk, bike, or transit trip to the site. Transit trip making tools, such as those available from Google or 511.org, could be promoted to inform residents and employees of transit options to/from work. Providing a preferred walking map routes to residents and employees living within one mile of the site and a bicycling route map to all residents and employees living within five miles of the site would be a proactive strategy to encourage those employees to use alternatives to driving.

TDM MONITORING, EVALUATION AND ENFORCEMENT

Consistent with the requirements of the City's Standard Conditions of Approval, this TDM program requires regular periodic evaluation to determine if the program goal of reducing automobile trips has been satisfied and to assess the effectiveness of the implemented strategies. Beginning the first year after the development and occupancy of the project, building management must prepare an annual TDM monitoring report consisting of the following:

- Summary of implemented TDM measures and their effectiveness (e.g. bicycle parking occupancy, number of transit passes issued, etc.)
- Results of project resident and employee transportation surveys to monitor the vehicle trip generation and mode share for project residents and employees
- Weekday AM and PM peak period and daily traffic volume counts at the garage driveway on Chester Street

As previously discussed, the goal of the TDM program is to reduce the number of vehicle trips generated by the project by 20 percent. This level would correspond to a total project vehicle trip generation of no more than 378 trips during the AM peak hour and 467 in the PM peak hour.

Based on the results of the surveys, TDM programs shall be increased if these goals are not met. This program ensures the implementation of the mandatory TDM measures and related requirements through compliance with the Mitigation Monitoring and Reporting Program, as implemented through the Conditions of Approval adopted for the project.

The first monitoring report must be prepared one year after full occupancy of the first phase of the project, and subsequent monitoring reports must be prepared annually. If following the annual monitoring the TDM goals are not satisfied, additional measures shall be implemented, with consultation with City staff, until the goal is met.

If in two successive years the project's TDM goals are not satisfied, site management shall prepare and submit for City approval a Corrective Action Plan. The Corrective Action Plan shall detail the additional TDM measures to be implemented on site and their expected modal split reduction.

If, one year after the Corrective Action Plan is implemented, the required automobile mode share reduction target is still not being achieved, or if site management fails to submit a report as described above, or if the reports do not meet City requirements outlined above, the City may, in addition to its other remedies, (a) assess the project a financial penalty based on the observed reduction in the automobile mode share compared to the target; or (b) refer the matter to the City Planning Commission for scheduling of a compliance hearing to determine whether the project's approvals should be revoked, altered or additional conditions of approval imposed.

The penalty as described in (a) above shall be determined by assigning a cost to the number of additional automobile trips to be reduced in order to meet the required goal. Assuming the cost per new alternative commuter is $26/day and that there are 261 workdays per year, the annual cost per new alternative commuter is $6,790. The project shall therefore pay a penalty of $6,790 per year for each trip that should have been using an alternative mode if the 20 percent reduction after completion of the Project had been achieved.

In determining if a financial penalty or other remedy is appropriate, the City shall not impose a penalty if the project has made a good faith effort to comply with the TDM program. The City would only have the ability to impose a monetary penalty after a reasonable cure period and in accordance with the enforcement process outlined in the City's Planning Code Chapter 17.152. If a financial penalty is imposed, such penalty sums shall be used by the City solely toward the implementation of the TDM plan.

If in five successive years the project is found to meet the stated TDM goal, additional surveys and monitoring shall be suspended until such a time as the City deems they are needed.

Please contact Sam Tabibnia (s.tabibnia@fehrandpeers.com or 510-835-1943) with questions or comments.

APPENDIX A
TDM PROGRAM CONSISTENCY WITH CITY REQUIREMENTS

TDM Strategy	Required When	Required for Proposed Project?
Bus boarding bulbs or islands	• 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	**Yes**, the project would relocate several bus stops from within the BART station to adjacent streets, including bus boarding islands on both directions of 7th Street.
Bus shelter	• 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	**Yes**, bus shelters would be provided at all bus stops along the project frontage.
Concrete bus pad	• A bus stop is located along the project frontage and a concrete bus pad does not already exist	**Yes**, concrete bus pads would be provided at all the bus stops relocated to the project frontage.
Curb extensions or bulb-outs	• Identified as an improvement within site analysis	**Yes**, the project would provide curb extensions at intersections along the project frontage
Implementation of a corridor-level bikeway improvement	• A buffered Class 2 or Class 4 bikeway facility is in a local or county adopted plan within 0.10 miles of the project location; and • The project would generate 500 or more daily bicycle trips	**Yes**, the project would provide Class 4 bikeways on both directions of 7th Street and Mandela Parkway along the project frontage.
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	**Yes**, while the project is estimated to generate fewer than 400 peak hour transit trips, the project would implement a bus queue jump Lane on westbound 7th Street at Mandela Parkway.
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	**Yes**, the project would upgrade the pedestrian amenities within the site and on the adjacent sidewalks.

APPENDIX A
TDM PROGRAM CONSISTENCY WITH CITY REQUIREMENTS

TDM Strategy	Required When	Required for Proposed Project?
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 (PMP) along project frontage or at an adjacent intersection	**Yes**, although the PMP does not identify any specific improvements near the project, the project would provide high-visibility crosswalk striping and directional curb ramps at intersection adjacent to the project.
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.	No, the project would not provide on-street vehicle parking along the project frontage. Short-term bicycle parking will be accommodated within the project site.
Intersection improvements, including but not limited to visibility improvements, shortening corner radii, pedestrian safety islands, accounting for pedestrian desire lines.	• Identified as an improvement within site analysis	**Yes**, the project would provide curb extensions at intersections along the project frontage.
New sidewalk, curb ramps, curb and gutter meeting current City and ADA standards	• Always required	**Yes**, the project would upgrade the sidewalks along the project frontage.
No monthly permits and establish minimum price floor for public parking	• If proposed parking ratio exceeds 1:1,000 sf (commercial)	**Yes**, if commercial parking is provided, no monthly permit would be provided and a minimum price floor for public parking would be established. Although, off-street commercial parking would be at less than 1:1,000 sf, if provided.
Parking garage is designed with retrofit capability	• Optional if proposed parking ratio exceeds 1:1.25 (residential) or 1:1,000 sf (commercial)	Not applicable, the residential parking ratio would be less than 1.25; if off-street commercial parking is provided, it would be at less than 1:1,000 sf.

APPENDIX A
TDM PROGRAM CONSISTENCY WITH CITY REQUIREMENTS

TDM Strategy	Required When	Required for Proposed Project?
Parking space reserved for car share	• A project is located within downtown (CBD and D-LM zones). One car share space preserved for buildings between 50 – 200 units, then one car share space per 200 units.	**Yes**, although the project is not located in a downtown zone, the project would offer to dedicate up to six spaces in the garage for car share.
Paving, lane striping or restriping (vehicle and bicycle), and signs to midpoint of street section	• Typically required	**Yes**, provided.
Pedestrian crossing improvements, pedestrian-supportive signal changes, 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.	• Identified as an improvement within site analysis • Identified as an improvement within operations analysis	**Yes**, cycle lengths adjacent to the project would be reduced to 90 seconds and a pedestrian scramble would be provided at the 7th Street/ Center Street intersection.
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	**Yes**, project would provide real-time transit information.
Relocating bus stops to far side	• A project is located within 0.10 mile of any active bus stop that is currently near-side	**Yes**, project would relocate bus stops from within the BART Station to adjacent streets, including the far sides of westbound 7th Street at Center Street and eastbound 5th Street at Mandela Parkway.
Signal upgrades, including typical traffic lights, pedestrian signals, bike actuated signals, transit only signals	• 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	**Yes**, a new traffic signal may be installed at the 7th Street/ Chester Street intersection.
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	**Yes**, the project would provide a bus queue jump Lane on westbound 7th Street at Mandela Parkway.

APPENDIX A
TDM PROGRAM CONSISTENCY WITH CITY REQUIREMENTS

TDM Strategy	Required When	Required for Proposed Project?
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	**Yes**, a new traffic signal may be installed at the 7th Street/ Chester Street intersection and be interconnected with existing signals along 7th Street.
Unbundled parking	• New multifamily dwelling residential facilities of ten (10) or more units, with the exception of affordable housing	**Yes**, the residential component of the project would provide unbundled parking.

Sources: City of Oakland Transportation Impact Review Guidelines, 2017 and City of Oakland Municipal Code, 2018

GREENHOUSE GAS REDUCTION PLAN

FOR THE

WEST OAKLAND BART TOD PROJECT

Prepared For:
Project Applicant

Reviewed and Accepted by:
City of Oakland

JANUARY 2019

Prepared By:
Lamphier–Gregory
1944 Embarcadero
Oakland, CA 94606

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ATTACHMENTS

INTRODUCTION

This Greenhouse Gas (GHG) Reduction Plan has been prepared to comply with the City of Oakland Standard Condition of Approval (City SCA-42) “Greenhouse Gas Reduction Plan”, herein referred to as SCA-GHG-1, as identified in the *WOB TOD Project CEQA Analysis*. The information and technical analysis presented herein has been prepared by Rebecca Auld, Senior Planner and Air/GHG Specialist at Lamphier-Gregory, Inc.

SUMMARY OF THE PROJECT

The project represents establishment of the transit-oriented development (TOD) as contemplated in the West Oakland Specific Plan (WOSP) on the site surrounding the West Oakland BART station. The project would demolish the existing 451-space West Oakland BART station surface parking lot and associated circulation and construct three new mid-rise and high-rise buildings and a row of townhomes housing a total of 762 residential units, 382,460 square feet of office space, and 59,800 square feet of ground-floor retail uses. The project also includes a 400-space underground parking lot and a BART surface plaza and circulation elements.

TRANSIT PRIORITY PROJECT

The project site is located within a “Regional Center” Priority Development Area pursuant to the Plan Bay Area which represents the Sustainable Communities Strategy (SCS) for the greater San Francisco Bay Area (MTC, 2013). Per CEQA Guidelines Section 15183.5 (c), environmental documents for certain residential and mixed-use projects and transit priority projects, as defined in Section 21155 of the Public Resources Code, that are consistent with the general use designation, density, building intensity and applicable policies specified for the project area in an applicable SCS or alternative planning strategy, need not analyze global warming impacts resulting from cars and light duty trucks. A lead agency should consider whether such projects may result in GHGs from other sources, however, consistent with the CEQA Guidelines. Consequently, if a project meets the requirements of a transit priority project, its mobile sources need not be included in the assessment of GHG impacts.

INTRODUCTION TO GHG CONCEPTS AND TERMS

GHGs are heat-trapping gasses in the Earth’s atmosphere. Without GHGs, Earth’s temperature would be too cold for life to exist. There is indisputable evidence that human activities such as electricity production and transportation are adding to the concentrations of greenhouse gases that are already naturally present in the atmosphere. The buildup of greenhouse gases in the atmosphere is very likely the cause of most of the recent observed increase in average temperatures, and contributes to other climate changes.

The Global Warming Potential (GWP) concept is used to compare the ability of each GHG to trap heat in the atmosphere relative to carbon dioxide (CO_2), which is the most abundant GHG. CO_2 has a GWP of 1, expressed as CO_2 equivalent (CO_2e). Other GHGs, such as CH_4 and N_2O are commonly found in the atmosphere at much lower concentrations, but with higher warming potentials, having CO_2e ratings of 21 and 310, respectively. Trace gases such as chlorofluorocarbons and hydrochlorofluorocarbons have much greater warming potential. GHG emissions estimates incorporate various heat-trapping gasses and are presented for consistency as CO_2e. CO_2e is used as the standard for measurement of GHG emissions throughout this document.

CITY OF OAKLAND GHG REDUCTION PLAN STANDARD CONDITION

SCA-GHG-1 applies to any project that meets one or more of the following three scenarios and has a net increase in GHG emissions:

Scenario A: Projects which:

(a) involve a land use development (i.e., a project that does not require a permit from the Bay Area Air Quality Management District [BAAQMD] to operate),

(b) exceed the GHG emissions screening criteria contained in the BAAQMD CEQA Guidelines, AND

(c) after a GHG analysis is prepared, would exceed both of the City's applicable thresholds of significance (1,100 metric tons of carbon dioxide equivalents [CO_2e] annually and 4.6 metric tons of CO_2e per service population annually).

Scenario B: Projects which:

(a) involve a land use development,

(b) Exceed the GHG emissions screening criteria contained in the BAAQMD CEQA Guidelines,

(c) after a GHG analysis is prepared, would exceed at least one of the City's applicable thresholds of significance (1,100 metric tons of CO_2e annually or 4.6 metric tons of CO_2e per service population annually), AND

(d) are considered to be "Very Large Projects."

A "Very Large Project" is defined as any of the following:

A. Residential development of more than 500 dwelling units;

B. Shopping center or business establishment employing more than 1,000 persons or encompassing more than 500,000 square feet of floor space;

C. Commercial office building employing more than 1,000 persons or encompassing more than 250,000 square feet of floor space;

D. Hotel/motel development of more than 500 rooms;

E. Industrial, manufacturing, processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or encompassing more than 650,000 square feet of floor area; or

F. Any combination of smaller versions of the above that when combined result in equivalent annual GHG emissions as the above.

Scenario C: Projects which:

(a) involve a stationary source of GHG (i.e., a project that requires a permit from BAAQMD to operate) AND

(b) after a GHG analysis is prepared, would exceed the City's applicable threshold of significance (10,000 metric tons of CO_2e annually).

The WOB TOD Project is required to prepare a GHG Reduction Plan as it satisfies all the criteria under Scenario B. The project includes a mix of land uses that exceed the GHG screening criteria in Table 3-1 of the BAAQMD's 2017 CEQA Air Quality Guidelines. Project GHG emissions also exceed the 1,100 metric tons of CO_2e per year threshold AND meet the City's definition of a "Very Large Project."

The full text of SCA-GHG-1 is as follows:

SCA-GHG-1: Greenhouse Gas (GHG) Reduction Plan (#42)

a. Greenhouse Gas (GHG) Reduction Plan Required

The project applicant shall retain a qualified air quality consultant to develop a Greenhouse Gas (GHG) Reduction Plan for City review and approval and shall implement the approved GHG Reduction Plan.

The goal of the GHG Reduction Plan shall be to increase energy efficiency and reduce GHG emissions to below at least one of the Bay Area Quality Management District's (BAAQMD's) CEQA Thresholds of Significance (1,100 metric tons of CO_2e per year or 4.6 metric tons of CO_2e per year per service population) AND to reduce GHG emissions by 36 percent below the project's 2005 "business-as-usual" baseline GHG emissions(as explained below) to help implement the City's Energy and Climate Action Plan (adopted in 2012) which calls for reducing GHG emissions by 36 percent below 2005 levels. The GHG Reduction Plan shall include, at a minimum, (a) a detailed GHG emissions inventory for the project under a "business-as-usual" scenario with no consideration of project design features, or other energy efficiencies, (b) an "adjusted" baseline GHG emissions inventory for the project, taking into consideration energy efficiencies included as part of the project (including the City's Standard Conditions of Approval, proposed mitigation measures, project design features, and other City requirements), and additional GHG reduction measures available to further reduce GHG emissions, and (c) requirements for ongoing monitoring and reporting to demonstrate that the additional GHG reduction measures are being implemented. If the project is to be constructed in phases, the GHG Reduction Plan shall provide GHG emission scenarios by phase.

Potential GHG reduction measures to be considered include, but are not be limited to, measures recommended in BAAQMD's latest CEQA Air Quality Guidelines, the California Air Resources Board Scoping Plan (December 2008, as may be revised), the California Air Pollution Control Officers Association (CAPCOA) Quantifying Greenhouse Gas Mitigation Measures (August 2010, as may be revised), the California Attorney General's website, and Reference Guides on Leadership in Energy and Environmental Design (LEED) published by the U.S. Green Building Council.

The types of allowable GHG reduction measures include the following (listed in order of City preference): (1) physical design features; (2) operational features; and (3) the payment of fees to fund GHG-reducing programs (i.e., the purchase of "carbon credits") as explained below.

The allowable locations of the GHG reduction measures include the following (listed in order of City preference): (1) the project site; (2) off-site within the City of Oakland; (3) off-site within the San Francisco Bay Area Air Basin; (4) off-site within the State of California; then (5) elsewhere in the United States.

As with preferred locations for the implementation of all GHG reductions measures, the preference for carbon credit purchases include those that can be achieved as follows (listed in order of City preference): (1) within the City of Oakland; (2) within the San Francisco Bay Area Air Basin; (3) within the State of California; then (4) elsewhere in the United States. The cost of carbon credit purchases shall be based on current market value at the time purchased and shall be based on the project's operational emissions estimated in the GHG Reduction Plan or subsequent approved emissions inventory, which may result in emissions that are higher or lower than those estimated in the GHG Reduction Plan.

For physical GHG reduction measures to be incorporated into the design of the project, the measures shall be included on the drawings submitted for construction-related permits.

b. GHG Reduction Plan Implementation During Construction

The project applicant shall implement the GHG Reduction Plan during construction of the project. For physical GHG reduction measures to be incorporated into the design of the project, the measures shall be implemented during construction. For physical GHG reduction measures to be incorporated into off-site projects, the project applicant shall obtain all necessary permits/approvals and the measures shall be included on drawings and submitted to the City Planning Director or his/her designee for review and approval. These off-site improvements shall be installed prior to completion of the subject project (or prior to completion of the project phase for phased projects). For GHG reduction measures involving the purchase of carbon credits, evidence of the payment/purchase shall be submitted to the City for review and approval prior to completion of the project (or prior to completion of the project phase, for phased projects).

c. GHG Reduction Plan Implementation After Construction

The project applicant shall implement the GHG Reduction Plan after construction of the project (or at the completion of the project phase for phased projects). For operational GHG reduction measures to be incorporated into the project or off-site projects, the measures shall be implemented on an indefinite and ongoing basis.

The project applicant shall satisfy the following requirements for ongoing monitoring and reporting to demonstrate that the additional GHG reduction measures are being implemented. The GHG Reduction Plan requires regular periodic evaluation over the life of the project (generally estimated to be at least 40 years) to determine how the Plan is achieving required GHG emissions reductions over time, as well as the efficacy of the specific additional GHG reduction measures identified in the Plan.

Annual Report. Implementation of the GHG reduction measures and related requirements shall be ensured through compliance with Conditions of Approval adopted for the project. Generally, starting two years after the City issues the first Certificate of Occupancy for the project, the project applicant shall prepare each year of the useful life of the project an Annual GHG Emissions Reduction Report ("Annual Report"), for review and approval by the City Planning Director or his/her designee. The Annual Report shall be submitted to an independent reviewer of the City's choosing, to be paid for by the project applicant.

The Annual Report shall summarize the project's implementation of GHG reduction measures over the preceding year, intended upcoming changes, compliance with the conditions of the Plan, and include a brief summary of the previous year's Annual Report results (starting the second year). The Annual Report shall include a comparison of annual project emissions to the baseline emissions reported in the GHG Reduction Plan.

The GHG Reduction Plan shall be considered fully attained when project emissions are less than either applicable numeric BAAQMD CEQA Thresholds AND GHG emissions are 36 percent below the project's 2005 "business-as-usual" baseline GHG emissions, as confirmed by the City through an established monitoring program. Monitoring and reporting activities will continue at the City's discretion, as discussed below.

Corrective Procedure. If the third Annual Report, or any report thereafter, indicates that, in spite of the implementation of the GHG Reduction Plan, the project is not achieving the GHG reduction goal, the project applicant shall prepare a report for City review and approval, which proposes additional or revised GHG measures to better achieve the GHG emissions reduction goals, including without limitation, a discussion on the feasibility and effectiveness of the menu of other additional measures ("Corrective GHG Action Plan"). The project applicant shall then implement the approved Corrective GHG Action Plan.

If, one year after the Corrective GHG Action Plan is implemented, the required GHG emissions reduction target is still not being achieved, or if the project applicant fails to submit a report at the times described above, or if the reports do not meet City requirements outlined above, the City may, in addition to its other remedies, (a) assess the project applicant a financial penalty based upon actual percentage reduction in GHG emissions as compared to the percent reduction in GHG emissions established in the GHG Reduction Plan; or (b) refer the matter to the City Planning Commission for scheduling of a compliance hearing to determine whether the project's approvals should be revoked, altered or additional conditions of approval imposed.

The penalty as described in (a) above shall be determined by the City Planning Director or his/her designee and be commensurate with the percentage GHG emissions reduction not achieved (compared to the applicable numeric significance thresholds) or required percentage reduction from the "adjusted" baseline.

In determining whether a financial penalty or other remedy is appropriate, the City shall not impose a penalty if the project applicant has made a good faith effort to comply with the GHG Reduction Plan.

The City would only have the ability to impose a monetary penalty after a reasonable cure period and in accordance with the enforcement process outlined in Planning Code Chapter 17.152. If a financial penalty is imposed, such penalty sums shall be used by the City solely toward the implementation of the GHG Reduction Plan.

Timeline Discretion and Summary. The City shall have the discretion to reasonably modify the timing of reporting, with reasonable notice and opportunity to comment by the applicant, to coincide with other related monitoring and reporting required for the project.

GHG EMISSIONS INVENTORIES AND REDUCTION MEASURES

METHODOLOGY AND ASSUMPTIONS

As part of this GHG Reduction Plan, Lamphier-Gregory prepared a detailed GHG emissions inventory for the project under a 2005 "business-as-usual" (BAU) scenario (hereafter called the "2005 BAU Project") without considering any of the regulatory standards adopted thereafter designed to reduce GHG emissions or other energy efficiencies. The 2005 BAU Project inventory is compared to a Project Buildout (2020) scenario (hereafter called the "2020 Project Buildout"), taking into consideration energy efficiencies included as part of the project (including the City's SCAs, project design features, other City requirements, and federal, state and other local regulatory standards enacted since 2005). Year 2005 is the baseline year because the City's GHG emissions reduction goal specified in its ECAP is based on what GHG emissions were in 2005. Year 2020 is the buildout year as it is the earliest possible project completion year. Consistent with the methodology used in the Oakland ECAP, Lamphier-Gregory analyzed the 2005 BAU Project as if it was operating in 2005 and consistent with the California Emissions Estimator Model (CalEEMod), version 2016.3.2.2. As discussed under the project summary above, the project qualifies as a Transit Priority Project (TPP); therefore, emissions for mobile sources are not considered in the inventories for both scenarios.

GHG emissions for both scenarios were estimated using CalEEMod version 2016.3.2. Assumptions for the emissions inventories were based on a combination of project-specific information and default assumptions of the model such as emission factors. CalEEMod results are included in full in Appendix A.

GHG EMISSION SOURCES

GHG EMISSION SOURCES INCLUDED IN THE INVENTORY

Emissions included in the updated BAAQMD Guidelines and therefore included in the baseline GHG emissions inventory for the project, as applicable, are:

- Construction Emissions. These are direct stationary and mobile source emissions resulting from construction activities at the site. To convert to a "per-year" emissions number that can be combined with operational emissions, the City's methodology adds the 40-year (assumed building lifetime) amortized construction-related GHG emissions to the project's total operational- related emissions. The same activity level and emission factors were used to estimate emissions in both the 2005 BAU Project and 2020 Project Buildout scenarios. This is a conservative approach as emission factors in 2005 would have been higher as they do not include characteristics that contribute to it being consistent with AB 32 GHG reduction goals during construction.

- Operational Area Sources. Area sources include architectural coatings, consumer products use, hearths, and landscaping equipment. Architectural coatings and consumer products are not substantial sources of GHG. Hearth emissions for the 2020 Project Buildout scenario were calculated using CalEEMod. BAAQMD Rule 6-3-306 does not allow wood stoves or wood-burning fireplaces in new building construction after November 1, 2016, so the percentage of dwelling units with wood stoves was assumed to be zero. The CalEEMod default number of dwelling units with fireplaces was maintained but all units were assumed to have natural gas fireplaces. Hearth emissions for the 2005 BAU Project were calculated with CalEEMod, assuming the default mix of wood and natural gas hearths as the BAAQMD Rule 6-3-306 was still not in effect in 2005.

- Operational Energy Use. These are direct emissions from natural gas and furnaces used on site, and indirect emissions emitted off-site for energy generation and distribution. For estimating GHG emissions from electricity use for the 2020 Project Buildout scenario, the Pacific Gas and Electric Company (PG&E) CO_2 intensity factor for 2020 was used in place of the default carbon intensity in CalEEMod.[1] This intensity factor takes into account the State's Renewable Portfolio Standard (RPS) that requires 33 percent of electricity to be from renewable sources in 2020. The 2005 BAU Project uses the default CalEEMod CO_2 intensity factor. The default carbon intensity is from PG&E's 2008 carbon intensity for electricity. This intensity takes into consideration some benefit of the 2010 RPS goals due to the ramp up of renewables, so is a conservative assumption for year 2005.

- Operational Water and Wastewater Emissions. These indirect emissions are associated with the electricity used to convey water and convey and treat wastewater, due to increased water demand from the project. The water use estimate for the 2020 Project Buildout scenario is the CalEEMod default for the project land uses for Alameda County, minus a 20 percent reduction in indoor water consumption to comply with mandatory CalGreen requirements. Therefore, the indoor water demand is 20 percent higher for 2005 BAU Project than the 2020 Project Buildout scenario, while the outdoor water demand is the same for 2005 as for the 2020 Project Buildout scenario. Based on the design of the East Bay Municipal Utility District's wastewater treatment plant, emissions estimated from wastewater treatment assumed a process with 100 percent aerobic biodegradation and 100 percent anaerobic digestion.

- Operational Solid Waste Disposal Emissions. These are indirect emissions associated with waste transport and disposal. Landfills emit anthropogenic methane from the anaerobic breakdown of material. The Oakland ECAP accounts for the City of Oakland Zero Waste goal, which reduces GHG emissions from waste by 89 percent between 2005 and 2020. This reduction has been incorporated into the 2020 Project Buildout scenario as a calculation outside CalEEMod. Therefore, GHG emissions associated with waste disposal for the 2020 Project Buildout scenario are 11 percent of those estimated for the 2005 BAU Project using CalEEMod.

As discussed earlier, GHG emissions from mobile sources are not included in the comparison of the emission inventories for the two scenarios. However, mobile emissions are presented under both scenarios for informational purposes.

CURRENT STATE AND LOCAL REQUIREMENTS THAT REDUCE GHG EMISSIONS

The following state programs and existing City requirements will reduce GHG emissions from the 2005 BAU Project and are incorporated in the GHG inventory for the 2020 Project Buildout scenario:

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[1] Pacific Gas and Electric Company (PG&E). Greenhouse Gas Emission Factors: Guidance for PG&E Customers. November 2015. Available online at: http://www.pge.com/includes/docs/pdfs/shared/environment/calculator/pge_ghg_emission_factor_info_sheet.pdf

- The City of Oakland's Zero Waste goal will reduce GHG emissions from waste by 89 percent
- The State of California Renewable Portfolio Standard will reduce GHG from PG&E electricity generation
- BAAQMD Rule 6-3 prohibits wood-fired hearths in new homes, thereby reducing GHG emissions per hearth
- Increased residential and nonresidential building energy efficiency due to 2016 Title 24 standards

As discussed earlier, mobile source emissions are not included in either the 2005 BAU Project or the 2020 Project Buildout scenario as the 2020 Project qualifies as a TPP. Nevertheless, the following requirements reduce emissions from mobile sources from the 2005 BAU Project:

- The project Transportation Demand Management (TDM) program will reduce trips by 20 percent, which reduces on-road mobile source emissions (see SCA-TRANS-4 below)
- The Pavley Act and Advanced Clean Cars (ACC) programs reduce on-road vehicle fleet emissions
- Increased penetration of electric vehicles will reduce GHG emissions from on-road mobile sources, even without assuming mandated changes to charging infrastructure

City of Oakland SCAs are incorporated and required as part of a proposed project and are adopted as conditions of approval. In addition to SCA-GHG-1, which is the subject of this GHG Reduction Plan, the following SCAs (which are also identified in Attachment A, SCAMMRP of the CEQA Analysis) are required as part of the project resulting in a further reduction in project GHG emissions from the 2005 BAU Project:

- SCA-AES-3: Landscape Plan (#18). Addresses landscape requirements including tree plantings. This SCA reduces water use by requiring drought-tolerance and required landscaping/trees effect cooler climate, reduce excessive solar gain, and absorb CO_2e emissions.
- SCA-AIR-2: Criteria Air Pollutant Controls – Construction Related (#22). Includes many measures that will reduce or limit the amount of GHG emissions during construction, including limitations on vehicle idling, preference over electricity over petroleum-based combustion equipment, and accelerated use of off-road equipment with emissions control.
- SCA-BIO-2: Tree Planting (#31). Requires tree protection or tree replacement. Trees effect cooler climate, reduce excessive solar gain, and absorb CO_2e emissions.
- SCA-TRANS-2: Bicycle Parking (#78). Requires provision of bicycle parking, which encourage mode shift from vehicles and their emissions to bicycles.
- SCA-TRANS-4: Transportation and Parking Demand Management (#80). Requires the project-specific TDM Plan containing strategies to reduce on-site parking demand and single occupancy vehicle (SOV) travel. GHG emissions reductions attributable to a TDM Plan assume 20 percent reduction in vehicle trip generation.

- SCA-TRANS-5: Plug-In Electric Vehicle (PEV) Charging Infrastructure (#84). Requires inclusion of PEV charging stations in parking areas. Electric vehicles result in fewer GHG emissions.

- SCA-UTIL-1: Construction and Demolition Waste Reduction and Recycling (#85). Requires a project-level Construction & Demolition Waste Reduction and Recycling Plan (WRRP) to reduce construction–related emissions from haul trips by reducing off-site disposal truck trips and/or trip lengths.

- SCA-UTIL-4: Green Building Requirements. Requires compliance with the California Green Building Standards (CALGreen) mandatory measures and the applicable requirements of the City of Oakland Green Building Ordinance, which would reduce energy and water use and related emissions.

- SCA-UTIL-7: Water Efficient Landscape Ordinance (WELO) (#93). Requires water-efficient landscaping, which reducing the emissions related to water use.

Implementation of City of Oakland Plans and Policies also reduce GHG emissions, and they are implemented through many of the mandated measures and SCAs listed above:

- 2012 Oakland ECAP. Oakland developed its ECAP using a GHG reduction target equivalent to 36 percent below 2005 BAU GHG emissions by 2020 (City of Oakland, Resolution No. 82129 C.M.S., 2009). Certain development projects must meet this target (see SCA-GHG-1, above).

- City of Oakland Sustainability Programs. The City has proactively adopted a number of sustainability programs in an effort to reduce the City's impact on climate change. Two main categories that address reducing GHG emissions from a development projects are renewable energy (for City facilities) and green building (see CalGreen/Green Building Requirements, above).

COMPARISON OF 2005 BAU PROJECT AND 2020 PROJECT BUILDOUT SCENARIO EMISSIONS

Table 1 shows the 2005 BAU Project and 2020 Project Buildout scenario GHG inventories, as well as the percent reduction in emissions from the 2005 BAU Project inventory by source category.

Emissions from area sources (hearths and landscaping) under the 2020 Project Buildout scenario decrease by 34 percent from the 2005 BAU Project scenario due to the replacement of wood-fired hearths with natural gas fireplaces, as required by BAAQMD Rule 6-3.

Emissions related to energy use (both electricity and natural gas) decrease by 43 percent, due to the combined impacts of increased building energy efficiency and reductions in the carbon intensity of electricity provided by PG&E. These reductions are from the Title 24 building energy efficiency standards and the state Renewables Portfolio Standard.

Emissions related to water use, which are from wastewater treatment and the purchased electricity used to supply, distribute, and treat the water, are reduced by 46 percent, due to the state Renewables Portfolio Standard lowering the carbon intensity of purchased electricity between the 2005 BAU Project and 2020 Project Buildout scenarios.

Table 1: Comparison of Annual GHG Emissions – 2005 BAU Project Compared to 2020 Project Buildout

	Total Annual CO_2e Emissions (Metric Tons Per Year) [a]		
Emission Source Category	**2005 BAU Project**	**2020 Project Buildout** [b]	**Reductions from 2005 BAU Scenario**
Construction [c]	21	21	0%
Operational Area	61	40	34%
Operational Energy	3,573	2,050	43%
Operational Mobile	6,224	5,564	11%
Operational Waste	387	43	89%
Operational Water	438	238	46%
Total Emissions	**4,480**	**2,392**	**47%**
Total Emissions Threshold	1,100	1,100	--
Threshold Exceeded?	Yes	Yes	--
Emissions Efficiency (per SP) [d]	**1.1**	**0.6**	**--**
Emissions Efficiency Threshold (per SP)	4.6	4.6	--
Threshold Exceeded?	No	No	--
Reduction Requirement	--	--	36%
Reduction Achieved?	--	--	Yes

[a] Emissions estimates were made using CalEEMod, version 2016.3.2.
[b] Assumes 2021 energy and utility assumptions factoring in 2016 Title 24 standards and CalGreen compliance, actual PG&E emission factors, and compliance with City's waste reduction goals.
[c] In accordance with CEQA guidance from the City of Oakland, GHG emissions during construction are amortized over 40 years.
[d] The service population of 4,195 residents and employees was used, see subsection K, Population and Housing for details.
Source: Lamphier-Gregory, 2019

Compared to the 2005 BAU Project, the 2020 Project Buildout scenario emissions from solid waste are reduce by 89 percent taking into account implementation of Oakland's Zero Waste goal by 2020.

Though not included in the comparison, mobile source emissions (from project-related vehicle trips) decrease by 11 percent between the 2005 BAU Project scenario and the 2020 Project Buildout scenario. This is primarily due to the reduction in fleet average emission factors in CalEEMod as the vehicle fleet gets more efficient by 2020 with the adoption of Pavley and ACC standards as well as an increased penetration of electric vehicles into the fleet.

Overall, at 2020 Project Buildout, the total annual GHG emissions generated by the project (2,392 metric tons CO_2e per year) is approximately 2,088 metric tons CO_2e per year less than the project's estimated 2005 BAU scenario emissions (4,480 metric tons CO_2e per year). This is a reduction of approximately 47 percent – greater than the 36 percent reduction from 2005 BAU required pursuant to the ECAP and SCA-GHG-1.

CONCLUSION

As presented in this GHG Reduction Plan and analyzed in the CEQA Analysis document for the project, GHG emissions from the proposed project result in a less than significant CEQA impact. Pursuant to SCA-GHG-1, Lamphier-Gregory prepared this GHG Reduction Plan to demonstrate achievement of a minimum 36 percent reduction of GHG emissions compared to the 2005 BAU scenario, and compliance with the City ECAP.

Table 1 of this GHG Reduction Plan shows that emissions estimated under the 2020 Project Buildout scenario are reduced 47 percent from those estimated for the 2005 BAU Project scenario. Therefore, the project would not conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing greenhouse gas emissions, in particular the City's ECAP (per SCA-GHG-1). Pursuant to SCA-GHG-1, the project is not required to identify and quantify additional specific GHG reduction measures to reduce project emissions for CEQA purposes; the project's emissions are already below one of the CEQA thresholds and exceed the 36 percent reduction from the project's 2005 BAU scenario. The project has fully implemented SCA-GHG-1, the GHG Reduction Plan, for CEQA purposes, as specified in SCA-GHG-1.

Attachment 1: CalEEMod Results

WOB TOD 2005

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	382.46	1000sqft	1.27	382,460.00	0
Enclosed Parking with Elevator	400.00	Space	1.00	160,000.00	0
Apartments High Rise	500.00	Dwelling Unit	1.26	500,000.00	1430
Apartments Low Rise	22.00	Dwelling Unit	0.28	22,000.00	63
Apartments Mid Rise	240.00	Dwelling Unit	1.27	240,000.00	686
Strip Mall	59.80	1000sqft	0.50	59,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2005
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot acreage totals site acreage.

Water And Wastewater - 100% aerobic treatment of wastewater assumed.

Vehicle Trips - Trip rate per Ferh & Peers non-CEQA analysis including 47% trip reduction for projects near a BART station.

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	8.78	1.27
tblLandUse	LotAcreage	3.60	1.00
tblLandUse	LotAcreage	8.06	1.26
tblLandUse	LotAcreage	1.38	0.28
tblLandUse	LotAcreage	6.32	1.27
tblLandUse	LotAcreage	1.37	0.50
tblVehicleTrips	ST_TR	4.98	2.80
tblVehicleTrips	ST_TR	7.16	3.14
tblVehicleTrips	ST_TR	6.39	3.01
tblVehicleTrips	ST_TR	2.46	1.20
tblVehicleTrips	ST_TR	42.04	35.65
tblVehicleTrips	SU_TR	3.65	2.05
tblVehicleTrips	SU_TR	6.07	2.66
tblVehicleTrips	SU_TR	5.86	2.76
tblVehicleTrips	SU_TR	1.05	2.49
tblVehicleTrips	SU_TR	20.43	17.32
tblVehicleTrips	WD_TR	4.20	2.36
tblVehicleTrips	WD_TR	6.59	2.89
tblVehicleTrips	WD_TR	6.65	3.13
tblVehicleTrips	WD_TR	11.03	5.40
tblVehicleTrips	WD_TR	44.32	37.58

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Year	MT/yr					
2018	0.0000	3.6245	3.6245	9.7000e-004	0.0000	3.6488
2019	0.0000	1,423.3708	1,423.3708	0.1317	0.0000	1,426.6638
2020	0.0000	139.6310	139.6310	0.0153	0.0000	140.0129
Maximum	**0.0000**	**1,423.3708**	**1,423.3708**	**0.1317**	**0.0000**	**1,426.6638**

Mitigated Construction

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	MT/yr					
2018	0.0000	3.6245	3.6245	9.7000e-004	0.0000	3.6488
2019	0.0000	1,423.3704	1,423.3704	0.1317	0.0000	1,426.6634
2020	0.0000	139.6310	139.6310	0.0153	0.0000	140.0128
Maximum	**0.0000**	**1,423.3704**	**1,423.3704**	**0.1317**	**0.0000**	**1,426.6634**

	Bio- CO2	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	MT/yr					
Area	34.7394	23.5263	58.2657	0.0707	2.2800e-003	60.7121
Energy	0.0000	3,557.3378	3,557.3378	0.1406	0.0403	3,572.8511
Mobile	0.0000	6,201.1414	6,201.1414	0.9108	0.0000	6,223.9109
Waste	156.1001	0.0000	156.1001	9.2253	0.0000	386.7313
Water	38.7218	269.1799	307.9016	3.9893	0.0964	436.3683
Total	**229.5612**	**10,051.1854**	**10,280.7466**	**14.3366**	**0.1390**	**10,680.5737**

Mitigated Operational

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Area	34.7394	23.5263	58.2657	0.0707	2.2800e-003	60.7121
Energy	0.0000	3,557.3378	3,557.3378	0.1406	0.0403	3,572.8511
Mobile	0.0000	6,201.1414	6,201.1414	0.9108	0.0000	6,223.9109
Waste	156.1001	0.0000	156.1001	9.2253	0.0000	386.7313
Water	38.7218	269.1799	307.9016	3.9893	0.0964	436.3683
Total	**229.5612**	**10,051.1854**	**10,280.7466**	**14.3366**	**0.1390**	**10,680.5737**

	Bio- CO2	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**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	12/28/2018	1/24/2019	5	20	
2	Site Preparation	Site Preparation	1/25/2019	2/7/2019	5	10	
3	Grading	Grading	2/8/2019	3/7/2019	5	20	
4	Building Construction	Building Construction	3/8/2019	1/23/2020	5	230	
5	Paving	Paving	1/24/2020	2/20/2020	5	20	
6	Architectural Coating	Architectural Coating	2/21/2020	3/19/2020	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 1

Residential Indoor: 1,543,050; Residential Outdoor: 514,350; Non-Residential Indoor: 663,390; Non-Residential Outdoor: 221,130;

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37

Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	757.00	180.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	151.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Off-Road	0.0000	3.5124	3.5124	9.7000e-004	0.0000	3.5366
Total	**0.0000**	**3.5124**	**3.5124**	**9.7000e-004**	**0.0000**	**3.5366**

Unmitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	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
Worker	0.0000	0.1121	0.1121	0.0000	0.0000	0.1122
Total	**0.0000**	**0.1121**	**0.1121**	**0.0000**	**0.0000**	**0.1122**

Mitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Off-Road	0.0000	3.5124	3.5124	9.7000e-004	0.0000	3.5366
Total	**0.0000**	**3.5124**	**3.5124**	**9.7000e-004**	**0.0000**	**3.5366**

Mitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	MT/yr					
Hauling	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
Worker	0.0000	0.1121	0.1121	0.0000	0.0000	0.1122
Total	**0.0000**	**0.1121**	**0.1121**	**0.0000**	**0.0000**	**0.1122**

3.2 Demolition - 2019

Unmitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Off-Road	0.0000	31.1637	31.1637	8.6700e-003	0.0000	31.3804
Total	**0.0000**	**31.1637**	**31.1637**	**8.6700e-003**	**0.0000**	**31.3804**

Unmitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	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
Worker	0.0000	0.9791	0.9791	3.0000e-005	0.0000	0.9798

Total	0.0000	0.9791	0.9791	3.0000e-005	0.0000	0.9798

Mitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Off-Road	0.0000	31.1637	31.1637	8.6700e-003	0.0000	31.3804
Total	**0.0000**	**31.1637**	**31.1637**	**8.6700e-003**	**0.0000**	**31.3804**

Mitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	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
Worker	0.0000	0.9791	0.9791	3.0000e-005	0.0000	0.9798
Total	**0.0000**	**0.9791**	**0.9791**	**3.0000e-005**	**0.0000**	**0.9798**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total	**0.0000**	**17.0843**	**17.0843**	**5.4100e-003**	**0.0000**	**17.2195**

Unmitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	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
Worker	0.0000	0.6528	0.6528	2.0000e-005	0.0000	0.6532
Total	**0.0000**	**0.6528**	**0.6528**	**2.0000e-005**	**0.0000**	**0.6532**

Mitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					

Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total	**0.0000**	**17.0843**	**17.0843**	**5.4100e-003**	**0.0000**	**17.2195**

Mitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	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
Worker	0.0000	0.6528	0.6528	2.0000e-005	0.0000	0.6532
Total	**0.0000**	**0.6528**	**0.6528**	**2.0000e-005**	**0.0000**	**0.6532**

3.4 Grading - 2019

Unmitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	26.6423	26.6423	8.4300e-003	0.0000	26.8530
Total	**0.0000**	**26.6423**	**26.6423**	**8.4300e-003**	**0.0000**	**26.8530**

Unmitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	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
Worker	0.0000	1.0879	1.0879	3.0000e-005	0.0000	1.0887
Total	**0.0000**	**1.0879**	**1.0879**	**3.0000e-005**	**0.0000**	**1.0887**

Mitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	26.6422	26.6422	8.4300e-003	0.0000	26.8530
Total	**0.0000**	**26.6422**	**26.6422**	**8.4300e-003**	**0.0000**	**26.8530**

Mitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	MT/yr					
Hauling	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
Worker	0.0000	1.0879	1.0879	3.0000e-005	0.0000	1.0887
Total	**0.0000**	**1.0879**	**1.0879**	**3.0000e-005**	**0.0000**	**1.0887**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Off-Road	0.0000	250.3860	250.3860	0.0610	0.0000	251.9109
Total	**0.0000**	**250.3860**	**250.3860**	**0.0610**	**0.0000**	**251.9109**

Unmitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	510.6408	510.6408	0.0315	0.0000	511.4274
Worker	0.0000	584.7340	584.7340	0.0167	0.0000	585.1508

Total	**0.0000**	**1,095.3747**	**1,095.3747**	**0.0481**	**0.0000**	**1,096.5782**

Mitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Off-Road	0.0000	250.3857	250.3857	0.0610	0.0000	251.9106
Total	**0.0000**	**250.3857**	**250.3857**	**0.0610**	**0.0000**	**251.9106**

Mitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	510.6408	510.6408	0.0315	0.0000	511.4274
Worker	0.0000	584.7340	584.7340	0.0167	0.0000	585.1508
Total	**0.0000**	**1,095.3747**	**1,095.3747**	**0.0481**	**0.0000**	**1,096.5782**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Off-Road	0.0000	19.6869	19.6869	4.8000e-003	0.0000	19.8069
Total	**0.0000**	**19.6869**	**19.6869**	**4.8000e-003**	**0.0000**	**19.8069**

Unmitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	40.4701	40.4701	2.3300e-003	0.0000	40.5283
Worker	0.0000	45.2252	45.2252	1.1700e-003	0.0000	45.2544
Total	**0.0000**	**85.6953**	**85.6953**	**3.5000e-003**	**0.0000**	**85.7827**

Mitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					

Off-Road	0.0000	19.6868	19.6868	4.8000e-003	0.0000	19.8069
Total	**0.0000**	**19.6868**	**19.6868**	**4.8000e-003**	**0.0000**	**19.8069**

Mitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	40.4701	40.4701	2.3300e-003	0.0000	40.5283
Worker	0.0000	45.2252	45.2252	1.1700e-003	0.0000	45.2544
Total	**0.0000**	**85.6953**	**85.6953**	**3.5000e-003**	**0.0000**	**85.7827**

3.6 Paving - 2020

Unmitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Off-Road	0.0000	20.0282	20.0282	6.4800e-003	0.0000	20.1902
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**20.0282**	**20.0282**	**6.4800e-003**	**0.0000**	**20.1902**

Unmitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	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
Worker	0.0000	1.0543	1.0543	3.0000e-005	0.0000	1.0550
Total	**0.0000**	**1.0543**	**1.0543**	**3.0000e-005**	**0.0000**	**1.0550**

Mitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Off-Road	0.0000	20.0282	20.0282	6.4800e-003	0.0000	20.1901
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**20.0282**	**20.0282**	**6.4800e-003**	**0.0000**	**20.1901**

Mitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	MT/yr					
Hauling	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
Worker	0.0000	1.0543	1.0543	3.0000e-005	0.0000	1.0550
Total	**0.0000**	**1.0543**	**1.0543**	**3.0000e-005**	**0.0000**	**1.0550**

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Off-Road	0.0000	2.5533	2.5533	2.0000e-004	0.0000	2.5582
Total	**0.0000**	**2.5533**	**2.5533**	**2.0000e-004**	**0.0000**	**2.5582**

Unmitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	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
Worker	0.0000	10.6131	10.6131	2.7000e-004	0.0000	10.6200

Total	**0.0000**	**10.6131**	**10.6131**	**2.7000e-004**	**0.0000**	**10.6200**

Mitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Off-Road	0.0000	2.5533	2.5533	2.0000e-004	0.0000	2.5582
Total	**0.0000**	**2.5533**	**2.5533**	**2.0000e-004**	**0.0000**	**2.5582**

Mitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	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
Worker	0.0000	10.6131	10.6131	2.7000e-004	0.0000	10.6200
Total	**0.0000**	**10.6131**	**10.6131**	**2.7000e-004**	**0.0000**	**10.6200**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2 O	CO2e
Category	MT/yr					
Mitigated	0.0000	6,201.1414	6,20 1.14	0.9108	0.00 00	6,223.9109
Unmitigated	0.0000	6,201.1414	6,20 1.14	0.9108	0.00 00	6,223.9109

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	1,180.00	1,400.00	1025.00	2,746,783	2,746,783
Apartments Low Rise	63.58	69.08	58.52	146,990	146,990
Apartments Mid Rise	751.20	722.40	662.40	1,696,176	1,696,176
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	2,065.28	458.95	952.33	4,007,171	4,007,171
Strip Mall	2,247.28	2,131.87	1035.74	3,168,954	3,168,954
Total	6,307.35	4,782.30	3,733.98	11,766,073	11,766,073

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
Apartments Low Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Apartments Mid 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
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
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	0.540639	0.064683	0.171972	0.117999	0.030504	0.004760	0.020161	0.036194	0.001764	0.004728	0.005037	0.000261	0.001298
Apartments Low Rise	0.540639	0.064683	0.171972	0.117999	0.030504	0.004760	0.020161	0.036194	0.001764	0.004728	0.005037	0.000261	0.001298
Apartments Mid Rise	0.540639	0.064683	0.171972	0.117999	0.030504	0.004760	0.020161	0.036194	0.001764	0.004728	0.005037	0.000261	0.001298
Enclosed Parking with Elevator	0.540639	0.064683	0.171972	0.117999	0.030504	0.004760	0.020161	0.036194	0.001764	0.004728	0.005037	0.000261	0.001298
General Office Building	0.540639	0.064683	0.171972	0.117999	0.030504	0.004760	0.020161	0.036194	0.001764	0.004728	0.005037	0.000261	0.001298
Strip Mall	0.540639	0.064683	0.171972	0.117999	0.030504	0.004760	0.020161	0.036194	0.001764	0.004728	0.005037	0.000261	0.001298

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Electricity Mitigated	0.0000	2,779.4942	2,779.4942	0.1257	0.0260	2,790.3851
Electricity Unmitigated	0.0000	2,779.4942	2,779.4942	0.1257	0.0260	2,790.3851
NaturalGas Mitigated	0.0000	777.8436	777.8436	0.0149	0.0143	782.4660
NaturalGas Unmitigated	0.0000	777.8436	777.8436	0.0149	0.0143	782.4660

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	MT/yr					
Apartments High Rise	4.36522e+006	0.0000	232.9445	232.9445	4.4600e-003	4.2700e-003	234.3288
Apartments Low Rise	447689	0.0000	23.8904	23.8904	4.6000e-004	4.4000e-004	24.0324
Apartments Mid Rise	2.0953e+006	0.0000	111.8134	111.8134	2.1400e-003	2.0500e-003	112.4778
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	7.39295e+006	0.0000	394.5161	394.5161	7.5600e-003	7.2300e-003	396.8605
Strip Mall	275080	0.0000	14.6793	14.6793	2.8000e-004	2.7000e-004	14.7666
Total		**0.0000**	**777.8436**	**777.8436**	**0.0149**	**0.0143**	**782.4660**

Mitigated

	NaturalGas Use	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	MT/yr					
Apartments High Rise	4.36522e+006	0.0000	232.9445	232.9445	4.4600e-003	4.2700e-003	234.3288
Apartments Low Rise	447689	0.0000	23.8904	23.8904	4.6000e-004	4.4000e-004	24.0324
Apartments Mid Rise	2.0953e+006	0.0000	111.8134	111.8134	2.1400e-003	2.0500e-003	112.4778
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	7.39295e+006	0.0000	394.5161	394.5161	7.5600e-003	7.2300e-003	396.8605
Strip Mall	275080	0.0000	14.6793	14.6793	2.8000e-004	2.7000e-004	14.7666
Total		**0.0000**	**777.8436**	**777.8436**	**0.0149**	**0.0143**	**782.4660**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	2.111e+006	614.1127	0.0278	5.7500e-003	616.5189
Apartments Low Rise	92756	26.9838	1.2200e-003	2.5000e-004	27.0895
Apartments Mid Rise	1.01328e+006	294.7741	0.0133	2.7600e-003	295.9291
Enclosed Parking with Elevator	937600	272.7586	0.0123	2.5500e-003	273.8273
General Office Building	4.7731e+006	1,388.5498	0.0628	0.0130	1,393.9905
Strip Mall	626704	182.3154	8.2400e-003	1.7100e-003	183.0298
Total		**2,779.4942**	**0.1257**	**0.0260**	**2,790.3851**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	2.111e+006	614.1127	0.0278	5.7500e-003	616.5189
Apartments Low Rise	92756	26.9838	1.2200e-003	2.5000e-004	27.0895
Apartments Mid Rise	1.01328e+006	294.7741	0.0133	2.7600e-003	295.9291
Enclosed Parking with Elevator	937600	272.7586	0.0123	2.5500e-003	273.8273
General Office Building	4.7731e+006	1,388.5498	0.0628	0.0130	1,393.9905

Strip Mall	626704	182.3154	8.2400e-003	1.7100e-003	183.0298
Total		**2,779.4942**	**0.1257**	**0.0260**	**2,790.3851**

6.0 Area Detail

6.1 Mitigation Measures Area

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Mitigated	34.7394	23.5263	58.2657	0.0707	2.2800e-003	60.7121
Unmitigated	34.7394	23.5263	58.2657	0.0707	2.2800e-003	60.7121

6.2 Area by SubCategory

Unmitigated

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	MT/yr					
Architectural Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	34.7394	14.2691	49.0085	0.0558	2.2800e-003	51.0832
Landscaping	0.0000	9.2572	9.2572	0.0149	0.0000	9.6290
Total	**34.7394**	**23.5263**	**58.2657**	**0.0707**	**2.2800e-003**	**60.7121**

Mitigated

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	MT/yr					
Architectural Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	34.7394	14.2691	49.0085	0.0558	2.2800e-003	51.0832
Landscaping	0.0000	9.2572	9.2572	0.0149	0.0000	9.6290
Total	**34.7394**	**23.5263**	**58.2657**	**0.0707**	**2.2800e-003**	**60.7121**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	307.9016	3.9893	0.0964	436.3683
Unmitigated	307.9016	3.9893	0.0964	436.3683

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	32.577 / 20.5377	82.5266	1.0648	0.0257	116.8169
Apartments Low Rise	1.43339 / 0.903658	3.6312	0.0469	1.1300e-003	5.1399
Apartments Mid Rise	15.637 / 9.85809	39.6128	0.5111	0.0124	56.0721
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	67.976 / 41.6627	170.9889	2.2218	0.0537	242.5350
Strip Mall	4.42954 / 2.71488	11.1422	0.1448	3.5000e-003	15.8044
Total		**307.9016**	**3.9893**	**0.0964**	**436.3683**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	32.577 / 20.5377	82.5266	1.0648	0.0257	116.8169
Apartments Low Rise	1.43339 / 0.903658	3.6312	0.0469	1.1300e-003	5.1399
Apartments Mid Rise	15.637 / 9.85809	39.6128	0.5111	0.0124	56.0721
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	67.976 / 41.6627	170.9889	2.2218	0.0537	242.5350
Strip Mall	4.42954 / 2.71488	11.1422	0.1448	3.5000e-003	15.8044

Total		307.9016	3.9893	0.0964	436.3683

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	156.1001	9.2253	0.0000	386.7313
Unmitigated	156.1001	9.2253	0.0000	386.7313

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	230	46.6879	2.7592	0.0000	115.6674
Apartments Low Rise	10.12	2.0543	0.1214	0.0000	5.0894
Apartments Mid Rise	110.4	22.4102	1.3244	0.0000	55.5203
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000

General Office Building	355.69	72.2019	4.2670	0.0000	178.8770
Strip Mall	62.79	12.7458	0.7533	0.0000	31.5772
Total		**156.1001**	**9.2253**	**0.0000**	**386.7313**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	230	46.6879	2.7592	0.0000	115.6674
Apartments Low Rise	10.12	2.0543	0.1214	0.0000	5.0894
Apartments Mid Rise	110.4	22.4102	1.3244	0.0000	55.5203
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	355.69	72.2019	4.2670	0.0000	178.8770
Strip Mall	62.79	12.7458	0.7533	0.0000	31.5772
Total		**156.1001**	**9.2253**	**0.0000**	**386.7313**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

WOB TOD 2020

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	382.46	1000sqft	1.27	382,460.00	0
Enclosed Parking with Elevator	400.00	Space	1.00	160,000.00	0
Apartments High Rise	500.00	Dwelling Unit	1.26	500,000.00	1430
Apartments Low Rise	22.00	Dwelling Unit	0.28	22,000.00	63
Apartments Mid Rise	240.00	Dwelling Unit	1.27	240,000.00	686
Strip Mall	59.80	1000sqft	0.50	59,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - PG&E Emissions Factor for 2020.

Land Use - Lot acreage totals site acreage.

Woodstoves -

Water And Wastewater - 100% aerobic treatment of wastewater assumed.

Area Mitigation - Only natural gas fireplaces as required by BAAQMD Rule 6-3.

Water Mitigation - 20% Water reduction in indoor water use in compliance with CalGreen code.

Waste Mitigation - Waste Reduction per Oakland's Zero Waste 2020 goal.

Vehicle Trips - Trips per Fehr & Peers non-CEQA analysis including 47% reduction in trips near BART stations.

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	8.78	1.27
tblLandUse	LotAcreage	3.60	1.00
tblLandUse	LotAcreage	8.06	1.26
tblLandUse	LotAcreage	1.38	0.28
tblLandUse	LotAcreage	6.32	1.27
tblLandUse	LotAcreage	1.37	0.50
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblVehicleTrips	ST_TR	4.98	2.80
tblVehicleTrips	ST_TR	7.16	3.14
tblVehicleTrips	ST_TR	6.39	3.01
tblVehicleTrips	ST_TR	2.46	1.20
tblVehicleTrips	ST_TR	42.04	35.65
tblVehicleTrips	SU_TR	3.65	2.05
tblVehicleTrips	SU_TR	6.07	2.66
tblVehicleTrips	SU_TR	5.86	2.76
tblVehicleTrips	SU_TR	1.05	2.49
tblVehicleTrips	SU_TR	20.43	17.32
tblVehicleTrips	WD_TR	4.20	2.36
tblVehicleTrips	WD_TR	6.59	2.89
tblVehicleTrips	WD_TR	6.65	3.13
tblVehicleTrips	WD_TR	11.03	5.40
tblVehicleTrips	WD_TR	44.32	37.58

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	MT/yr					
2019	0.0000	820.4022	820.4022	0.0835	0.0000	822.4896
2020	0.0000	734.7303	734.7303	0.0621	0.0000	736.2836
Maximum	**0.0000**	**820.4022**	**820.4022**	**0.0835**	**0.0000**	**822.4896**

Mitigated Construction

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	MT/yr					
2019	0.0000	820.4020	820.4020	0.0835	0.0000	822.4894
2020	0.0000	734.7301	734.7301	0.0621	0.0000	736.2834
Maximum	**0.0000**	**820.4020**	**820.4020**	**0.0835**	**0.0000**	**822.4894**

	Bio- CO2	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

Category	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	MT/yr					
Area	34.7394	23.5263	58.2657	0.0649	2.2800e-003	60.5667
Energy	0.0000	2,034.6509	2,034.6509	0.1406	0.0403	2,050.1641
Mobile	0.0000	5,557.3470	5,557.3470	0.2652	0.0000	5,563.9758
Waste	156.1001	0.0000	156.1001	9.2253	0.0000	386.7313
Water	38.7218	121.7154	160.4372	3.9893	0.0964	288.9039
Total	**229.5612**	**7,737.2396**	**7,966.8008**	**13.6851**	**0.1390**	**8,350.3417**

Mitigated Operational

Category	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	MT/yr					
Area	0.0000	39.6980	39.6980	9.6400e-003	5.6000e-004	40.1052
Energy	0.0000	2,034.6509	2,034.6509	0.1406	0.0403	2,050.1641
Mobile	0.0000	5,557.3470	5,557.3470	0.2652	0.0000	5,563.9758
Waste	17.1710	0.0000	17.1710	1.0148	0.0000	42.5404
Water	30.9774	104.3406	135.3180	3.1921	0.0773	238.1518
Total	**48.1484**	**7,736.0365**	**7,784.1849**	**4.6223**	**0.1181**	**7,934.9372**

	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	79.03	0.02	2.29	66.22	15.01	4.97

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	5/13/2019	6/7/2019	5	20	
2	Site Preparation	Site Preparation	6/8/2019	6/21/2019	5	10	
3	Grading	Grading	6/22/2019	7/19/2019	5	20	
4	Building Construction	Building Construction	7/20/2019	6/5/2020	5	230	
5	Paving	Paving	6/6/2020	7/3/2020	5	20	
6	Architectural Coating	Architectural Coating	7/4/2020	7/31/2020	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 1

Residential Indoor: 1,543,050; Residential Outdoor: 514,350; Non-Residential Indoor: 663,390; Non-Residential Outdoor: 221,130; Striped Parking

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40

Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	757.00	180.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	151.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2019

Unmitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					

Off-Road	0.0000	34.6263	34.6263	9.6300e-003	0.0000	34.8672
Total	**0.0000**	**34.6263**	**34.6263**	**9.6300e-003**	**0.0000**	**34.8672**

Unmitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	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
Worker	0.0000	1.0879	1.0879	3.0000e-005	0.0000	1.0887
Total	**0.0000**	**1.0879**	**1.0879**	**3.0000e-005**	**0.0000**	**1.0887**

Mitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Off-Road	0.0000	34.6263	34.6263	9.6300e-003	0.0000	34.8671
Total	**0.0000**	**34.6263**	**34.6263**	**9.6300e-003**	**0.0000**	**34.8671**

Mitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	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
Worker	0.0000	1.0879	1.0879	3.0000e-005	0.0000	1.0887
Total	**0.0000**	**1.0879**	**1.0879**	**3.0000e-005**	**0.0000**	**1.0887**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total	**0.0000**	**17.0843**	**17.0843**	**5.4100e-003**	**0.0000**	**17.2195**

Unmitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	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
Worker	0.0000	0.6528	0.6528	2.0000e-005	0.0000	0.6532
Total	**0.0000**	**0.6528**	**0.6528**	**2.0000e-005**	**0.0000**	**0.6532**

Mitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	17.0843	17.0843	5.4100e-003	0.0000	17.2195
Total	**0.0000**	**17.0843**	**17.0843**	**5.4100e-003**	**0.0000**	**17.2195**

Mitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	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
Worker	0.0000	0.6528	0.6528	2.0000e-005	0.0000	0.6532
Total	**0.0000**	**0.6528**	**0.6528**	**2.0000e-005**	**0.0000**	**0.6532**

3.4 Grading - 2019

Unmitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	26.6423	26.6423	8.4300e-003	0.0000	26.8530
Total	**0.0000**	**26.6423**	**26.6423**	**8.4300e-003**	**0.0000**	**26.8530**

Unmitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	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
Worker	0.0000	1.0879	1.0879	3.0000e-005	0.0000	1.0887
Total	**0.0000**	**1.0879**	**1.0879**	**3.0000e-005**	**0.0000**	**1.0887**

Mitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Fugitive Dust	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	26.6422	26.6422	8.4300e-003	0.0000	26.8530
Total	**0.0000**	**26.6422**	**26.6422**	**8.4300e-003**	**0.0000**	**26.8530**

Mitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	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
Worker	0.0000	1.0879	1.0879	3.0000e-005	0.0000	1.0887
Total	**0.0000**	**1.0879**	**1.0879**	**3.0000e-005**	**0.0000**	**1.0887**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Off-Road	0.0000	137.5360	137.5360	0.0335	0.0000	138.3736
Total	**0.0000**	**137.5360**	**137.5360**	**0.0335**	**0.0000**	**138.3736**

Unmitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	280.4928	280.4928	0.0173	0.0000	280.9249
Worker	0.0000	321.1919	321.1919	9.1600e-003	0.0000	321.4209
Total	**0.0000**	**601.6847**	**601.6847**	**0.0264**	**0.0000**	**602.3458**

Mitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Off-Road	0.0000	137.5358	137.5358	0.0335	0.0000	138.3734

Total	**0.0000**	**137.5358**	**137.5358**	**0.0335**	**0.0000**	**138.3734**

Mitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	280.4928	280.4928	0.0173	0.0000	280.9249
Worker	0.0000	321.1919	321.1919	9.1600e-003	0.0000	321.4209
Total	**0.0000**	**601.6847**	**601.6847**	**0.0264**	**0.0000**	**602.3458**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Off-Road	0.0000	130.8596	130.8596	0.0319	0.0000	131.6578
Total	**0.0000**	**130.8596**	**130.8596**	**0.0319**	**0.0000**	**131.6578**

Unmitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	269.0070	269.0070	0.0155	0.0000	269.3938
Worker	0.0000	300.6148	300.6148	7.7600e-003	0.0000	300.8088
Total	**0.0000**	**569.6218**	**569.6218**	**0.0232**	**0.0000**	**570.2025**

Mitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Off-Road	0.0000	130.8595	130.8595	0.0319	0.0000	131.6576
Total	**0.0000**	**130.8595**	**130.8595**	**0.0319**	**0.0000**	**131.6576**

Mitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	269.0070	269.0070	0.0155	0.0000	269.3938
Worker	0.0000	300.6148	300.6148	7.7600e-003	0.0000	300.8088
Total	**0.0000**	**569.6218**	**569.6218**	**0.0232**	**0.0000**	**570.2025**

3.6 Paving - 2020

Unmitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Off-Road	0.0000	20.0282	20.0282	6.4800e-003	0.0000	20.1902
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**20.0282**	**20.0282**	**6.4800e-003**	**0.0000**	**20.1902**

Unmitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	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

Worker	0.0000	1.0543	1.0543	3.0000e-005	0.0000	1.0550
Total	**0.0000**	**1.0543**	**1.0543**	**3.0000e-005**	**0.0000**	**1.0550**

Mitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Off-Road	0.0000	20.0282	20.0282	6.4800e-003	0.0000	20.1901
Paving	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**20.0282**	**20.0282**	**6.4800e-003**	**0.0000**	**20.1901**

Mitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	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
Worker	0.0000	1.0543	1.0543	3.0000e-005	0.0000	1.0550
Total	**0.0000**	**1.0543**	**1.0543**	**3.0000e-005**	**0.0000**	**1.0550**

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	2.5533	2.5533	2.0000e-004	0.0000	2.5582
Total	**0.0000**	**2.5533**	**2.5533**	**2.0000e-004**	**0.0000**	**2.5582**

Unmitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	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
Worker	0.0000	10.6131	10.6131	2.7000e-004	0.0000	10.6200
Total	**0.0000**	**10.6131**	**10.6131**	**2.7000e-004**	**0.0000**	**10.6200**

Mitigated Construction On-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	MT/yr					
Archit. Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	2.5533	2.5533	2.0000e-004	0.0000	2.5582
Total	**0.0000**	**2.5533**	**2.5533**	**2.0000e-004**	**0.0000**	**2.5582**

Mitigated Construction Off-Site

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Hauling	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
Worker	0.0000	10.6131	10.6131	2.7000e-004	0.0000	10.6200
Total	**0.0000**	**10.6131**	**10.6131**	**2.7000e-004**	**0.0000**	**10.6200**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Mitigated	0.0000	5,557.3470	5,557.347 0	0.2652	0.0000	5,563.9758
Unmitigated	0.0000	5,557.3470	5,557.347 0	0.2652	0.0000	5,563.9758

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments High Rise	1,180.00	1,400.00	1025.00	2,746,783	2,746,783
Apartments Low Rise	63.58	69.08	58.52	146,990	146,990
Apartments Mid Rise	751.20	722.40	662.40	1,696,176	1,696,176
Enclosed Parking with Elevator	0.00	0.00	0.00		
General Office Building	2,065.28	458.95	952.33	4,007,171	4,007,171
Strip Mall	2,247.28	2,131.87	1035.74	3,168,954	3,168,954
Total	6,307.35	4,782.30	3,733.98	11,766,073	11,766,073

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments High Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Apartments Low Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Apartments Mid 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
General Office Building	9.50	7.30	7.30	33.00	48.00	19.00	77	19	4
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	0.558186	0.040947	0.190770	0.110456	0.017401	0.005228	0.022658	0.042795	0.002118	0.002805	0.005569	0.000308	0.000759
Apartments Low Rise	0.558186	0.040947	0.190770	0.110456	0.017401	0.005228	0.022658	0.042795	0.002118	0.002805	0.005569	0.000308	0.000759
Apartments Mid Rise	0.558186	0.040947	0.190770	0.110456	0.017401	0.005228	0.022658	0.042795	0.002118	0.002805	0.005569	0.000308	0.000759
Enclosed Parking with Elevator	0.558186	0.040947	0.190770	0.110456	0.017401	0.005228	0.022658	0.042795	0.002118	0.002805	0.005569	0.000308	0.000759
General Office Building	0.558186	0.040947	0.190770	0.110456	0.017401	0.005228	0.022658	0.042795	0.002118	0.002805	0.005569	0.000308	0.000759
Strip Mall	0.558186	0.040947	0.190770	0.110456	0.017401	0.005228	0.022658	0.042795	0.002118	0.002805	0.005569	0.000308	0.000759

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	MT/yr					
Electricity Mitigated	0.0000	1,256.8072	1,256.807 2	0.1257	0.0260	1,267.6981
Electricity Unmitigated	0.0000	1,256.8072	1,256.807 2	0.1257	0.0260	1,267.6981
NaturalGas Mitigated	0.0000	777.8436	777.8436	0.0149	0.0143	782.4660
NaturalGas Unmitigated	0.0000	777.8436	777.8436	0.0149	0.0143	782.4660

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	MT/yr					
Apartments High Rise	4.36522e+006	0.0000	232.9445	232.9445	4.4600e-003	4.2700e-003	234.3288
Apartments Low Rise	447689	0.0000	23.8904	23.8904	4.6000e-004	4.4000e-004	24.0324
Apartments Mid Rise	2.0953e+006	0.0000	111.8134	111.8134	2.1400e-003	2.0500e-003	112.4778
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	7.39295e+006	0.0000	394.5161	394.5161	7.5600e-003	7.2300e-003	396.8605
Strip Mall	275080	0.0000	14.6793	14.6793	2.8000e-004	2.7000e-004	14.7666

Total		**0.0000**	**777.8436**	**777.8436**	**0.0149**	**0.0143**	**782.4660**

Mitigated

	NaturalGas Use	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	MT/yr					
Apartments High Rise	4.36522e+006	0.0000	232.9445	232.9445	4.4600e-003	4.2700e-003	234.3288
Apartments Low Rise	447689	0.0000	23.8904	23.8904	4.6000e-004	4.4000e-004	24.0324
Apartments Mid Rise	2.0953e+006	0.0000	111.8134	111.8134	2.1400e-003	2.0500e-003	112.4778
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
General Office Building	7.39295e+006	0.0000	394.5161	394.5161	7.5600e-003	7.2300e-003	396.8605
Strip Mall	275080	0.0000	14.6793	14.6793	2.8000e-004	2.7000e-004	14.7666
Total		**0.0000**	**777.8436**	**777.8436**	**0.0149**	**0.0143**	**782.4660**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	2.111e+006	277.6841	0.0278	5.7500e-003	280.0903
Apartments Low Rise	92756	12.2013	1.2200e-003	2.5000e-004	12.3070
Apartments Mid Rise	1.01328e+006	133.2884	0.0133	2.7600e-003	134.4434

Enclosed Parking with Elevator	937600	123.3336	0.0123	2.5500e-003	124.4023
General Office Building	4.7731e+006	627.8622	0.0628	0.0130	633.3030
Strip Mall	626704	82.4378	8.2400e-003	1.7100e-003	83.1521
Total		**1,256.8072**	**0.1257**	**0.0260**	**1,267.6981**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments High Rise	2.111e+006	277.6841	0.0278	5.7500e-003	280.0903
Apartments Low Rise	92756	12.2013	1.2200e-003	2.5000e-004	12.3070
Apartments Mid Rise	1.01328e+006	133.2884	0.0133	2.7600e-003	134.4434
Enclosed Parking with Elevator	937600	123.3336	0.0123	2.5500e-003	124.4023
General Office Building	4.7731e+006	627.8622	0.0628	0.0130	633.3030
Strip Mall	626704	82.4378	8.2400e-003	1.7100e-003	83.1521
Total		**1,256.8072**	**0.1257**	**0.0260**	**1,267.6981**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	MT/yr					
Mitigated	0.0000	39.6980	39.6980	9.6400e-003	5.6000e-004	40.1052
Unmitigated	34.7394	23.5263	58.2657	0.0649	2.2800e-003	60.5667

6.2 Area by SubCategory

Unmitigated

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	MT/yr					
Architectural Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	34.7394	14.2691	49.0085	0.0558	2.2800e-003	51.0832
Landscaping	0.0000	9.2572	9.2572	9.0500e-003	0.0000	9.4835
Total	**34.7394**	**23.5263**	**58.2657**	**0.0649**	**2.2800e-003**	**60.5667**

Mitigated

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	MT/yr					
Architectural Coating	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Hearth	0.0000	30.4408	30.4408	5.8000e-004	5.6000e-004	30.6217
Landscaping	0.0000	9.2572	9.2572	9.0500e-003	0.0000	9.4835
Total	**0.0000**	**39.6980**	**39.6980**	**9.6300e-003**	**5.6000e-004**	**40.1052**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	135.3180	3.1921	0.0773	238.1518
Unmitigated	160.4372	3.9893	0.0964	288.9039

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	32.577 / 20.5377	42.9781	1.0648	0.0257	77.2683
Apartments Low Rise	1.43339 / 0.903658	1.8910	0.0469	1.1300e-003	3.3998
Apartments Mid Rise	15.637 / 9.85809	20.6295	0.5111	0.0124	37.0888
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	67.976 / 41.6627	89.1305	2.2218	0.0537	160.6767
Strip Mall	4.42954 / 2.71488	5.8080	0.1448	3.5000e-003	10.4702

Total		160.4372	3.9893	0.0964	288.9039

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments High Rise	26.0616 / 20.5377	36.2736	0.8520	0.0206	63.7222
Apartments Low Rise	1.14671 / 0.903658	1.5960	0.0375	9.1000e-004	2.8038
Apartments Mid Rise	12.5096 / 9.85809	17.4113	0.4090	9.9000e-003	30.5866
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
General Office Building	54.3808 / 41.6627	75.1407	1.7778	0.0430	132.4109
Strip Mall	3.54363 / 2.71488	4.8964	0.1159	2.8000e-003	8.6283
Total		**135.3180**	**3.1921**	**0.0773**	**238.1518**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e

	MT/yr			
Mitigated	17.1710	1.0148	0.0000	42.5404
Unmitigated	156.1001	9.2253	0.0000	386.7313

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments High Rise	230	46.6879	2.7592	0.0000	115.6674
Apartments Low Rise	10.12	2.0543	0.1214	0.0000	5.0894
Apartments Mid Rise	110.4	22.4102	1.3244	0.0000	55.5203
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	355.69	72.2019	4.2670	0.0000	178.8770
Strip Mall	62.79	12.7458	0.7533	0.0000	31.5772
Total		**156.1001**	**9.2253**	**0.0000**	**386.7313**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			

Apartments High Rise	25.3	5.1357	0.3035	0.0000	12.7234
Apartments Low Rise	1.1132	0.2260	0.0134	0.0000	0.5598
Apartments Mid Rise	12.144	2.4651	0.1457	0.0000	6.1072
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
General Office Building	39.1259	7.9422	0.4694	0.0000	19.6765
Strip Mall	6.9069	1.4020	0.0829	0.0000	3.4735
Total		**17.1710**	**1.0148**	**0.0000**	**42.5404**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

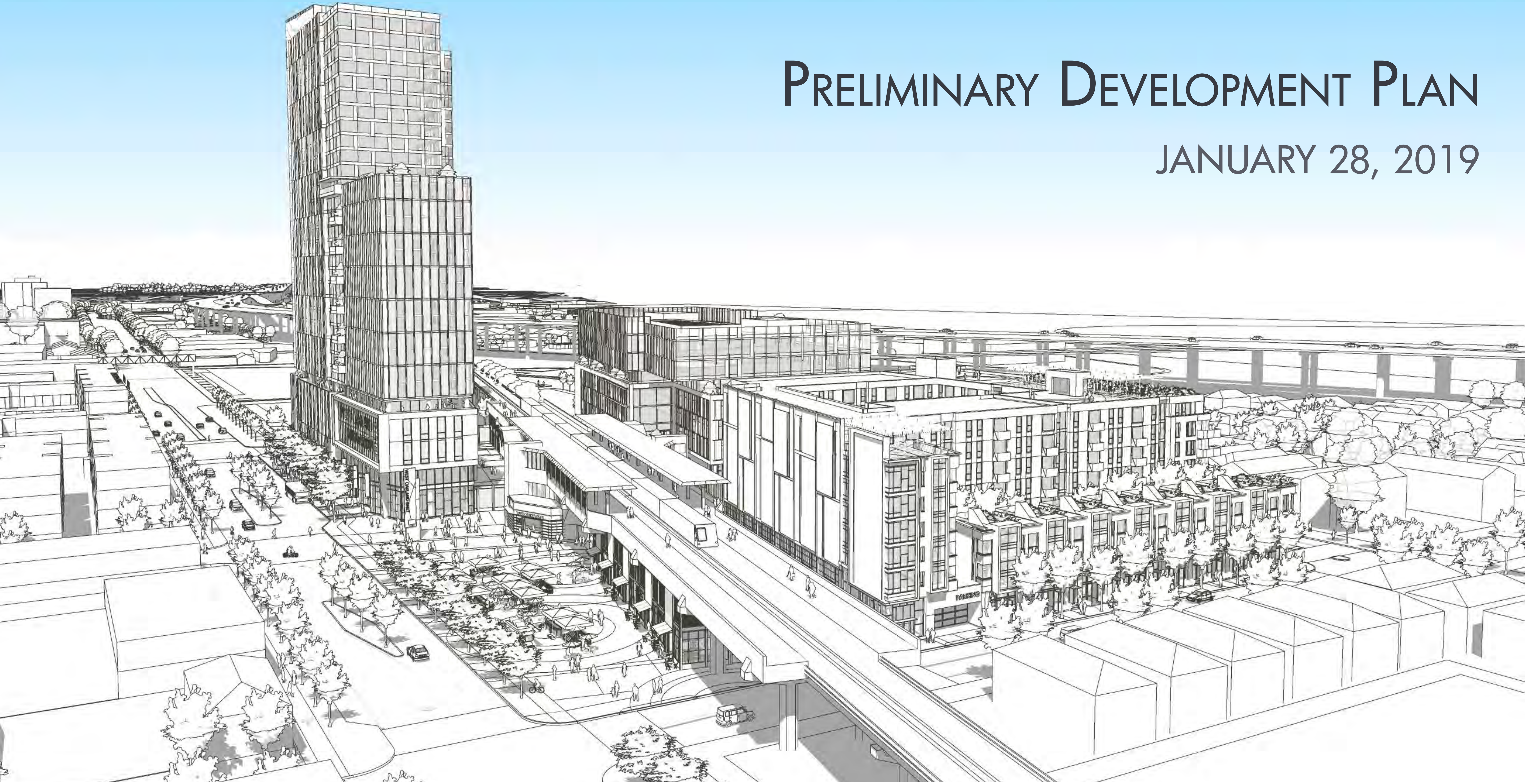
ATTACHMENT B:

Proposed Preliminary Development Permit Plans, dated January 28, 2019

West Oakland Station

Preliminary Development Plan

JANUARY 28, 2019



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WEST OAKLAND BART

DRAWING INDEX

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WEST OAKLAND BART

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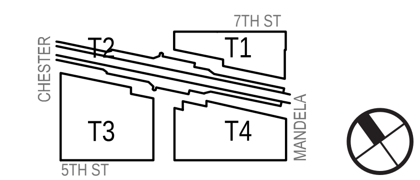
CA 94607



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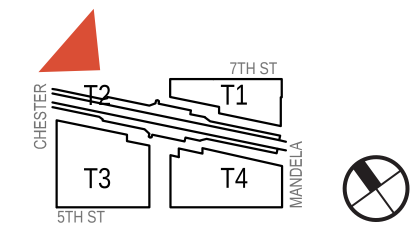

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DATE: January 18, 2019

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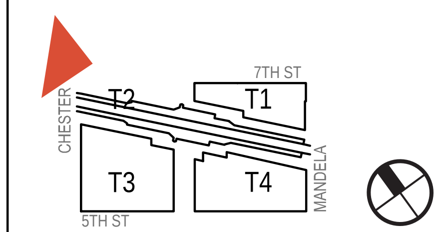

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PROJ. # 168-153 WO BART

DATE: January 18, 2019

7TH & CHESTER CORNER VIEW

SHEET:

A-00.02

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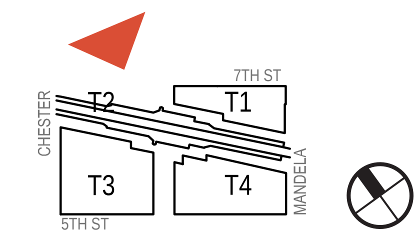

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AERIAL VIEW LOOKING SOUTH

SHEET:

A-00.03

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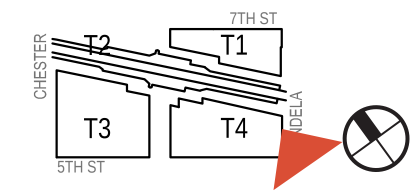

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5TH & MANDELA CORNER VIEW

SHEET: A-00.04

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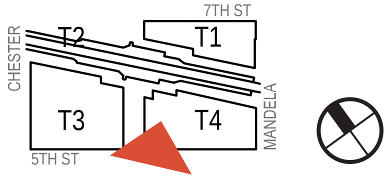

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DATE: January 18, 2019

AERIAL VIEW LOOKING NORTH

SHEET:

A-00.05

5TH & MANDELA

5TH & CHESTER

7TH STREET PLAZA

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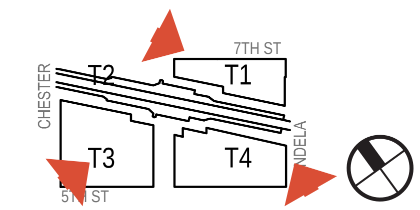

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STREET VIEWS

SHEET:

A-00.06

ART ALLEY

MAKERS PLAZA

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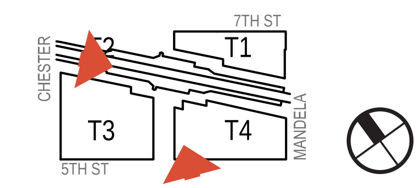

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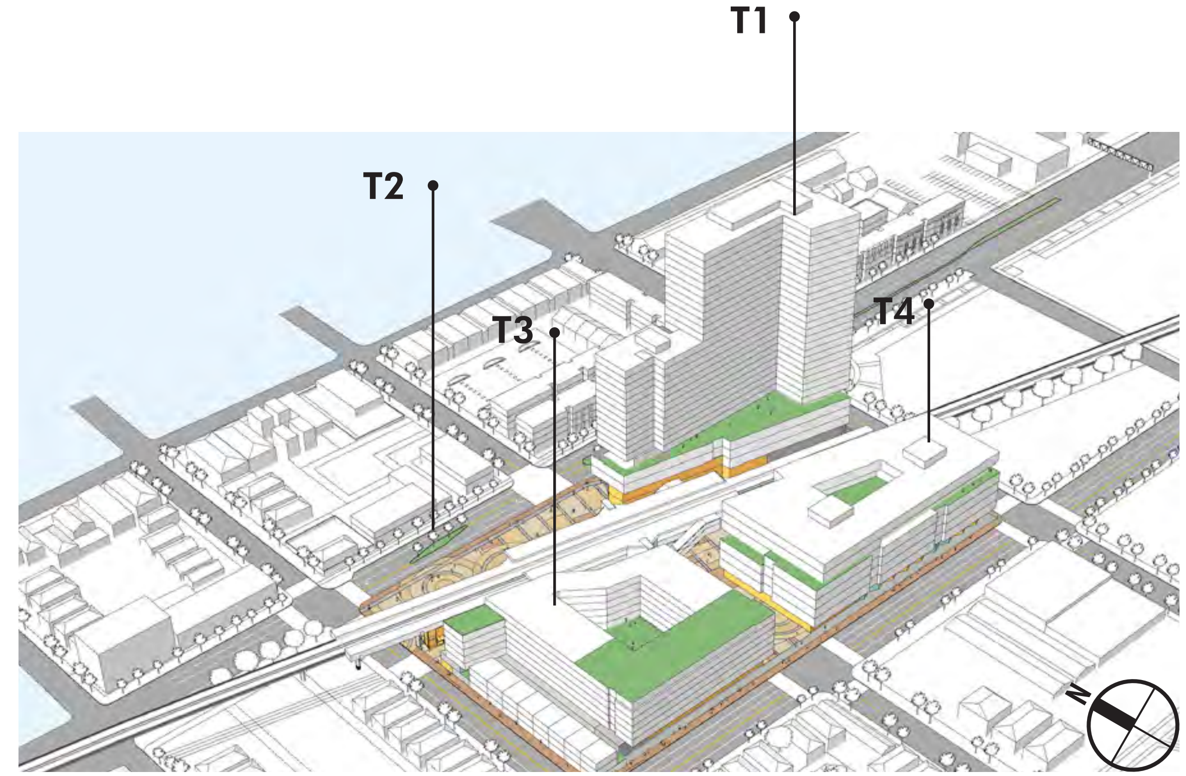
DATE:	January 18, 2019

STREET VIEWS

SHEET: A-00.07

Scheme A

USES	T1	T2	T3	T4	*Program Total*
OFFICE	*82,460 sf*			*300,000 sf*	*382,460 sf*
RETAIL	*17,185 sf*	*7,670 sf*	*15,200 sf*	*30,800 sf*	*70,855 sf*
RESIDENTIAL	*500 units*		*240 units 22 duplex*		*762 units (20% min. affordable)*
PARKING			*272 spaces*	*128 spaces*	*400 spaces*



Scheme A - Zoning Analysis

Total Site Area				
T2/T3	**S-15W 60'**	111,230	SF	
T1/T4	**S-15W 100'**	131,900	SF	
	Total	**243,130**	**SF**	
Residential Density		**Site Area**	**Net Required Site Area**	
Units (zone 60')	**262**			
SF/Unit	375	98,250		
Affordable Housing Density Bonus	1.35			
PUD Density Bonus	1.25			
Required Site Area		58,250	58,250	SF
Units (zone 100')	**500**			
SF/Unit	225	112,500		
Affordable Housing Density Bonus	1.35			
PUD Density Bonus	1.25			
Required Site Area		66,600	66,600	SF
Total Req Site Area			124,850	SF
Commercial Office Density				
Program Area	**382,460** SF			
	FAR	**Site Area**	**Allowable FAR Area**	
T1/T4	5.0	65,300	326,500	SF
T2/T3	3.0	52,980	158,940	SF
Total Allowable			**485,440**	**SF**
Required PUD Density Bonus		0%	**382,460**	SF
GP Density Max.	5.0	**118,280**	**591,400**	SF

Scheme A - Open Space Analysis

Residential Open Space Req				
262 Units		150	39,300	SF
500 Units		75	37,500	SF
Required Open Space			**76,800**	**SF**
Open Space Provided				
	Courtyard		6,055	SF
	RoofDecks		33,575	SF
			39,630	SF
	Private Decks (x2)		38,228	SF
	Total Provided		**77,858**	**SF**

Scheme A - Parking Analysis

Resi-Required Paking	262	0.5	131
	500	0.5	250
Commercial Pkg	70,855	600	118
Total			**499** Spaces
PKG Reductions			
Transit	0.3		150 Spaces
Car Share	0.2		100 Spaces
Residential PKG Req			**250 Spaces**
Parking Provided			
T3 Parking		**272** Spaces	
T4 Parking		**128** Spaces	
Total		**400** Spaces	

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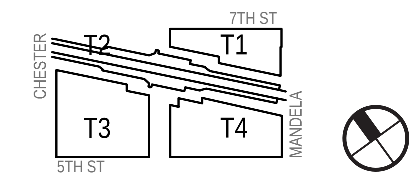

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ZONING INFO

SHEET: A-00.08

GENERAL ZONING INFORMATION	REFERENCE	NOTES
ASSESORS BLOCK	Survey	See Survey; Tract 8046, Blocks 494 and 493
ZONING USE DISTRICT	Oak GIS	S-15W
PERMITTED AND/OR CONDITIONAL USES	17.97.010-.020	Residential, Community Assembly, General Retail, Full +Limited Service Retail, Parking, Commercial Office permitted
HEIGHT & BULK DISTRICT	17.97	S-15W 60' and S-15W 100'; master plan consistent with zoning requirements
GENERAL PLAN / POLICY PLAN	OAK-GIS	General Commercial; West Oakland Specific Plan
HISTORIC OR LANDMARK STATUS	OAK-GIS	None
LIQUEFACTION HAZARD ZONE	OAK-GIS	Severity 4
CONDO CONVERSION IMPACT AREA	OAK-GIS	None

HEIGHT AND BULK CONTROLS		
SITE AREA	Survey	243,132 SF
FLOOR AREA RATIO (FAR)	17.97.130	S-15W 60' - 3.0; S-15W 100' - 5.0; Master Plan within zoning density requirements
HEIGHT LIMIT	17.97	60' and 100' (Height limit modified to allow 80' and 320' tall building pursuant to State Affordble Housing Exemption
REQUIRED SETBACKS	17.97.060	No Front Yard Setbacks Required; Interior Lot subject to PUD
REAR YARDS / COURTS		None Required
ADJACENCIES		None Significant
UNIT SEPARATION / EXPOSURE REQUIREMENTS	17.108.080	8' minimum at living room window +2' for each floor above = maximum 10% of lt width

DETAILED CONTROLS & REQUIREMENTS		
RESIDENTIAL DENSITY LIMITS	17.97.130	S-15W 60' - 375sf/unit; S-15W100' - 225sf/unit; Density increase per State Affordable Housing and PUD density bonus
OPEN SPACE REQUIREMENTS	17.97.130	S-15W 60' - 150sf/unit; and S-15W 100' - 75sf/unit; Overall master plan within zoning limites
SCREENING & SETBACK OF PARKING & LOADING	17.116.290	All parking garages are screened per zoning requirements
OFF-STREET PARKING - RESIDENTIAL	17.116.060	0.5 parking space per dwelling unit required; Parking meets zoning requirements with approved reductions
OFF-STREET PARKING - RETAIL	17.116.080	1 space/600 Sf of ground floor; Parking meets zoning requirements with approved reductions
OFF-STREET PARKING - COMMERCIAL	17.116.080	None required
OFF-STREET PARKING DIMENSIONS	17.116.200	50-50 compact / standard; or 75% intermediate + 12.5% compact
OFF-STREET DRIVE AISLE DIMENSIONS	17.116.210	21'-24' two way aisle widths
OFF-STREET LOADING - RESIDENTIAL	17.116.120	Loading per zoning requirements
OFF-STREET LOADING - RETAIL	17.116.150	Loading per zoning requirements
LOADING BERTH DIMENSIONS	17.116.220	12'x33', 14' high
BICYCLE REQUIREMENTS - RESIDENTIAL	17.117.090	LT: total 229 spaces; ST: total 57 spaces LT: 1 per 10,000 sf of commercial; ST: 1 per 20,000 sf of commercial LT: 0.25 spaces per dwelling unit; ST: 0.05 per dwelling unit; bicycle parking provide per zoning code
BICYCLE REQUIREMENTS - RETAIL	17.117.110	LT: total 5 spaces; ST: total 30 spaces LT: 1 per 12k; ST: 1 per 2k; bicycle parking provided per zoning code

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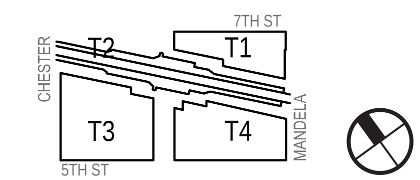

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DATE: January 18, 2019

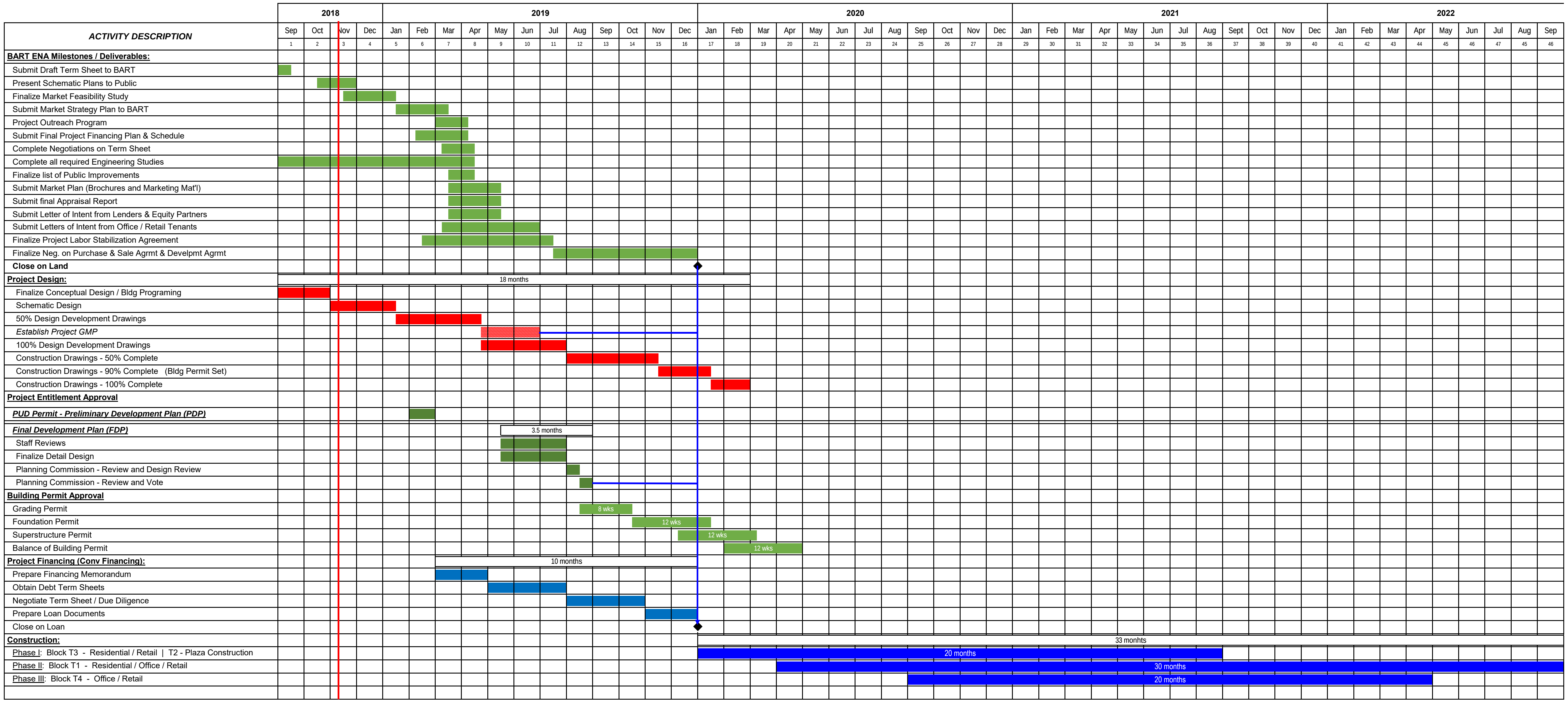
ZONING SUMMARY

SHEET: A-00.09

West Oakland BART Village MIXED-USE DEVELOPMENT PROJECT

OAKLAND, CA.

PROJECT DEVELOPMENT SCHEDULE



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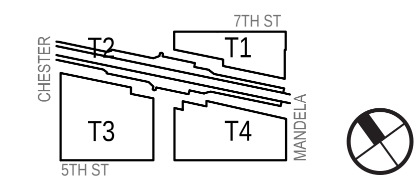

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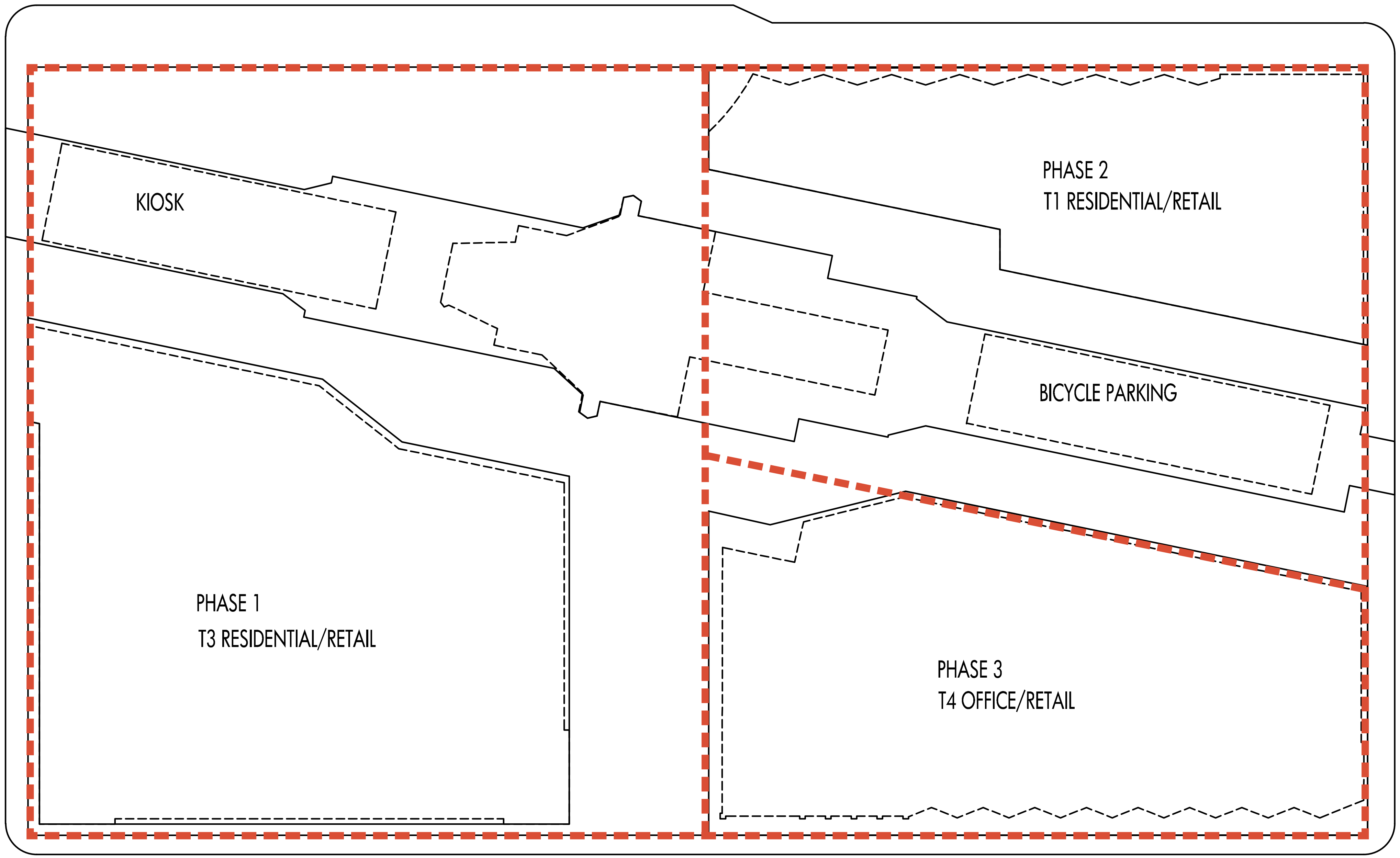
DATE: January 18, 2019

CONSTRUCTION SCHEDULE

SHEET: A-00.10



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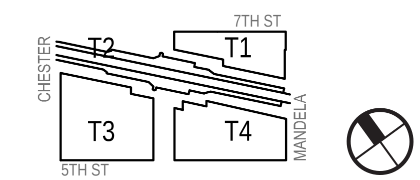

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PHASING PLAN

SHEET: A-00.11

LEED CS v4 SCORECARD

West Oakland Station T4

Category	Confirmed	Likely	Maybe	No	Phase	Credit Number	Credit Name	Points Available
IP		1			D	Credit	Integrative Process - In design phases, achieve synergies between building, energy AND water related systems	1
IP		1						1
LOCATION & TRANSPORTATION				20	D	Credit	LEED for Neighborhood Development Location - Locate within LEED ND certified development site boundary	20
LOCATION & TRANSPORTATION	2				D	Credit	Sensitive Land Protection - Develop on previously developed land or follow criteria for non - sensitive	2
LOCATION & TRANSPORTATION	2			1	D	Credit	High Priority Site - Locate project on infill location in historic district, priority designation or brownfield	3
LOCATION & TRANSPORTATION	2	2		2	D	Credit	Surrounding Density & Diverse Uses - Site within 1/4 mile of surrounding density criteria and/or a 1/2 mile of diverse uses	6
LOCATION & TRANSPORTATION	6				D	Credit	Access to Quality Transit - Locate functional entries within 1/4 mile of existing transit or 1/2 mile of planned transit services	6
LOCATION & TRANSPORTATION		1			D	Credit	Bicycle Facilities - Provide a bike network and storage areas	1
LOCATION & TRANSPORTATION		1			D	Credit	Reduced Parking Footprint - Don't exceed minimum local code requirements for parking capacity	1
LOCATION & TRANSPORTATION		1			D	Credit	Green Vehicles - 5 % of spaces or 20 % discount for parking and electric car charging OR liquid, gas or battery facilities	1
LOCATION & TRANSPORTATION	12	5		20	Totals			20
SUSTAINABLE SITES	Yes				C	Prereq	Construction Activity Pollution Prevention - Implement an erosion control plan, per the EPA CGP v2012	NA
SUSTAINABLE SITES				1	D	Credit	Site Assessment - Complete site survey including: topography, hydrology, climate, vegetation, soils, human use, human health	1
SUSTAINABLE SITES				2	D	Credit	Site Development - Protect or Restore Habitat - Preserve 40% of greenfield AND on-site restoration OR financial support	2
SUSTAINABLE SITES	1				D	Credit	Open Space - Provide outdoor space greater than or equal to 30% of total site area, 25% of which is vegetated	1
SUSTAINABLE SITES				3	D	Credit	Rainwater Management - Manage runoff for at least the 85th percentile of local rainfall events	3
SUSTAINABLE SITES		1		1	D	Credit	Heat Island Reduction - Meet nonroof and roof criteria OR place a minimum of 75% parking spaces under cover	2
SUSTAINABLE SITES	1				D	Credit	Light Pollution Reduction - Backlight-uplight-glare method or calculation method, exterior luminaires and signage requirements	1
SUSTAINABLE SITES	1				D	Credit	Tenant Design and Construction Guidelines - Provide Manual or automative glare control devices	1
SUSTAINABLE SITES	3	1		7	Totals			11
WATER	Yes				D	Prereq 1	Outdoor Water Use Reduction - Permanent non-irrigated landscape OR reduce landscape water use 30% for peak watering month	NA
WATER	Yes				D	Prereq 2	Indoor Water Use Reduction - Reduce aggregate water use by 20% for fixtures and fittings	NA
WATER	Yes				D	Prereq 3	Building-Level Water Metering - Install permanent water meters that measure potable water use, share data with USGBC	NA
WATER	1			1	D	Credit	Outdoor Water Use Reduction - Reduce water use no irrigation or reduced irrigation 50% - 100%	2
WATER	3			3	D	Credit	Indoor Water Use Reduction - Reduce fixture and fitting water use by 25% - 50%	6
WATER				2	D	Credit	Cooling Tower Water Use - Conduct a one-time potable water analysis, measure control parameters in Table 1	2
WATER				1	D	Credit	Water Metering - Meters for 2 or more water subsystems: irrigation, indoor plumbing, hot water, boiler, reclaimed water, or other	1
WATER	4			7	Totals			11
ENERGY & ATMOSPHERE	Yes				C	Prereq 1	Fundamental Commissioning and Verification - Commissioning for ASHRAE 0-2005 and 1.1-2007	NA
ENERGY & ATMOSPHERE	Yes				D	Prereq 2	Minimum Energy Performance - Whole building energy simulation OR ASHRAE 50% Design Guide OR ABCPG	NA
ENERGY & ATMOSPHERE	Yes				D	Prereq 3	Building-Level Energy Metering - Use building-level energy meters or submeters that can aggregate building-level data	NA
ENERGY & ATMOSPHERE	Yes				D	Prereq 4	Fundamental Refrigerant Management - Do not use CFC-based refrigerants in HVAC&R systems, or have a phase out plan	NA
ENERGY & ATMOSPHERE	3	1		2	C	Credit	Enhanced Commissioning - Implement systems commissioning or monitor-based commissioning	6
ENERGY & ATMOSPHERE	5	2		11	D	Credit	Optimize Energy Performance - Whole building energy simulation or follow ASHRAE Advanced Energy Design Guide	18
ENERGY & ATMOSPHERE				1	D	Credit	Advanced Energy Metering - Install advanced energy metering for whole building and individual energy sources	1
ENERGY & ATMOSPHERE		2			C	Credit	Demand Response - Participate in existing demand response program or provide infrastructure for demand response programs	2
ENERGY & ATMOSPHERE				3	D	Credit	Renewable Energy Production - Use renewable energy system to meet 1-10% of usage	3
ENERGY & ATMOSPHERE		1			D	Credit	Enhanced Refrigerant Management - Refrigerants with ODP of 0 and GWP of less than 50 OR calculate refrigerant impact	1
ENERGY & ATMOSPHERE				2	C	Credit	Green Power and Carbon Offsets - Use 50-100% green power or carbon offsets	2
ENERGY & ATMOSPHERE	8	6		19	Totals			33

Category	Confirmed	Likely	Maybe	No	Phase	Credit Number	Credit Name	Points Available
MATERIALS & RESOURCES	Yes				D	Prereq	Storage and Collection of Recyclables - Dedicated areas for waste collection, collection and storage	NA
MATERIALS & RESOURCES	Yes				D	Prereq	Construction and Demolition Waste Management Planning - Establish C&D waste diversion goals	NA
MATERIALS & RESOURCES		3		3	C	Credit	Building Life-Cycle Impact Reduction - Historic building reuse, renovate blighted buildings OR whole building LCA	6
MATERIALS & RESOURCES		1		1	C	Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
MATERIALS & RESOURCES		1		1	C	Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
MATERIALS & RESOURCES		1		1	C	Credit	Building Product Disclosure and Optimization - Material Ingredients	2
MATERIALS & RESOURCES	1			1	C	Credit	C&D Waste Management - Divert 50% (3 streams), 75% (4 streams) OR 2.5 lbs. waste per square foot	2
MATERIALS & RESOURCES	1	6		7	Totals			14
INDOOR ENVIRONMENTAL	Yes				D	Prereq	Minimum Indoor Air Quality Performance - Meet ASHRAE 62.1-2010	NA
INDOOR ENVIRONMENTAL	Yes				D	Prereq	Environmental Tobacco Smoke Control - Prohibit smoking indoors, restrict outdoor smoking within 25 feet	NA
INDOOR ENVIRONMENTAL	1	1			D	Credit	Enhanced Indoor Air Quality Strategies - Comply with enhanced IAQ strategies	2
INDOOR ENVIRONMENTAL	1	1		1	C	Credit	Low-Emitting Materials - Achieve level of compliance for product categories or use budget calculation method	3
INDOOR ENVIRONMENTAL				1	C	Credit	Construction IAQM Plan - Implement IAQMP & protect materials and equipment during construction	1
INDOOR ENVIRONMENTAL				3	D	Credit	Daylight - Install glare control devices, spatial daylight autonomy, illuminance calculations OR daylight floor area measurement	3
INDOOR ENVIRONMENTAL		1			D	Credit	Quality Views - Vision glazing for 75% of regularly occupied floor area, with at least two kinds of view types	1
INDOOR ENVIRONMENTAL	2	3		5	Totals			10
INNOVATION*		1			D	Credit	Innovation: Low Mercury Lighting	1
INNOVATION*		1			D	Credit	Innovation: Greenbuilding Education	1
INNOVATION*				1	D	Credit	TBD	1
INNOVATION*				1	D	Credit	TBD	1
INNOVATION*				1	D	Credit	TBD	1
INNOVATION*	1				C	Credit	LEED Accredited Professional	1
INNOVATION*	1	2		3	Totals			6

*Innovation in Design includes Examplary Performance credits

Category	Confirmed	Likely	Maybe	No	Phase	Credit Number	Credit Name	Points Available
REGIONAL**				1	D	Credit	Optimize Energy Performance (10 Points)	1
REGIONAL**	1				D	Credit	Access to Quality Transit (5 Points)	1
REGIONAL**		1			D	Credit	BPDO - Raw Materials (1 point)	1
REGIONAL**				1	D	Credit	Rainwater Management (3 Points)	1
REGIONAL**				1	D	Credit	Outdoor Water Use Reduction (2 points)	1
REGIONAL**		1			D	Credit	Indoor Water Use Reduction (1 point)	1
REGIONAL**	1	2		3	Totals			4

**only 4 Regional Credits are Applicable

Confirmed Certification Level:	**Not**
Confirmed + Likely Certification Level:	SILVER
Confirmed + Likely + Maybe Certification Level:	Silver
Total Confirmed Points	32
Total Confirmed + Likely Points	58
Total Confirmed + Likely + Maybe Points	58

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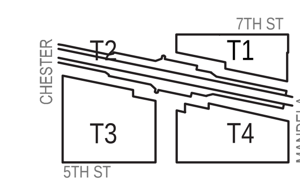

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PGAdesign LANDSCAPE ARCHITECTS

PROJ. # 168-153 WO BART

DATE: January 18, 2019

LEED CHECK LIST

SHEET:

A-00.12

LEED NC v4 SCORECARD

West Oakland Station T1

IP

	1			D	Credit	**Integrative Process** - In design phases, achieve synergies between building, energy AND water related systems	1
	1			Totals			1

LOCATION & TRANSPORTATION

			16	D	Credit	**LEED for Neighborhood Development Location** - Locate within LEED ND certified development site boundary	16
1				D	Credit	**Sensitive Land Protection** - Develop on previously developed land or follow criteria for non - sensitive	1
2				D	Credit	**High Priority Site** - Locate project on infill location in historic district, priority designation or brownfield	2
4			1	D	Credit	**Surrounding Density & Diverse Uses** - Site within 1/4 mile of surrounding density criteria and/or a 1/2 mile of diverse uses	5
5				D	Credit	**Access to Quality Transit** - Locate functional entries within 1/4 mile of existing transit or 1/2 mile of planned transit services	5
	1			D	Credit	**Bicycle Facilities** - Provide a bike network and storage areas	1
	1			D	Credit	**Reduced Parking Footprint** - Don't exceed minimum local code requirements for parking capacity	1
	1			D	Credit	**Green Vehicles** - 5 % of spaces or 20 % discount for parking and electric car charging OR liquid, gas or battery facilities	1
12	3		16	Totals			16

SUSTAINABLE SITES

Yes				C	Prereq	**Construction Activity Pollution Prevention** - Implement an erosion control plan, per the EPA CGP v2012	NA
			1	D	Credit	**Site Assessment** - Complete site survey including: topography, hydrology, climate, vegetation, soils, human use, human health	1
			2	D	Credit	**Site Development - Protect or Restore Habitat** - Preserve 40% of greenfield AND on-site restoration OR financial support	2
1				D	Credit	**Open Space** - Provide outdoor space greater than or equal to 30% of total site area, 25% of which is vegetated	1
			3	D	Credit	**Rainwater Management** - Manage runoff for at least the 85th percentile of local rainfall events	3
	1		1	D	Credit	**Heat Island Reduction** - Meet nonroof and roof criteria OR place a minimum of 75% parking spaces under cover	2
1				D	Credit	**Light Pollution Reduction** - Backlight-uplight-glare method or calculation method, exterior luminaires and signage requirements	1
2	1		7	Totals			10

WATER

Yes				D	Prereq 1	**Outdoor Water Use Reduction** - Non-irrigated landscape OR reduce landscape water use 30% for peak watering month	N/A
Yes				D	Prereq 2	**Indoor Water Use Reduction** - Reduce aggregate water use by 20% for fixtures and fittings	N/A
Yes				D	Prereq 3	**Building-Level Water Metering** - Install permanent water meters that measure potable water use, share data with USGBC	N/A
1			1	D	Credit	**Outdoor Water Use Reduction** - Reduce water use no irrigation or reduced irrigation 50% - 100%	2
3			3	D	Credit	**Indoor Water Use Reduction** - Reduce fixture and fitting water use by 25% - 50%	6
			2	D	Credit	**Cooling Tower Water Use** - Conduct a one-time potable water analysis, measure control parameters in Table 1	2
			1	D	Credit	**Water Metering** - Meters for 2 or more water subsystems: irrigation, indoor plumbing, hot water, boiler, reclaimed water, or other	1
4			7	Totals			11

ENERGY & ATMOSPHERE

Yes				C	Prereq 1	**Fundamental Commissioning and Verification** - Commissioning for ASHRAE 0-2005 and 1.1-2007	N/A
Yes				D	Prereq 2	**Minimum Energy Performance** - Whole building energy simulation OR ASHRAE 50% Design Guide OR ABCPG	N/A
Yes				D	Prereq 3	**Building-Level Energy Metering** - Use building-level energy meters or submeters that can aggregate building-level data	N/A
Yes				D	Prereq 4	**Fundamental Refrigerant Management** - Do not use CFC-based refrigerants in HVAC&R systems, or have a phase out plan	N/A
3	1		2	C	Credit	**Enhanced Commissioning** - Implement systems commissioning or monitor-based commissioning	6
5	2		11	D	Credit	**Optimize Energy Performance** - Whole building energy simulation or follow ASHRAE Advanced Energy Design Guide	18
			1	D	Credit	**Advanced Energy Metering** - Install advanced energy metering for whole building and individual energy sources	1
			2	C	Credit	**Demand Response** - Participate in existing demand response program or provide infrastructure for demand response programs	2
			3	D	Credit	**Renewable Energy Production** - Use renewable energy system to meet 1-10% of usage	3
	1			D	Credit	**Enhanced Refrigerant Management** - Refrigerants with ODP of 0 and GWP of less than 50 OR calculate refrigerant impact	1
			2	C	Credit	**Green Power and Carbon Offsets** - Use 50-100% green power or carbon offsets	2
8	4		21	Totals			33

Certified	40-49
Silver	50-59
Gold	60-79
Platinum	80+

MATERIALS & RESOURCES

Yes				D	Prereq	**Storage and Collection of Recyclables** - Dedicated areas for waste collection, collection and storage	N/A
Yes				D	Prereq	**Construction and Demolition Waste Management Planning** - Establish C&D waste diversion goals	N/A
	3		2	C	Credit	**Building Life-Cycle Impact Reduction** - Historic building reuse, renovate blighted buildings OR whole building LCA	5
	1		1	C	Credit	**Building Product Disclosure and Optimization - Environmental Product Declarations**	2
	1		1	C	Credit	**Building Product Disclosure and Optimization - Sourcing of Raw Materials**	2
	1		1	C	Credit	**Building Product Disclosure and Optimization - Material Ingredients**	2
1			1	C	Credit	**C&D Waste Management** - Divert 50% (3 streams), 75% (4 streams) OR 2.5 lbs. waste per square foot	2
1	6		6	Totals			13

INDOOR ENVIRONMENTAL QUALITY

Yes				D	Prereq	**Minimum Indoor Air Quality Performance** - Meet ASHRAE 62.1-2010	N/A
Yes				D	Prereq	**Environmental Tobacco Smoke Control** - Prohibit smoking indoors, restrict outdoor smoking within 25 feet	N/A
1	1			D	Credit	**Enhanced Indoor Air Quality Strategies** - Comply with enhanced IAQ strategies	2
1	1		1	C	Credit	**Low-Emitting Materials** - Achieve level of compliance for product categories or use budget calculation method	3
1				C	Credit	**Construction IAQM Plan** - Implement IAQMP & protect materials and equipment during construction	1
			2	C	Credit	**Indoor Air Quality Assessment** - Before and during occupancy flush-out OR conduct baseline IAQ testing	2
			1	D	Credit	**Thermal Comfort** - Meet requirements for ASHRAE 55-2010	1
			2	D	Credit	**Interior Lighting** - Lighting Controls for 90% plus individual occupant spaces & four lighting quality strategies	2
			3	D	Credit	**Daylight** - Install glare control devices, daylight autonomy, illuminance calculations, daylight floor area measurement	3
1				D	Credit	**Quality Views** - Vision glazing for 75% of regularly occupied floor area, with at least two kinds of view types	1
			1	D	Credit	**Acoustic Performance** - Meet requirements for HVAC noise, sound isolation, reverberation time, & sound masking	1
4	2		10	Totals			16

INNOVATION*

	1			D	Credit	**Innovation: Low Mercury Lighting**	1
	1			D	Credit	**Innovation: Occupant Comfort Survey (1 point)**	1
			1	D	Credit	**TBD**	1
			1	D	Credit	**TBD**	1
			1	D	Credit	**TBD**	1
1				C	Credit	**LEED Accredited Professional**	1
1	2		3	Totals			6

Innovation in Design includes Examplary Performance credits

REGIONAL**

			1	D	Credit	**Optimize Energy Performance (10 Points)**	1
1				D	Credit	**Access to Quality Transit (5 Points)**	1
	1			D	Credit	**BPDO - Raw Materials (1 point)**	1
			1	D	Credit	**Rainwater Management (3 Points)**	1
			1	D	Credit	**Outdoor Water Use Reduction (2 points)**	1
	1			D	Credit	**Indoor Water Use Reduction (1 point)**	1
1	2		3	Totals			4

***only 4 Regional Credits are Applicable*

Confirmed Certification Level:	Not Certified
Confirmed + Likely Certification Level:	SILVER
Confirmed + Likely + Maybe Certification Level:	Silver

Total Confirmed Points	33
Total Confirmed + Likely Points	54
Total Confirmed + Likely + Maybe Points	54

11/15/2018

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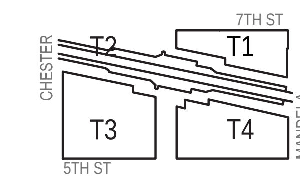

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SHEET: A-00.13

WEST OAKLAND STATION T3

GreenPointRATED
A PROGRAM OF BUILD IT GREEN

NEW HOME RATING SYSTEM, VERSION 7.0

Blueprint Scoresheet

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		Points Targeted	Community	Energy	IAQ/Health	Resources	Water	Responsible Party	Blueprint Page No.
			Possible Points						
CALGreen									
Yes	**CALGreen Res (REQUIRED)**	4		1	1	1	1		
C. LANDSCAPE									
Yes	**C1. Plants Grouped by Water Needs (Hydrozoning)**	1					1		
	C3. Resource Efficient Landscapes								
Yes	C3.1 No Invasive Species Listed by Cal-IPC	1				1			
Yes	C3.3 Drought Tolerant, California Native, Mediterranean Species, or Other Appropriate Species	1					3		
E. EXTERIOR									
Yes	**E4. Durable and Non-Combustible Cladding Materials**	1				1			
	E5. Durable Roofing Materials								
Yes	E5.2 Roofing Warranty for Shingle Roofing	Y	R	R	R	R	R		
F. INSULATION									
	F1. Insulation with 30% Post-Consumer or 60% Post-Industrial Recycled Content								
Yes	F1.1 Walls and Floors	1				1			
	F2. Insulation that Meets the CDPH Standard Method—Residential for Low Emissions								
Yes	F2.1 Walls and Floors	1			1				
Yes	F2.2 Ceilings	1			1				
G. PLUMBING									
	G2. Install Water-Efficient Fixtures								
Yes	G2.1 WaterSense Showerheads 1.8 gpm with Matching Compensation Valve	2					2		
Yes	G2.2 WaterSense Bathroom Faucets with 1.0gpm or less	1					1		
1.28 gpf	G2.3 WaterSense Toilets with a Maximum Performance (MaP) Threshold of No Less Than 500 Grams 1.28gpf OR 1.1 gpf	1					2		
H. HEATING, VENTILATION, AND AIR CONDITIONING									
	H6. Whole House Mechanical Ventilation Practices to Improve Indoor Air Quality								
Yes	H6.1 Meet ASHRAE Standard 62.2-2010 Ventilation Residential Standards	Y	R	R	R	R	R		
J. BUILDING PERFORMANCE AND TESTING									
	J5. Building Performance Exceeds Title 24 Part 6								
Option 1: Compliance Over Title 24	J5.1 Home Outperforms Title 24	25		25+					
N. COMMUNITY									
	N1. Smart Development								
Yes	N1.1 Infill Site	2	1			1			
	N2. Home(s)/Development Located Near Transit								
Yes	N2.2. Within 1/2 mile of a Major Transit Stop	2	2						
	N3. Pedestrian and Bicycle Access								
	N3.1 Pedestrian Access to Services Within 1/2 Mile of Community Services	2	2						
10	Enter the number of Tier 1 services								
10	Enter the number of Tier 2 services								
Yes	N9.2 Community Location	2	1		1				
O. OTHER									
Yes	**O1. GreenPoint Rated Checklist in Blueprints**	Y	R	R	R	R	R		
Yes	**O2. Pre-Construction Kickoff Meeting with Rater and Subcontractors**	2		0.5		1	0.5		
Yes	**O7. Green Appraisal Addendum**	Y	R	R	R	R	R		
P. DESIGN CONSIDERATIONS									
	P3. Commissioning								
Yes	P3.1 Design Phase	2		1	1				
Yes	P3.2 Construction Phase	3		2	1				
Yes	P3.3 Post-Construction Phase	3		2	1				
Summary			Community	Energy	IAQ/Health	Resources	Water		
	Total Available Points in Specific Categories	375.5	46	110.5	70	95	54		
	Minimum Points Required in Specific Categories	50	2	25	6	6	6		
	Total Points Targeted	**58**	**6**	**31.5**	**7**	**6**	**7.5**		

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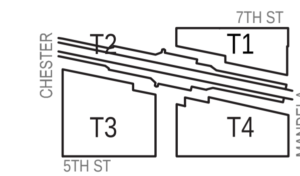

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RELEVANT WEST OAKLAND SPECIFIC PLAN POLICY	NOTES ON COMPLIANCE WITH GUIDELINES
1. Enhancements could include mitigating the sound and visual effects of the elevated BART tracks	1. Residential and commercial buildings will be constructed with sound insulating window and wall construction to meet Title 24 requirements.
2. Create an enhanced local transit system involving streetcar, light rail, buses, and/or shuttles to serve employment, business, and community centers.	2. Access plan is designed to accommodate maximum flexibility of current and future transit modes. This includes planned curb space for AC Transit buses and curb drop-off for transit riders. The site has been designed to maximize the pedestrian access from all surrounding blocks. Bike access is enhanced with dedicated bike tracks on the 7th Street and Mandela Street sides of the project.
3. Ensure adequate parking to attract and support development while encouraging alternative travel modes;	3. Site design complies. The on-site parking exceeds minimum requirements for proposed uses and will, provide adequate parking for the residential, commercial and retail uses on site. The site plan is also designed to maximize the use of transit and non-vehicular use of and access to the site. The Site design is planned to encourage pedestrian and bike access to the BART station and the public uses on site.
4. Improve lighting and street appearance so as to deter dumping and blight.	4. The Lighting plan will be designed to create well lighted plazas and pedestrian pathways throughout the site. The visual security of all pedestrian spaces within the site is facilitated by locating retail and other public activities along all edges of the development.
5. Ensure that new development employs sustainable ''green'' building practices, facilitates access to pedestrian and transit networks, and enhances streetscapes and open spaces.	5. All new buildings and the site design meet or exceed requirements for energy efficiency and sustainable development. By developing an infill site with a high density residential and commercial uses, this development is "green" in terms of land use. The site plan has been designed to maximize transit access, pedestrian and bike access to the site and to the BART station.
6. Promote energy efficiency throughout all aspects of new development and redevelopment.	6.All new buildings and the site are designed to incorporate energy efficient systems and design standards. The buildings will be designed to meet or exceed local Green Building standards. Measures employed during the design and construction of the project will contribute additional environmental benefits. These measures will promote occupant comfort while conserving water, energy, water and natural resources.
7. Encourage sustainable development that incorporates innovative approaches to storm water management and air pollution mitigation, and continues to enhance the well-being of residents of West Oakland.	7. Site is designed to provide innovative strategies policy for achieving storm water management on site. The overall site design will meet or exceed city standard for stormwater management and air pollution mitigation. The master plan concept is designed to encourage the overall comfort and wellbeing of residents and visitors to the site. The overall plan concept will promote occupant comfort while conserving water, energy, water and natural resources.
8. Recognize and market the artisan and arts community for their contribution to social, cultural, youth education and the economic development in West Oakland.	8. The project will incorporate significant and innovative arts, education and cultural programing on site. The open spaces will be programed with year round cultural, community and arts events that encourages use of the site, and supports the involvement of local arts and artists within the West Oakland community. This cultural, education and arts programming is incorporated into the overall design, leasing and operations to encourage and incubate the arts in West Oakland.
9. Establish new grocery stores in West Oakland that can serve the un-met food needs of current and future West Oakland consumers. A grocery anchor can also create a customer flow that can be leveraged to successfully attract other retail shops that can then draw patrons from the anchor tenant's shoppers. A safe and pleasant pedestrian environment will be necessary, especially near the transit station.	9. It is anticipated food, grocery or other neighborhood serving retail will be incorporated into the tenant leasing of the ground floor retail. Planning incorporates large retail spaces with loading and transit access that are conducive to these neighborhood serving uses. The pedestrian environment is designed to encourage local shopping by planning safe, active pedestrian spaces and access to promote local community use and a quality shopping pedestrian experience.
10. Neighborhood amenities such as benches, kiosks, lighting, and outdoor cafes are needed to enrich and enhance the urban setting.	10.The site design is designed to facilitate flexible community uses including: recreation, community events, farmers markets, makers markets, arts events, festivals and other events that promote this as a destination for the local and regional community. Neighborhood amenities, such as seating, lighting, retail kiosks, cafes, maker spaces and other activated uses will be incorporated into the pedestrian edges of all public edges of the development. This will ensure that the overall development becomes a year round and activated urban community destination.

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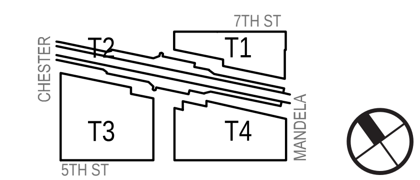

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EXP. 05-31-19
STATE OF CALIFORNIA

PROJ. # 168-153 WO BART
DATE: January 18, 2019

SPECIFIC PLAN GUIDELINE CHECKLIST

SHEET:
A-00.15.1

11. Potential conflicts between vehicles and pedestrians in and around the station will need to be eliminated.	11. The Site Circulation and Access plan is designed to coordinate the vehicle and pedestrian access and use of the site. The design intentionally mitigates potential vehicular and pedestrian by minimizing vehicular traffic Parking is restricted to non-pedestaling areas. Building loading areas are located so as to minimize pedestrian conflicts, and to minimize conflicts with transit and other access modes to the site.
12. Mandela/7th 1: Site Planning. Close to the West Oakland BART station, a large civic plaza should be created near the intersection of Mandela Parkway and 7th Street that is surrounded by ground floors that include publicly accessible uses such as restaurants, retail, building lobbies, galleries, and studios.	12. Site design complies. A larger civic plaza and pedestrian passages have been designed into the site design to celebrate the central location of the site at the gateway to the BART station and to enhance the Mandela corridor. . This plaza is located central to the overall site in order to increase its public importance, public access, and public use for community, arts and cultural events. The central plaza is visible and accessible from Mandela and 7th Street.
13. Mandela/7th -2: Massing, Height. Taller buildings are encouraged along Mandela Parkway and in particular to mark intersection of 7th St and Mandela Parkway.	13. Site design complies. Larger buildings are located on 7th street and Mandela. A signature tower will be located at the intersection of Mandela and 7th Street to create a visual icon for the West Oakland community. This massing will reinforce the importance of Mandela and 7th Street corridors.
14. Mandela/7th- 3: Height. It is encouraged that taller buildings mark the intersection of 7th Street and Mandela Parkway.	14. Site design complies. Larger buildings are located on 7th street and Mandela. This massing will reinforce the importance of Mandela and 7th Street corridors. The urban design of the overall site locates smaller buildings along 5th and Chester Streets to transition the scale lower to the south and west portions of the site.
15. Mandela /7th -4: Fenestration. Ground floors should have large openings and a high degree of transparency in the blocks adjacent to the West Oakland BART Station.	15. Site design complies. Ground floors have high floor to floor heights and retail with high proportion of glass store front for good retail transparency. The ground floor retail spaces are planned at all building ground floors to provide activated street edges, and to activate the interior plazas and pedestrian passages. Quality materials and varied design will be incorporated into the ground floor retail design to create visual interest for shoppers and pedestrians using the site.
16. Mandela/7th - 5: Landscape. Landscaping should be coordinated with that of the existing public landscaped areas along Mandela Parkway and should include a similarly high quality of planting and paving.	16. Site design complies. Landscape plan is designed to enhance 7th street corridor and to create a high quality pedestrian experience and civic prominence. The existing trees will be replaced because of conflicts with the access plan. The new tree planting will complement the overall landscape strategy of the 7th Street corridor to ensure a continuous, interesting and varied visual experience. Planting and paving materials will be of high quality and will be aesthetically designed to differentiate unique spaces within the pedestrian plazas, promote visual access to the BART station entrance, and to create opportunities for cultural, community and arts events. The landscape plan is designed to create a visually significant destination and center for the West Oakland community and users of the transit hub.
17. 7th Street TOD Env-1: New residences within the West Oakland BART Station TOD area will be subject to Title 24 of the California Code of Regulations, which requires an interior noise standard of 45 dBA DNL in any habitable room, and requires an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard. To meet the interior noise standard, a noise level reduction of up to nearly 35 dBA will likely be necessary from the exterior façades of the buildings facing towards the I-880 freeway and BART tracks and station.	17. Residential and commercial buildings will be constructed with code complying sound insulating window and wall construction to meet Title 24 requirements. This includes required sound insulation from the I-880 freeway to ensure development meets necessary noise reduction criteria. The station location has reduced BART noise due to low speed of trains at this station.
18. 7th Street TOD Env.-4: New development of all sensitive receptor uses at the West Oakland BART Station TOD sites must mitigate the anticipated health risks and air quality hazards at this location through implementation of Best Management Practices (BMPs) for air quality.	18. Site design complies. The building design will use practical and cost effective Best Management Practices (BPM) practices in the design of all structures and open space to mitigate the anticipated health risks and air quality hazards. It is also the intent of the overall plan to facilitate dramatic increases in transit use which will have a major impact on the decrease in air quality hazards in the community.

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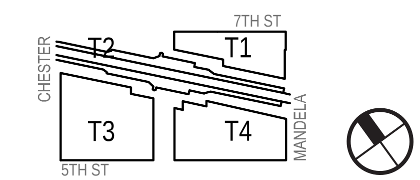

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SPECIFIC PLAN GUIDELINE CHECKLIST

SHEET: A-00.15.2

19. Provide a more effective and substantial transition in building heights nearest to the South Prescott neighborhood, with buildings nearest to this neighborhood as low as 2-stories.	19. Site Design complies. The project places the maximum height along Mandela and 7th Street, and transitions down to 5th Street and Chester Street. The Chester Street frontage has been designed with 3 level residential buildings that reflect more of the scale and detail of the structures of the South Prescot neighborhood, to further mitigate the height of the larger structures and to create a urban scale transition to the smaller structures in the neighborhood. It is the intent to use a more modern design vocabulary along Chester Street that uses scale and fenestration elements that relate to the neighboring structures.
20. Ensure that new development projects along 7th Street are of compatible height and mass as the existing, newer developments within Mandela Gateway.	20. Site design complies. The base of the larger buildings has been articulated with a cornice height, materials and a variety of window fenestrations that intentionally scales the buildings to relate to the lower existing structures along 7th Street and 5th Street neighborhood context. These larger buildings are designed with a clear separation of lower tower and upper towers to differentiate the higher structures, and to emphasize the importance of the lower buildings that create the activated street elevations.
21. Target 15% of the new units to be built in the Plan Area between now and 2035 for low and moderate income households	21. Site complies. The development plan will meet or exceed the requirement for affordable units on-site. .
22. Neighborhood Commercial 3: Height. Except when located at important intersections such as Mandela Parkway and 7th Street, buildings over 5 stories in height should generally include a significant step-back along commercial arterial roadways to harmonize the scale of new buildings with the existing neighborhood.	22. Site design complies. The lower 5 floors of the high-rise buildings have been articulated with a cornice and clear differentiation between the lower and upper portions of the building. The building massing is designed to provide a varied base and street elevation that relates to the smaller scale of the surrounding buildings along the 7th Street corridor. Residential buildings along 5th Street exceed the 5-floor step-back in order to have a well- proportioned street façade. The building base massing to provide a variety of scales to provide a visually active street scape, and to relate to the varied neighborhood context.
23. Neighborhood Commercial 8: Landscape. Publicly accessible outdoor space areas should be comprehensively designed with high quality pavement, landscaping, and seating, and are encouraged at the following locations: Mandela and 7th Street.	23. Site design complies. The landscape materials are designed with high quality stone, brick, finished concrete and other materials to create a high quality public pedestrian experience and to maximize the types of uses that can occur on site. The landscape will be designed to relate to a larger vision for the 7th Street corridor. The new tree planting will complement the overall landscape strategy of the 7th Street corridor to ensure a continuous, interesting and varied visual experience. Planting and paving materials will be of high quality and will be aesthetically designed to differentiate unique spaces within the pedestrian plazas, promote visual access to the BART station entrance, and to create opportunities for cultural, community and arts events. The landscape plan is designed to create a visually significant destination and center for the West Oakland community and users of the transit hub.
24. Intent: The intersection of Mandela Parkway and 7th Street needs to establish an important civic focus adjacent to the West Oakland BART station. The following Design Guidelines apply to properties immediately fronting onto the intersection of Mandela Parkway and 7th Street (see Figure A-12 and A-13).	24.Site design complies. The site is designed with a series of important civic open spaces, including: major civic plaza at 7th Street fronting BART Station entrance; Pedestrian Plaza replacing the vacated Center Street, Pedestrian Paseo along and under the trackway, expanded sidewalks and building arcades along 7th Street, expanded pedestrian sidewalks at 5th Street. These pedestrian spaces are designed with the highest level of decorative planting, paving, flexible seating and night lighting to create a community hub and activated social center for the community, and to maximize access to BART and associated transit modes.

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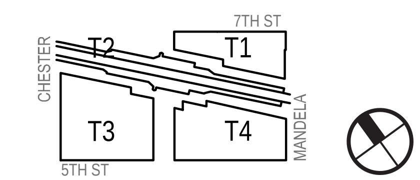

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PROJ. # 168-153 WO BART

DATE: January 18, 2019

SPECIFIC PLAN GUIDELINE CHECKLIST

SHEET:

A-00.15.3

2. Access plan is designed to accommodate maximum flexibility of current and future transit modes. This includes planned curb space for AC Transit buses and curb drop-off for transit riders. The site has been designed to maximize the pedestrian access from all surrounding blocks. Bike access is enhanced with dedicated bike tracks on the 7th Street and Mandela Street sides of the project.

3. Site design complies. The on-site parking exceeds minimum requirements for proposed uses and will, provide adequate parking for the residential, commercial and retail uses on site. The site plan is also designed to maximize the use of transit and non-vehicular use of and access to the site. The Site design is planned to encourage pedestrian and bike access to the BART station and the public uses on site.

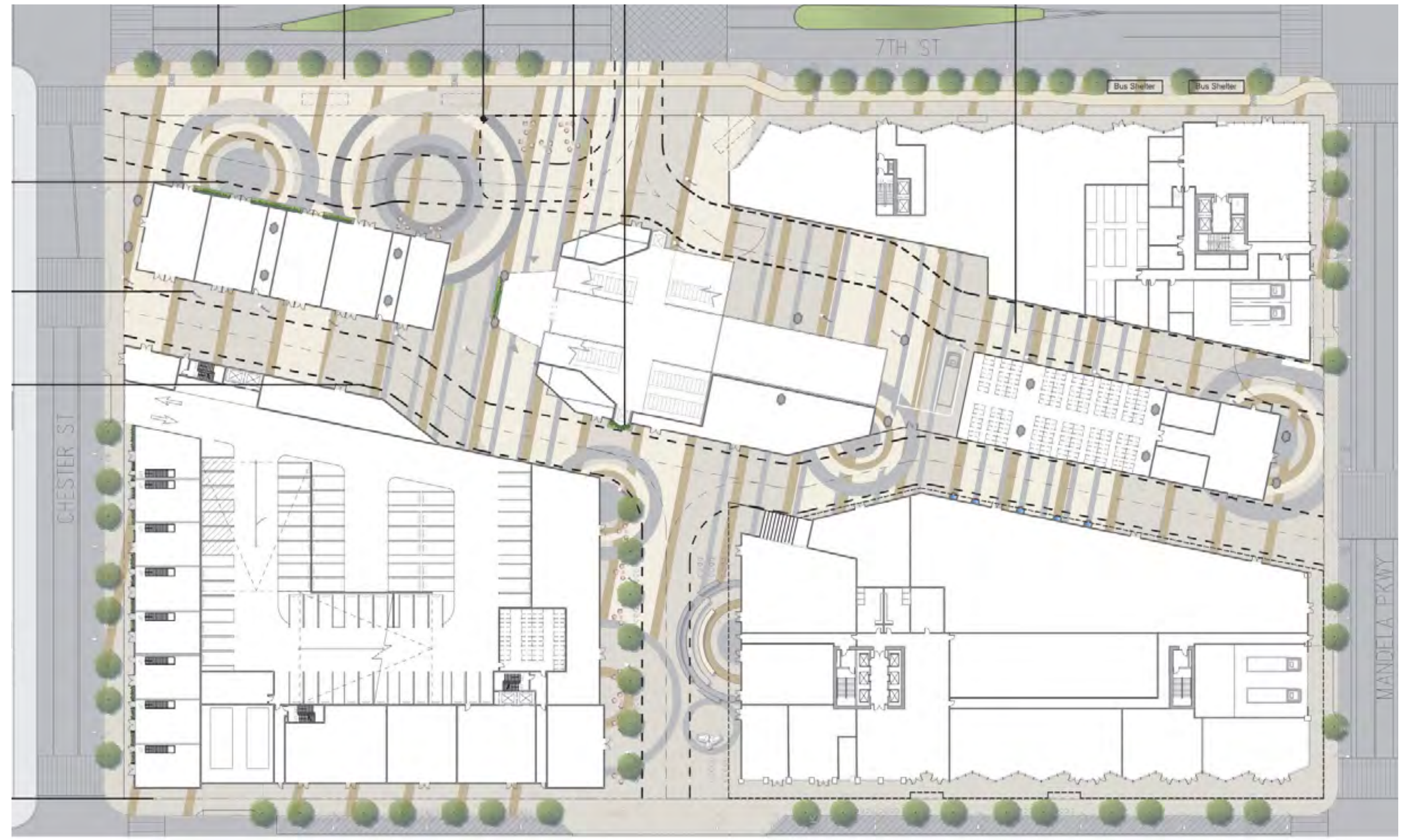
4. The Lighting plan will be designed to create well lighted plazas and pedestrian pathways throughout the site. The visual security of all pedestrian spaces within the site is facilitated by locating retail and other public activities along all edges of the development.

8. The project will incorporate significant and innovative arts, education and cultural programing on site. The open spaces will be programed with year round cultural, community and arts events that encourages use of the site, and supports the involvement of local arts and artists within the West Oakland community. This cultural, education and arts programming is incorporated into the overall design, leasing and operations to encourage and incubate the arts in West Oakland.

9. It is anticipated food, grocery or other neighborhood serving retail will be incorporated into the tenant leasing of the ground floor retail. Planning incorporates large retail spaces with loading and transit access that are conducive to these neighborhood serving uses. The pedestrian environment is designed to encourage local shopping by planning safe, active pedestrian spaces and access to promote local community use and a quality shopping pedestrian experience.

10. The site design is designed to facilitate flexible community uses including: recreation, community events, farmers markets, makers markets, arts events, festivals and other events that promote this as a destination for the local and regional community. Neighborhood amenities, such as seating, lighting, retail kiosks, cafes, maker spaces and other activated uses will be incorporated into the pedestrian edges of all public edges of the development. This will ensure that the overall development becomes a year round and activated urban community destination.

11. The Site Circulation and Access plan is designed to coordinate the vehicle and pedestrian access and use of the site. The design intentionally mitigates potential vehicular and pedestrian by minimizing vehicular traffic Parking is restricted to non-pedestaling areas. Building loading areas are located so as to minimize pedestrian conflicts, and to minimize conflicts with transit and other access modes to the site.



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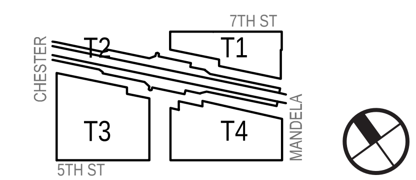
WEST OAKLAND BART

1451 7th St, Oakland, CA 94607



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PROJ. #	168-153 WO BART
DATE:	January 18, 2019

DESIGN GUIDELINE CHECKLIST

SHEET:

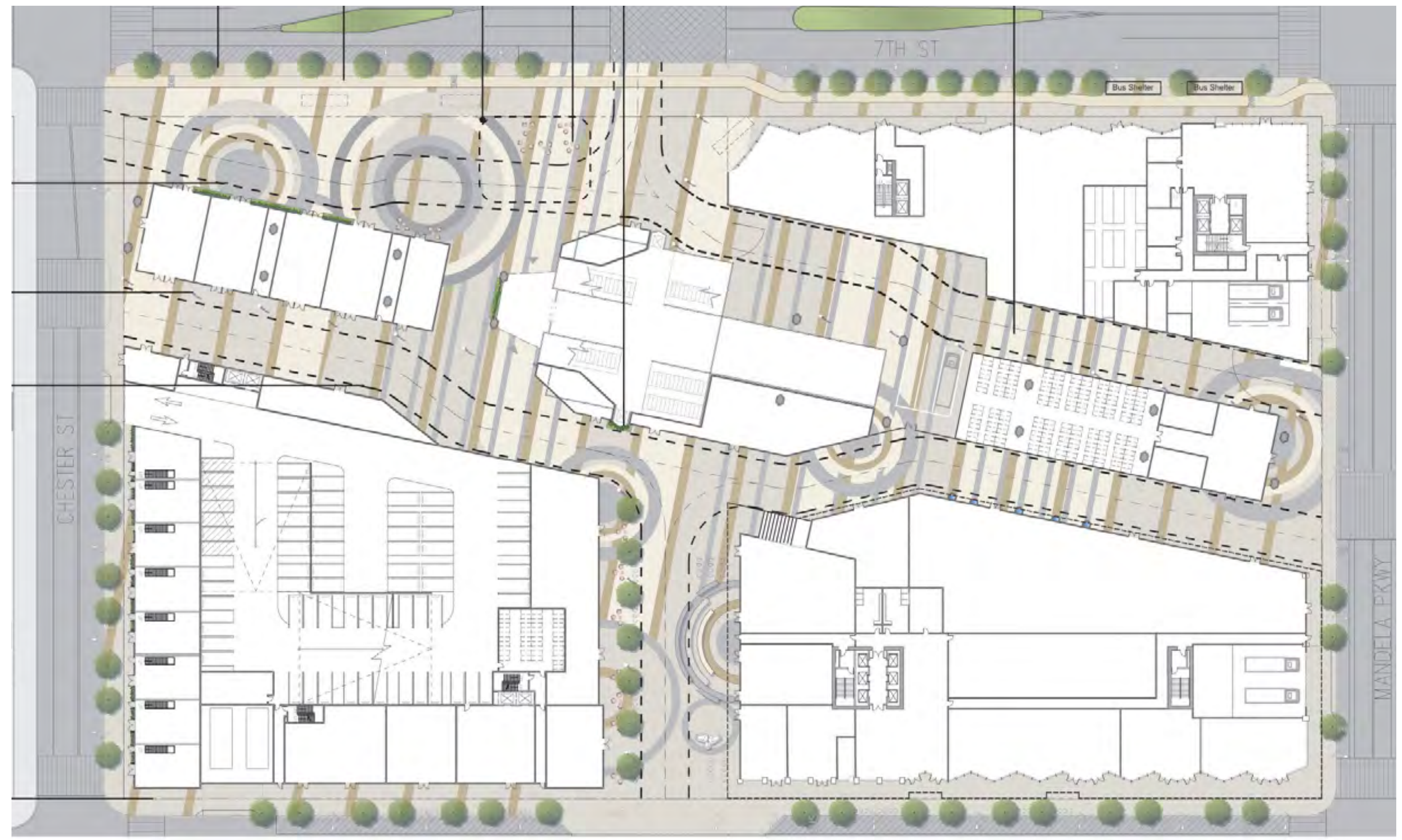
A-00.15.4

12. Site design complies. A larger civic plaza and pedestrian passages have been designed into the site design to celebrate the central location of the site at the gateway to the BART station and to enhance the Mandela corridor. . This plaza is located central to the overall site in order to increase its public importance, public access, and public use for community, arts and cultural events. The central plaza is visible and accessible from Mandela and 7th Street.

16. Site design complies. Landscape plan is designed to enhance 7th street corridor and to create a high quality pedestrian experience and civic prominence. The existing trees will be replaced because of conflicts with the access plan. The new tree planting will complement the overall landscape strategy of the 7th Street corridor to ensure a continuous, interesting and varied visual experience. Planting and paving materials will be of high quality and will be aesthetically designed to differentiate unique spaces within the pedestrian plazas, promote visual access to the BART station entrance, and to create opportunities for cultural, community and arts events. The landscape plan is designed to create a visually significant destination and center for the West Oakland community and users of the transit hub.

23. Site design complies. The landscape materials are designed with high quality stone, brick, finished concrete and other materials to create a high quality public pedestrian experience and to maximize the types of uses that can occur on site. The landscape will be designed to relate to a larger vision for the 7th Street corridor. The new tree planting will complement the overall landscape strategy of the 7th Street corridor to ensure a continuous, interesting and varied visual experience. Planting and paving materials will be of high quality and will be aesthetically designed to differentiate unique spaces within the pedestrian plazas, promote visual access to the BART station entrance, and to create opportunities for cultural, community and arts events. The landscape plan is designed to create a visually significant destination and center for the West Oakland community and users of the transit hub.

24. Site design complies. The site is designed with a series of important civic open spaces, including: major civic plaza at 7th Street fronting BART Station entrance; Pedestrian Plaza replacing the vacated Center Street, Pedestrian Paseo along and under the trackway, expanded sidewalks and building arcades along 7th Street, expanded pedestrian sidewalks at 5th Street. These pedestrian spaces are designed with the highest level of decorative planting, paving, flexible seating and night lighting to create a community hub and activated social center for the community, and to maximize access to BART and associated transit modes.



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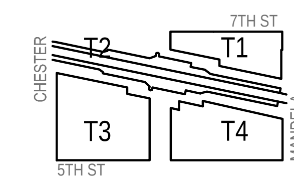
CA 94607



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PROJ. # 168-153 WO BART

DATE: January 18, 2019

DESIGN GUIDELINE CHECKLIST

SHEET:

A-00.15.5

13. Site design complies. Larger buildings are located on 7th street and Mandela. A signature tower will be located at the intersection of Mandela and 7th Street to create a visual icon for the West Oakland community. This massing will reinforce the importance of Mandela and 7th Street corridors.

14. Site design complies. Larger buildings are located on 7th street and Mandela. This massing will reinforce the importance of Mandela and 7th Street corridors. The urban design of the overall site locates smaller buildings along 5th and Chester Streets to transition the scale lower to the south and west portions of the site.

19. Site Design complies. The project places the maximum height along Mandela and 7th Street, and transitions down to 5th Street and Chester Street. The Chester Street frontage has been designed with 3 level residential buildings that reflect more of the scale and detail of the structures of the South Prescot neighborhood, to further mitigate the height of the larger structures and to create a urban scale transition to the smaller structures in the neighborhood. It is the intent to use a more modern design vocabulary along Chester Street that uses scale and fenestration elements that relate to the neighboring structures.

17. Residential and commercial buildings will be constructed with code complying sound insulating window and wall construction to meet Title 24 requirements. This includes required sound insulation from the I-880 freeway to ensure development meets necessary noise reduction criteria. The station location has reduced BART noise due to low speed of trains at this station.

22. Site design complies. The lower 5 floors of the high-rise buildings have been articulated with a cornice and clear differentiation between the lower and upper portions of the building. The building massing is designed to provide a varied base and street elevation that relates to the smaller scale of the surrounding buildings along the 7th Street corridor. Residential buildings along 5th Street exceed the 5-floor step-back in order to have a well- proportioned street façade. The building base massing to provide a variety of scales to provide a visually active street scape, and to relate to the varied neighborhood context.

20. Site design complies. The base of the larger buildings has been articulated with a cornice height, materials and a variety of window fenestrations that intentionally scales the buildings to relate to the lower existing structures along 7th Street and 5th Street neighborhood context. These larger buildings are designed with a clear separation of lower tower and upper towers to differentiate the higher structures, and to emphasize the importance of the lower buildings that create the activated street elevations.

15. Site design complies. Ground floors have high floor to floor heights and retail with high proportion of glass store front for good retail transparency. The ground floor retail spaces are planned at all building ground floors to provide activated street edges, and to activate the interior plazas and pedestrian passages. Quality materials and varied design will be incorporated into the ground floor retail design to create visual interest for shoppers and pedestrians using the site.

MANDELA CHESTER

7TH STREET ELEVATION

CHESTER MANDELA

5TH STREET ELEVATION

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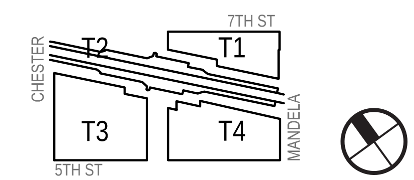

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PROJ. # 168-153 WO BART

DATE: January 18, 2019

DESIGN GUIDELINE CHECKLIST

SHEET:

A-00.15.6

14. Site design complies. Larger buildings are located on 7th street and Mandela. This massing will reinforce the importance of Mandela and 7th Street corridors. The urban design of the overall site locates smaller buildings along 5th and Chester Streets to transition the scale lower to the south and west portions of the site.

18. Site design complies. The building design will use practical and cost effective Best Management Practices (BPM) practices in the design of all structures and open space to mitigate the anticipated health risks and air quality hazards. It is also the intent of the overall plan to facilitate dramatic increases in transit use which will have a major impact on the decrease in air quality hazards in the community.

19. Site Design complies. The project places the maximum height along Mandela and 7th Street, and transitions down to 5th Street and Chester Street. The Chester Street frontage has been designed with 3 level residential buildings that reflect more of the scale and detail of the structures of the South Prescot neighborhood, to further mitigate the height of the larger structures and to create a urban scale transition to the smaller structures in the neighborhood. It is the intent to use a more modern design vocabulary along Chester Street that uses scale and fenestration elements that relate to the neighboring structures.

20. Site design complies. The base of the larger buildings has been articulated with a cornice height, materials and a variety of window fenestrations that intentionally scales the buildings to relate to the lower existing structures along 7th Street and 5th Street neighborhood context. These larger buildings are designed with a clear separation of lower tower and upper towers to differentiate the higher structures, and to emphasize the importance of the lower buildings that create the activated street elevations.

22. Site design complies. The lower 5 floors of the high-rise buildings have been articulated with a cornice and clear differentiation between the lower and upper portions of the building. The building massing is designed to provide a varied base and street elevation that relates to the smaller scale of the surrounding buildings along the 7th Street corridor. Residential buildings along 5th Street exceed the 5-floor step-back in order to have a well- proportioned street façade. The building base massing to provide a variety of scales to provide a visually active street scape, and to relate to the varied neighborhood context.

15. Site design complies. Ground floors have high floor to floor heights and retail with high proportion of glass store front for good retail transparency. The ground floor retail spaces are planned at all building ground floors to provide activated street edges, and to activate the interior plazas and pedestrian passages. Quality materials and varied design will be incorporated into the ground floor retail design to create visual interest for shoppers and pedestrians using the site.

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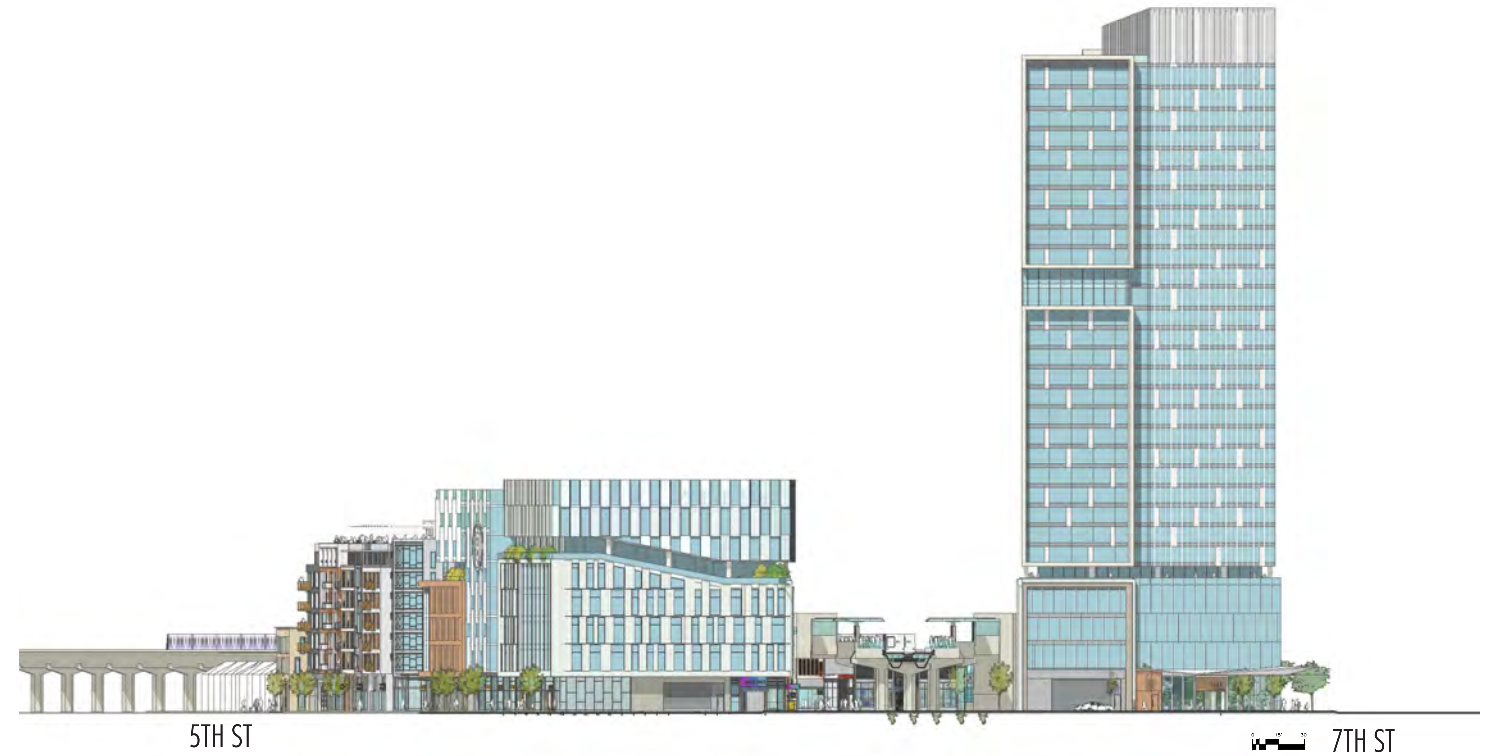

MANDELA PKWY ELEVATON

CHESTER STREET ELEVATION

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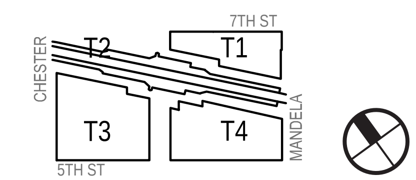

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PROJ. # 168-153 WO BART

DATE: January 18, 2019

DESIGN GUIDELINE CHECKLIST

SHEET: A-00.15.7

22. Site design complies. The lower 5 floors of the high-rise buildings have been articulated with a cornice and clear differentiation between the lower and upper portions of the building. The building massing is designed to provide a varied base and street elevation that relates to the smaller scale of the surrounding buildings along the 7th Street corridor. Residential buildings along 5th Street exceed the 5-floor step-back in order to have a well- proportioned street façade. The building base massing to provide a variety of scales to provide a visually active street scape, and to relate to the varied neighborhood context.

CHESTER

T3 5TH STREET ELEVATION

0 15' 30

19. Site Design complies. The project places the maximum height along Mandela and 7th Street, and transitions down to 5th Street and Chester Street. The Chester Street frontage has been designed with 3 level residential buildings that reflect more of the scale and detail of the structures of the South Prescot neighborhood, to further mitigate the height of the larger structures and to create a urban scale transition to the smaller structures in the neighborhood. It is the intent to use a more modern design vocabulary along Chester Street that uses scale and fenestration elements that relate to the neighboring structures.

5TH ST

T3 CHESTER STREET ELEVATION

0 15' 30

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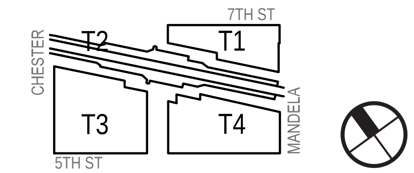

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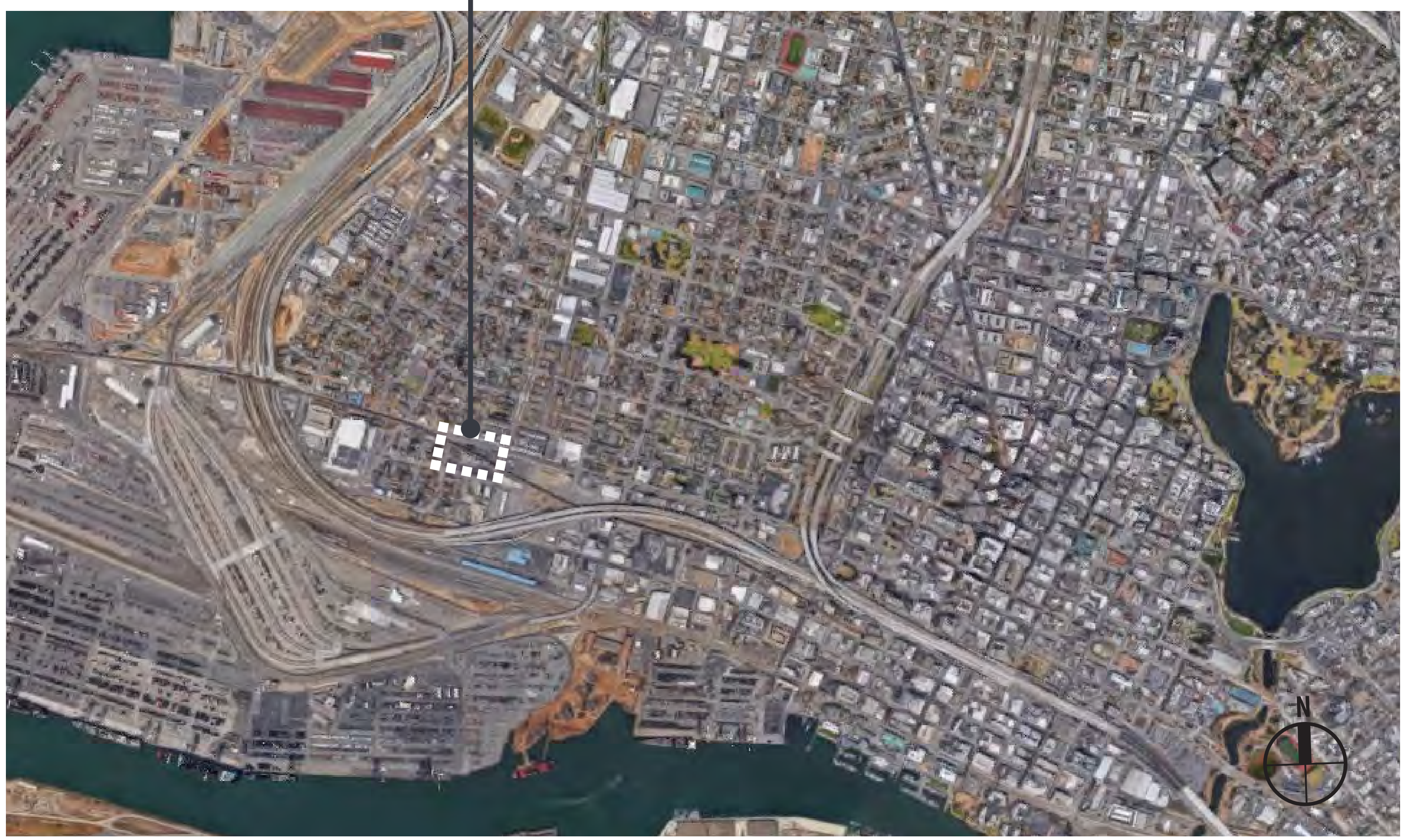
PROJ. #	168-153 WO BART
DATE:	January 18, 2019

DESIGN GUIDELINE CHECKLIST

SHEET:

A-00.15.8

SITE LOCATION



LOCATION OF PROJECT SITE WITHIN WEST OAKLAND NEIGHBORHOOD

5 ACRE PROJECT SITE

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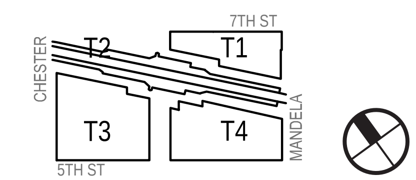
CA 94607



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PROJ. # 168-153 WO BART
DATE: January 18, 2019

CONTEXT MAP

SHEET: A-00.17

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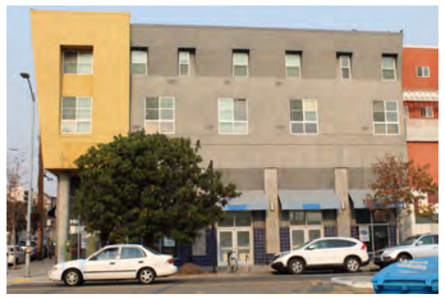

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SITE

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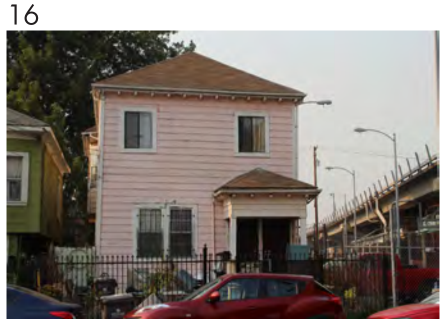

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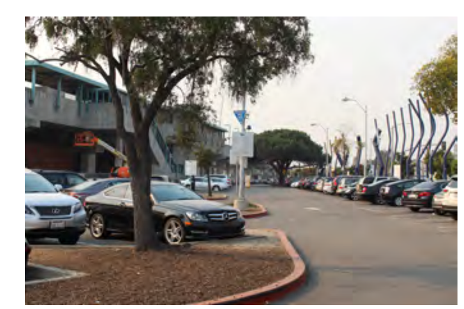

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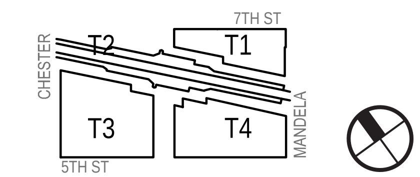

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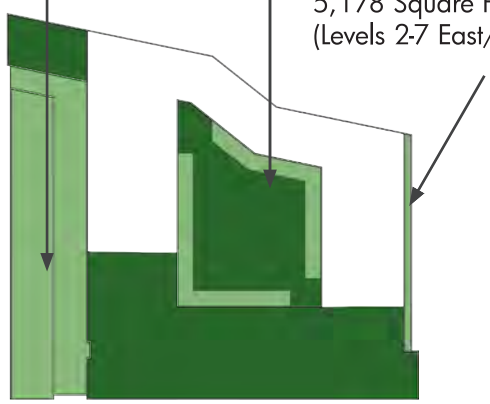
PROJ. # 168-153 WO BART

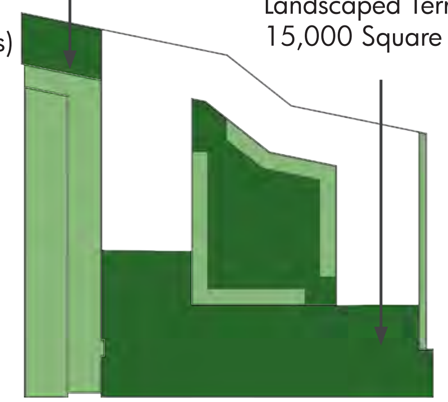
DATE: January 18, 2019

CONTEXT PHOTOS

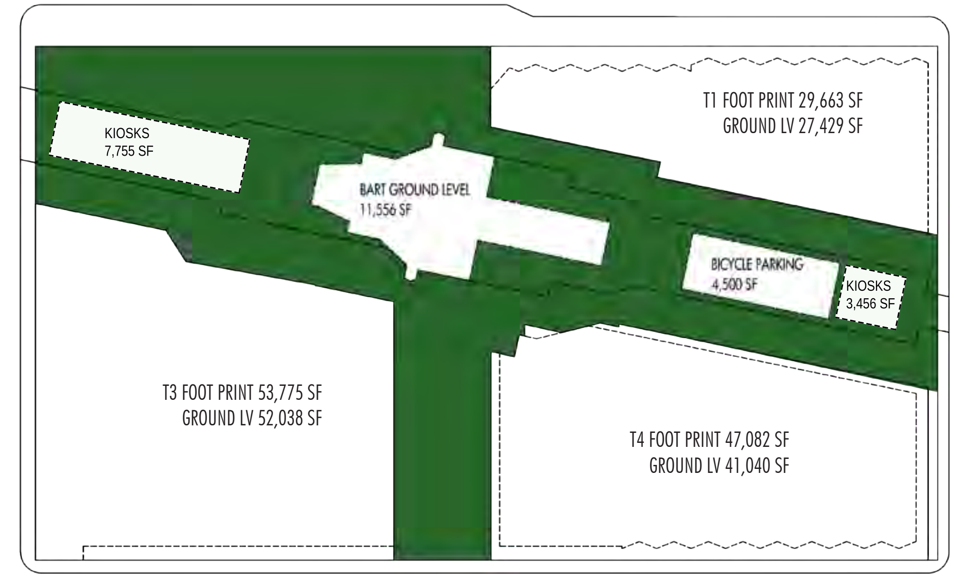
SHEET: A-00.18



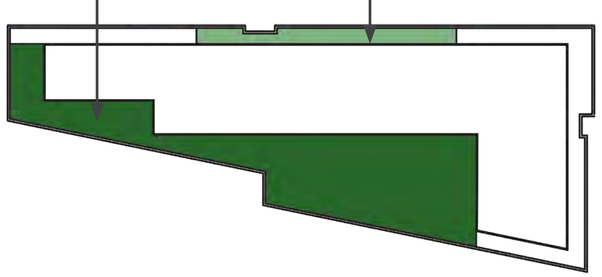
BUILDING T3 - LEVEL 3 - AMENITY



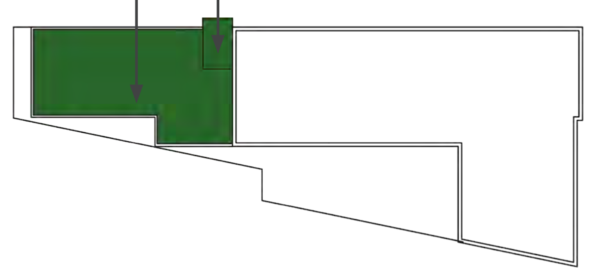
BUILDING T3 - LEVEL 7 - AMENITY



GROUND LEVEL - OPEN SPACE 85,793 SF



BUILDING T1 - LEVEL 5 - AMENITY



BUILDING T1 - LEVEL 18 - AMENITY

PRIVATE SPACE

PUBLIC SPACE

Ground Level

Level 1 - Public Open Space 85,793 Square Feet

Building T3

Level 3 - Common Use Courtyard 6,055 Square Feet

Level 7 - Common Use Terrace 1,673 Square Feet

Roof Deck - Common Use Terrace 15,000 Square Feet

Levels 2-7 Private Decks & Terraces - 18,014 (x2) Square Feet

Building T1

Level 5 - Common Use Terrace 7,830 Square Feet

Level 5 - Private Decks 1,100 (x2) Square Feet

Level 28 - Common Use Terrace 5,712 Square Feet

Common Use Decks - 3,360 Square Feet

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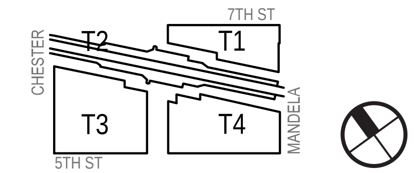

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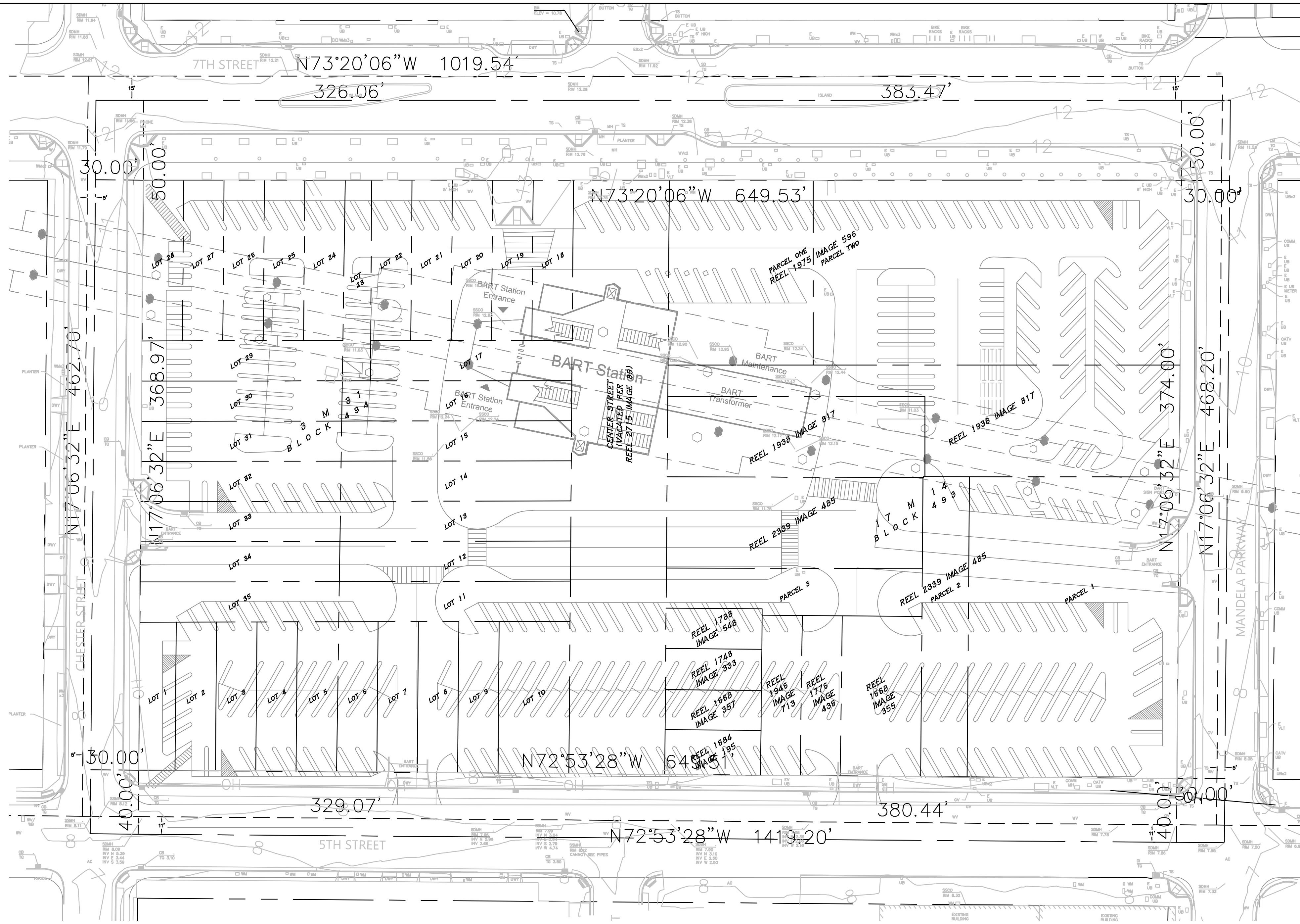
PROJ. # 168-153 WO BART

DATE: January 18, 2019

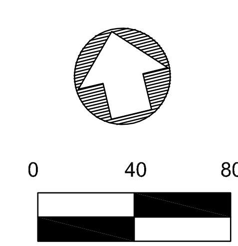
OPEN SPACE ANALYSIS

SHEET: A-00.19



NOTE:

EXISTING BOUNDARY FROM RECORD INFORMATION FOR PLANNING PURPOSES ONLY



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CIVIL
STATE OF CALIFORNIA
01/28/2019

WEST OAKLAND BART

1451 7th St, Oakland, CA 94607

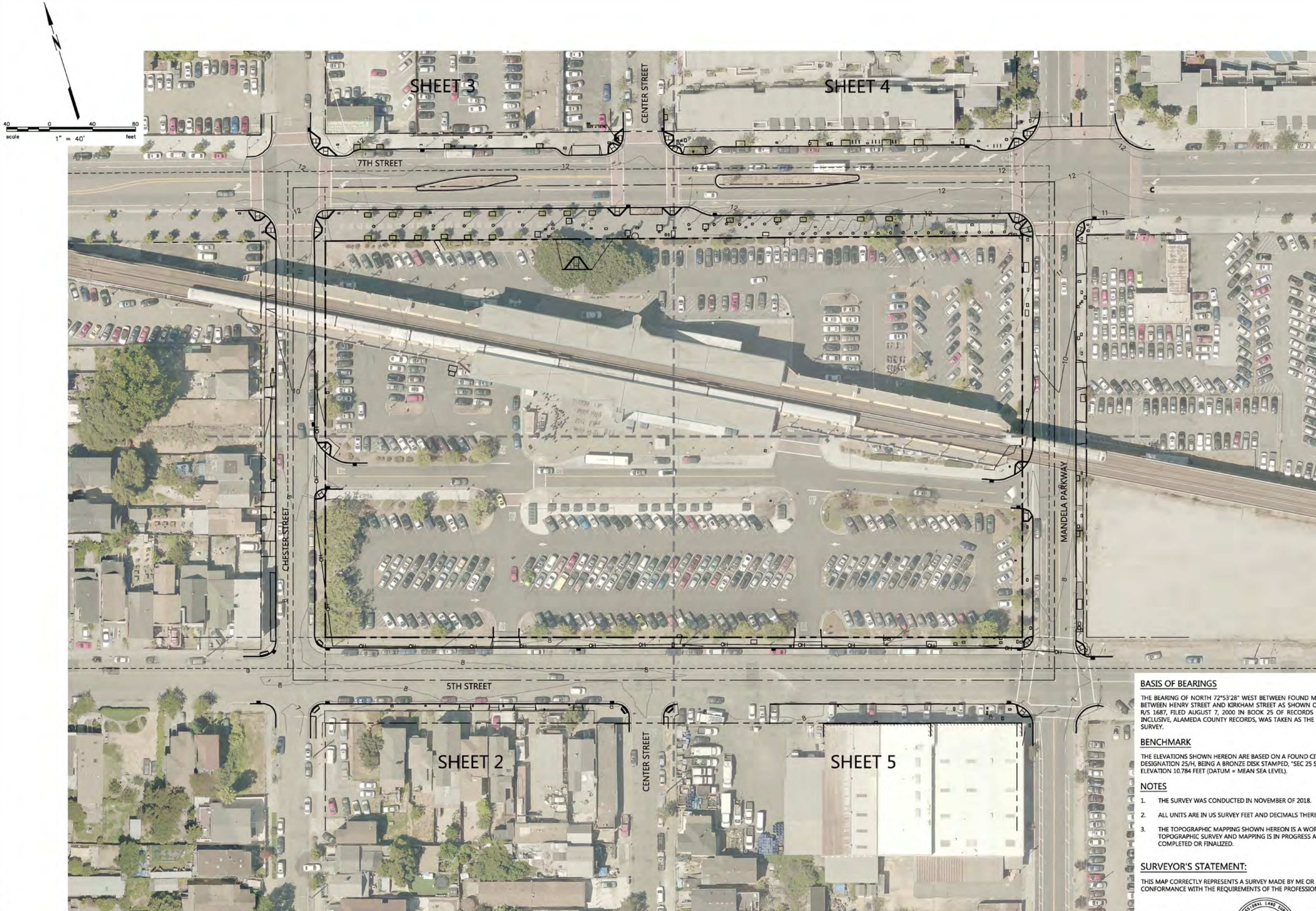
PROJ. # 168-153 WO BART

DATE: January 28, 19

EXISTING CONDITIONS PLAN

SHEET:

C1.00



BASIS OF BEARINGS

THE BEARING OF NORTH 72°53'28" WEST BETWEEN FOUND MONUMENTS ON 5TH AVENUE BETWEEN HENRY STREET AND KIRKHAM STREET AS SHOWN ON THAT RECORD OF SURVEY, R/S 1687, FILED AUGUST 7, 2000 IN BOOK 25 OF RECORDS OF SURVEY AT PAGES 58-69, INCLUSIVE, ALAMEDA COUNTY RECORDS, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS SURVEY.

BENCHMARK

THE ELEVATIONS SHOWN HEREON ARE BASED ON A FOUND CITY OF OAKLAND BENCHMARK, DESIGNATION 25/H, BEING A BRONZE DISK STAMPED, "SEC 25 STA H."
ELEVATION 10.784 FEET (DATUM = MEAN SEA LEVEL).

NOTES

1. THE SURVEY WAS CONDUCTED IN NOVEMBER OF 2018.
2. ALL UNITS ARE IN US SURVEY FEET AND DECIMALS THEREOF.
3. THE TOPOGRAPHIC MAPPING SHOWN HEREON IS A WORKING DOCUMENT. THE TOPOGRAPHIC SURVEY AND MAPPING IS IN PROGRESS AND HAS NOT BEEN COMPLETED OR FINALIZED.

SURVEYOR'S STATEMENT:

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYOR'S ACT.

KEVIN STEIN, P.L.S. NO. 9028 DATE:

PROFESSIONAL LAND SURVEYOR KEVIN STEIN NO. 9028 STATE OF CALIFORNIA

PRELIMINARY
PROGRESS PRINT
DATE: 12/06/2018

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WALNUT CREEK, CA 94596
(925) 940-2200
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TOPOGRAPHIC & BOUNDARY SURVEY
WEST OAKLAND BART

OAKLAND COUNTY OF ALAMEDA CALIFORNIA

No.	Revisions

Date:	12/06/2018
Scale:	AS SHOWN
Design:	N/A
Drawn:	ADD
Approved:	KS
Job No:	180384

Drawing Number:
180384
1 OF 5

SYMBOLS & LEGEND

EXISTING

- FOUND CITY OF OAKLAND MONUMENT
- VALVE
- FIRE HYDRANT
- BACKFLOW PREVENTION DEVICE
- RISER
- SIGN
- STREET LIGHT (UNLESS NOTED OTHERWISE)
- LIGHT POLE (UNLESS NOTED OTHERWISE)
- GUY ANCHOR
- UTILITY POLE
- TELEPHONE MANHOLE
- MANHOLE
- SUBJECT PROPERTY
- ADJOINING LOT
- CENTERLINE
- SURVEY TIE
- STORM DRAIN
- SANITARY SEWER
- OVERHEAD UTILITY LINE
- CONCRETE
- DETECTABLE WARNING

ABBREVIATIONS

AC	ASPHALT CONCRETE
CA	CABLE
CB	CATCH BASIN
CO	CLEAN OUT
COMM	COMMUNICATION
CONC	CONCRETE
DI	DROP INLET
DWY	DRIVEWAY
E	ELECTRIC
EP	EDGE OF PAVEMENT
FL	SURFACE FLOWLINE
G	GAS
GYP	GUY POLE
INV	BOTTOM INSIDE OF PIPE
LG	LIP OF GUTTER
M	METER
MH	MANHOLE
OH	OVERHEAD UTILITY LINE
SD	STORM DRAIN
SL	STREETLIGHT
SS	SANITARY SEWER
TC	TOP FACE OF CURB
TEL	TELECOMMUNICATION LINE
TG	TOP OF GRATE
TS	TRAFFIC SIGNAL
TV	TELEVISION
UB	UTILITY BOX
V	VALVE
VLT	VAULT
W	WATER
WM	WATER METER

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TOPOGRAPHIC AND BOUNDARY SURVEY
WEST OAKLAND BART

OAKLAND COUNTY OF ALAMEDA CALIFORNIA

Revisions

No.

Date:	12/06/2018
Scale:	AS SHOWN
Design:	N/A
Drawn:	ADD
Approved:	KS
Job No:	180384

Drawing Number:

180384

© BKF Engineers

SYMBOLS & LEGEND

EXISTING

- FOUND CITY OF OAKLAND MONUMENT
- VALVE
- FIRE HYDRANT
- BACKFLOW PREVENTION DEVICE
- RISER
- SIGN
- STREET LIGHT (UNLESS NOTED OTHERWISE)
- LIGHT POLE (UNLESS NOTED OTHERWISE)
- GUY ANCHOR
- UTILITY POLE
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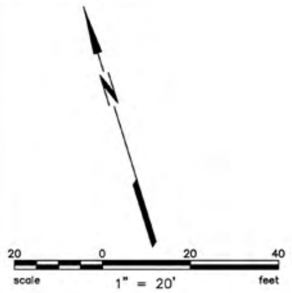

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WEST OAKLAND BART

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Revisions

No.	
Date:	12/06/2018
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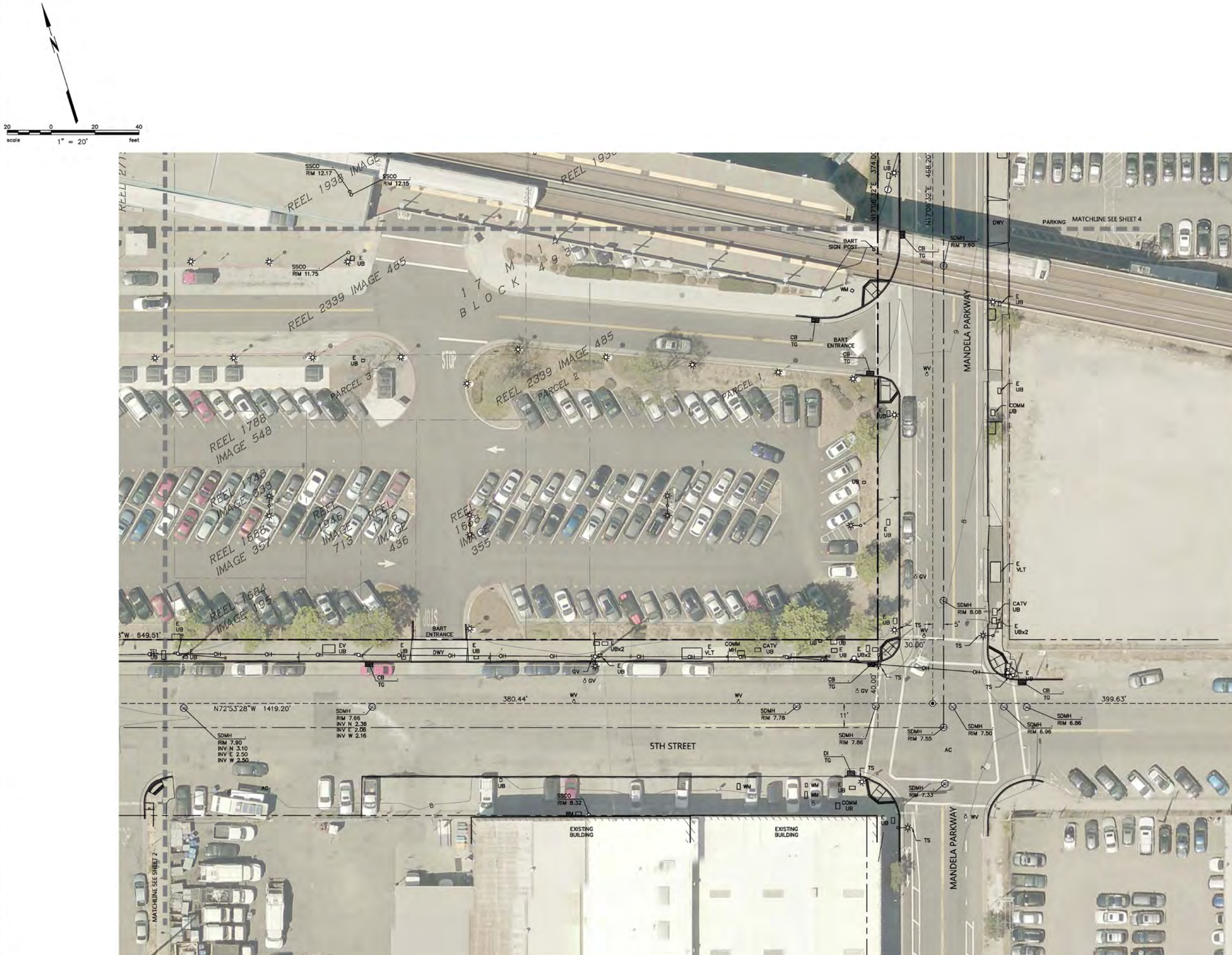

SYMBOLS & LEGEND

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WEST OAKLAND BART

OAKLAND COUNTY OF ALAMEDA CALIFORNIA

Revisions

Date:	12/06/2018
Scale:	AS SHOWN
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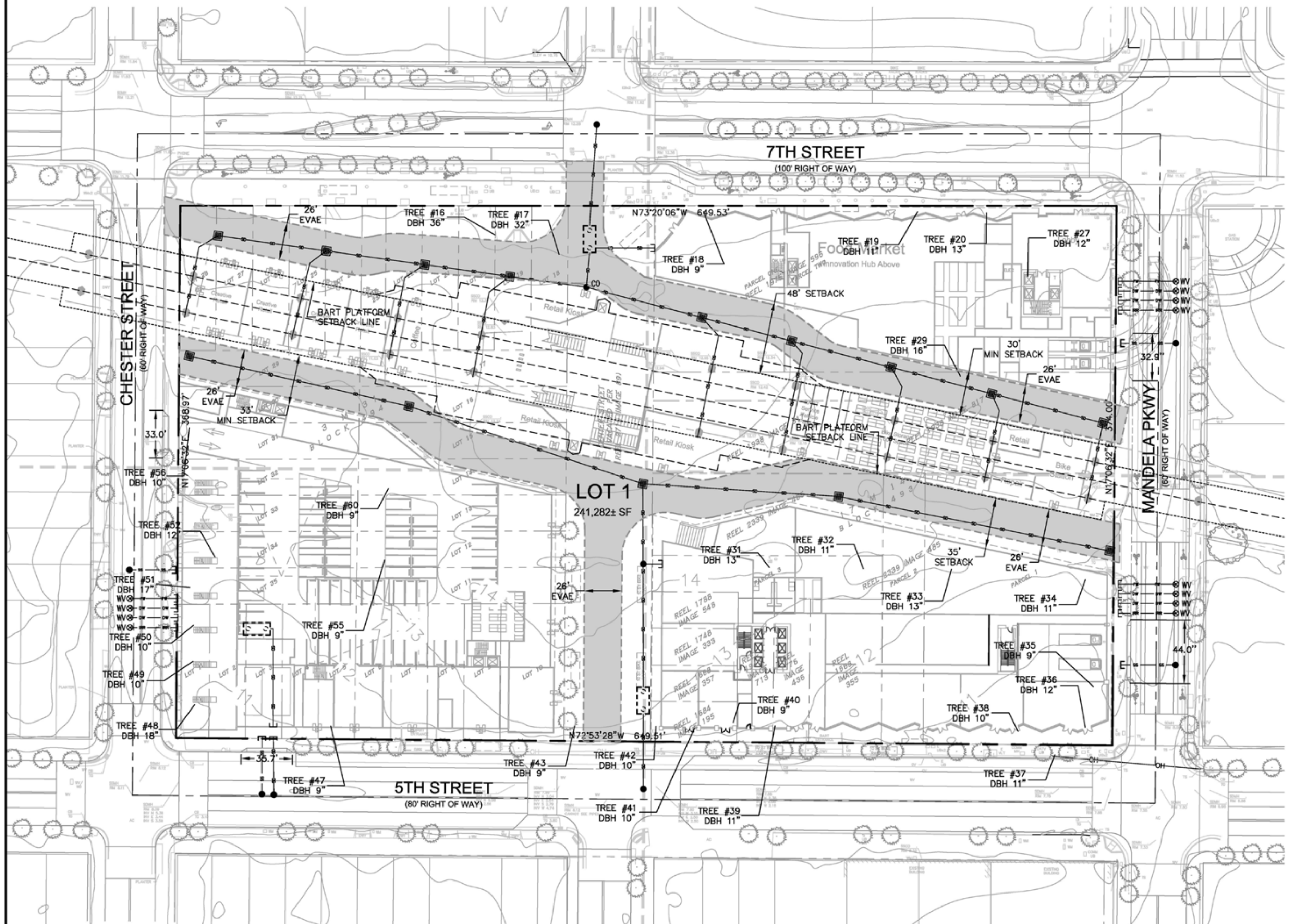
Approved:	KS
Job No:	180384

Drawing Number:

180384

TENTATIVE PARCEL MAP NO. 10940

FOR A VOLUNTARY MERGE OF 41 PARCELS INTO 1 LOT



SYMBOLS & LEGEND

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- VALVE
- FIRE HYDRANT
- BACKFLOW PREVENTION DEVICE
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- ADJOINING LOT
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- STORM DRAIN
- SANITARY SEWER
- OVERHEAD UTILITY LINE
- CONCRETE
- DETECTABLE WARNING
- PROPOSED LOT LINE

ABBREVIATIONS

AC	ASPHALT CONCRETE
CA	CABLE
CB	CATCH BASIN
CO	CLEAN OUT
COMM	COMMUNICATION
CONC	CONCRETE
DI	DROP INLET
DWY	DRIVEWAY
E	ELECTRIC
EP	EDGE OF PAVEMENT
EVAE	EMERGENCY VEHICLE ACCESS EASEMENT
FL	SURFACE FLOWLINE
G	GAS
GYP	GUY POLE
INV	BOTTOM INSIDE OF PIPE
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VLT	VAULT
W	WATER
WM	WATER METER

PROPERTY ADDRESS:

1451 7TH STREET
OAKLAND, CA 94607
510-465-2278

OWNER AND SUBDIVIDER:

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT
300 LAKESIDE DRIVE, 22ND FLOOR
OAKLAND, CA 94012
510-597-6300

BASIS OF BEARINGS

THE BEARING OF NORTH 72°53'28" WEST BETWEEN FOUND MONUMENTS ON 5TH AVENUE BETWEEN HENRY STREET AND KIRKHAM STREET AS SHOWN ON THAT RECORD OF SURVEY, R/S 1687, FILED AUGUST 7, 2000 IN BOOK 25 OF RECORDS OF SURVEY AT PAGES 58-69, INCLUSIVE, ALAMEDA COUNTY RECORDS, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS SURVEY.

BENCHMARK

THE ELEVATIONS SHOWN HEREON ARE BASED ON A FOUND CITY OF OAKLAND BENCHMARK, DESIGNATION 25/H, BEING A BRONZE DISK STAMPED, "SEC 25 STA H." ELEVATION 10.784 FEET (DATUM = MEAN SEA LEVEL).

NOTES

1. THE CONTROL SURVEY WAS CONDUCTED IN NOVEMBER OF 2018.
2. ALL UNITS ARE IN US SURVEY FEET AND DECIMALS THEREOF.
3. THE PROPERTY BOUNDARY SHOWN HEREON IS BASED ON AN ONGOING BOUNDARY RESOLUTION SURVEY. THIS RESOLVED BOUNDARY SURVEY WILL BE COMPLETED IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYORS' ACT PRIOR TO PARCEL MAP SUBMITTAL.
4. THE TOPOGRAPHIC MAPPING SHOWN HEREON IS A WORKING DOCUMENT. THE TOPOGRAPHIC SURVEY AND MAPPING IS IN PROGRESS AND HAS NOT BEEN COMPLETED OR FINALIZED.
5. ALL BUILDINGS TO THE NORTH OF THE BART STATION SHALL BE SET BACK A MINIMUM OF 30' FROM THE BART PLATFORM, AND ALL BUILDINGS TO THE SOUTH OF THE BART STATION SHALL BE SET BACK A MINIMUM OF 33' FROM THE BART PLATFORM.
6. ALL EMERGENCY VEHICLE ACCESS EASEMENTS SHALL BE A MINIMUM OF 26' WIDE.

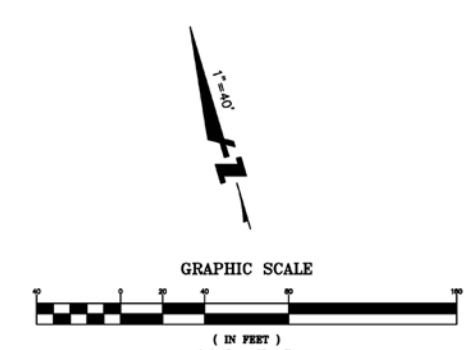
SURVEYOR'S STATEMENT:

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYOR'S ACT.

BARRY WILLIAMS, P.L.S. NO. 6711   DATE:

West Oakland Bart Proposed Trees

Tree number	DBH (in)	Species Name
16	36	Pinus Pinea
17	32	Pinus Pinea
20	13	Liriodendron Tulipifera
27	12	Maytenus Boaria
29	16	Maytenus Boaria
31	13	Liriodendron Tulipifera
33	13	Liriodendron Tulipifera
36	12	Liriodendron Tulipifera
48	18	Platanus X Acerifolia
51	17	Platanus X Acerifolia
52	12	Liriodendron Tulipifera



DRAWING NAME: K:\2018\180384_West_Oakland_BART_TOD_Survey\ENG\TENTATIVE PARCEL MAP\WOBART_TMAP.dwg
PLOT DATE: 01-28-19   PLOTTED BY: chuc

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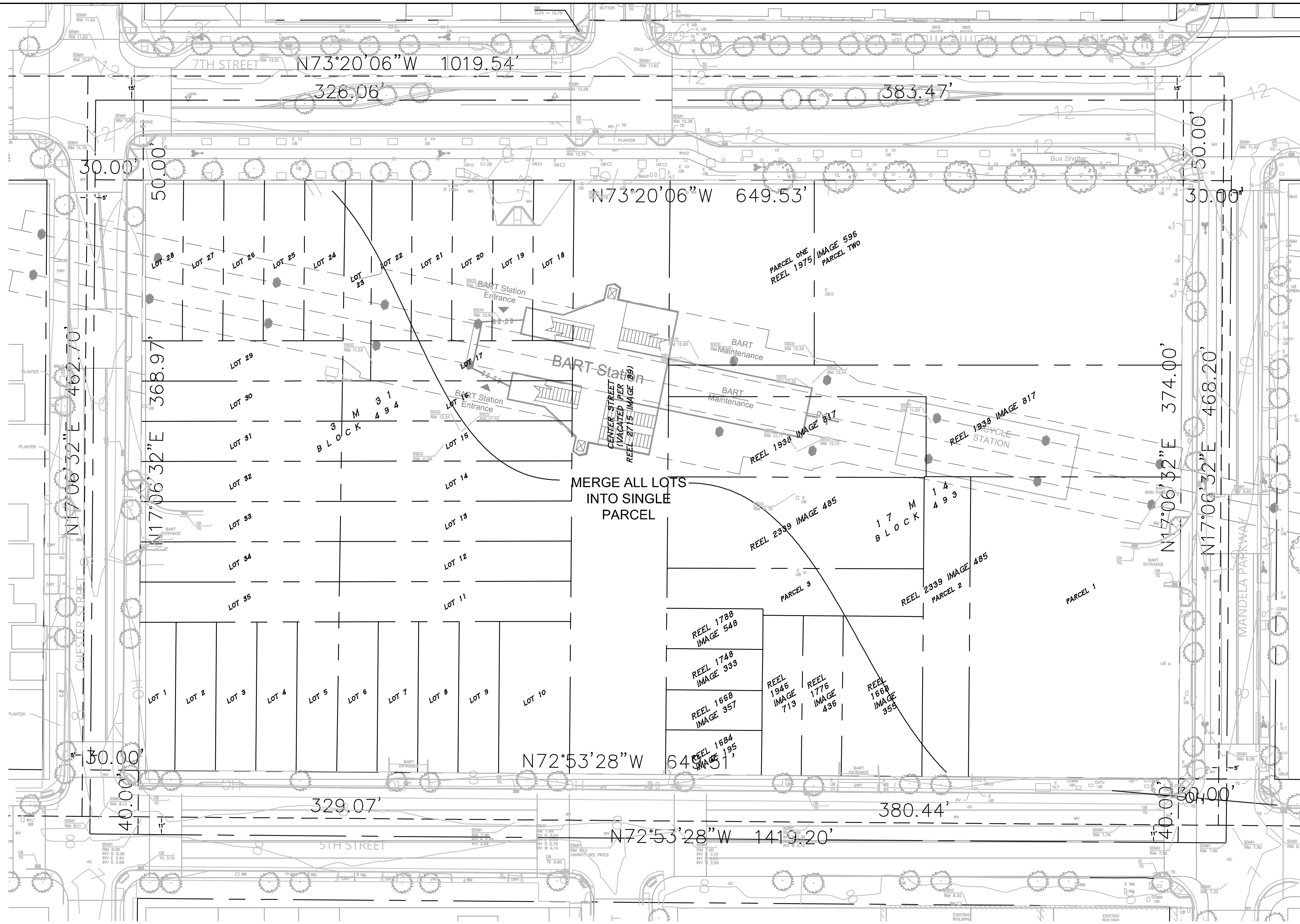
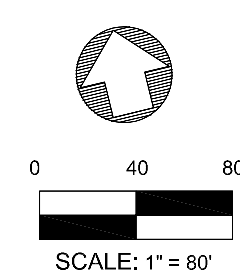
TENTATIVE PARCEL MAP NO. 10940
CITY OF OAKLAND   COUNTY OF ALAMEDA   CALIFORNIA

		No.	Revisions
Date	01/22/2019		
Scale	AS SHOWN		
Design	CG		
Drawn	CC		
Approved	ES		
Job No	20180384		

Drawing Number: 1

1 OF 1





HENSEL PHELPS

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STAMP

WEST OAKLAND BART

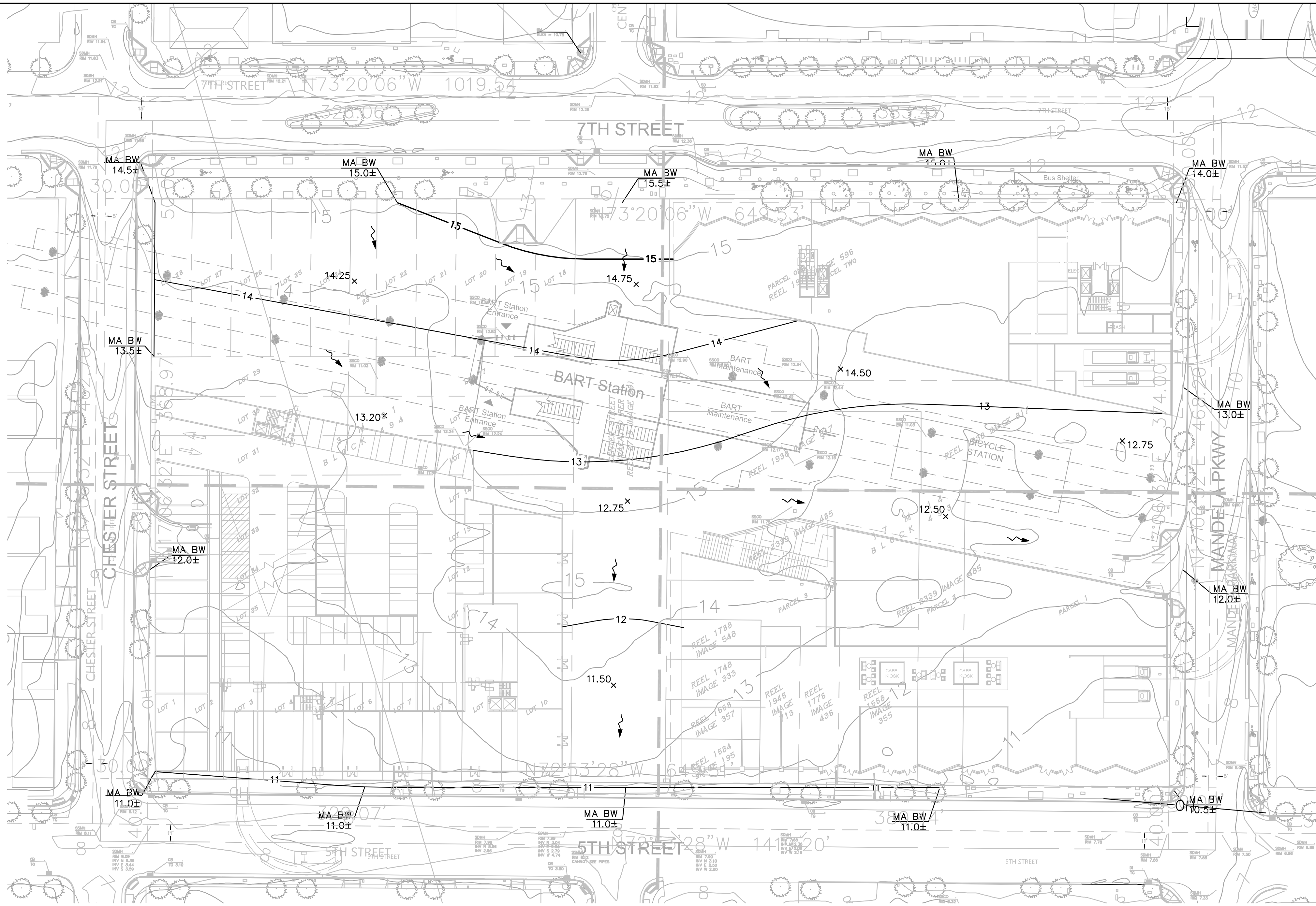
1451 7th St, Oakland, CA 94607

PROJ. # 168-153 WO BART

DATE: December 06, 18

LOT MERGER PLAN

SHEET: C1.01



ABBREVIATIONS:

FF	FINISHED FLOOR
FG	FINISHED GROUND
FS	FINISHED SURFACE
FL	FLOW LINE
MA	MATCH
TC	TOP OF CURB
TS	TOP OF STEP
TW	TOP OF WALL

GRADING NOTES:

1. TC ELEVATIONS ARE 6" ABOVE ADJACENT PAVEMENT FL ELEVATIONS, UNLESS OTHERWISE NOTED ON PLAN.

LEGEND:

DIRECTION OF PROPOSED DRAINAGE
GRADE BREAK
5.00 CONTOUR

EARTHWORK SUMMARY:

TOTAL EXCAVATION: 51,303 CUBIC YARDS
TOTAL FILL: 0 CUBIC YARDS
TOTAL OFFHAUL: 51,303 CUBIC YARDS

CHEC

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STAMP

REGISTERED PROFESSIONAL ENGINEER
ERIC S. SMALL
No. 64607
CIVIL
STATE OF CALIFORNIA
12/06/2018

WEST OAKLAND BART

1451 7th St, Oakland, CA 94607

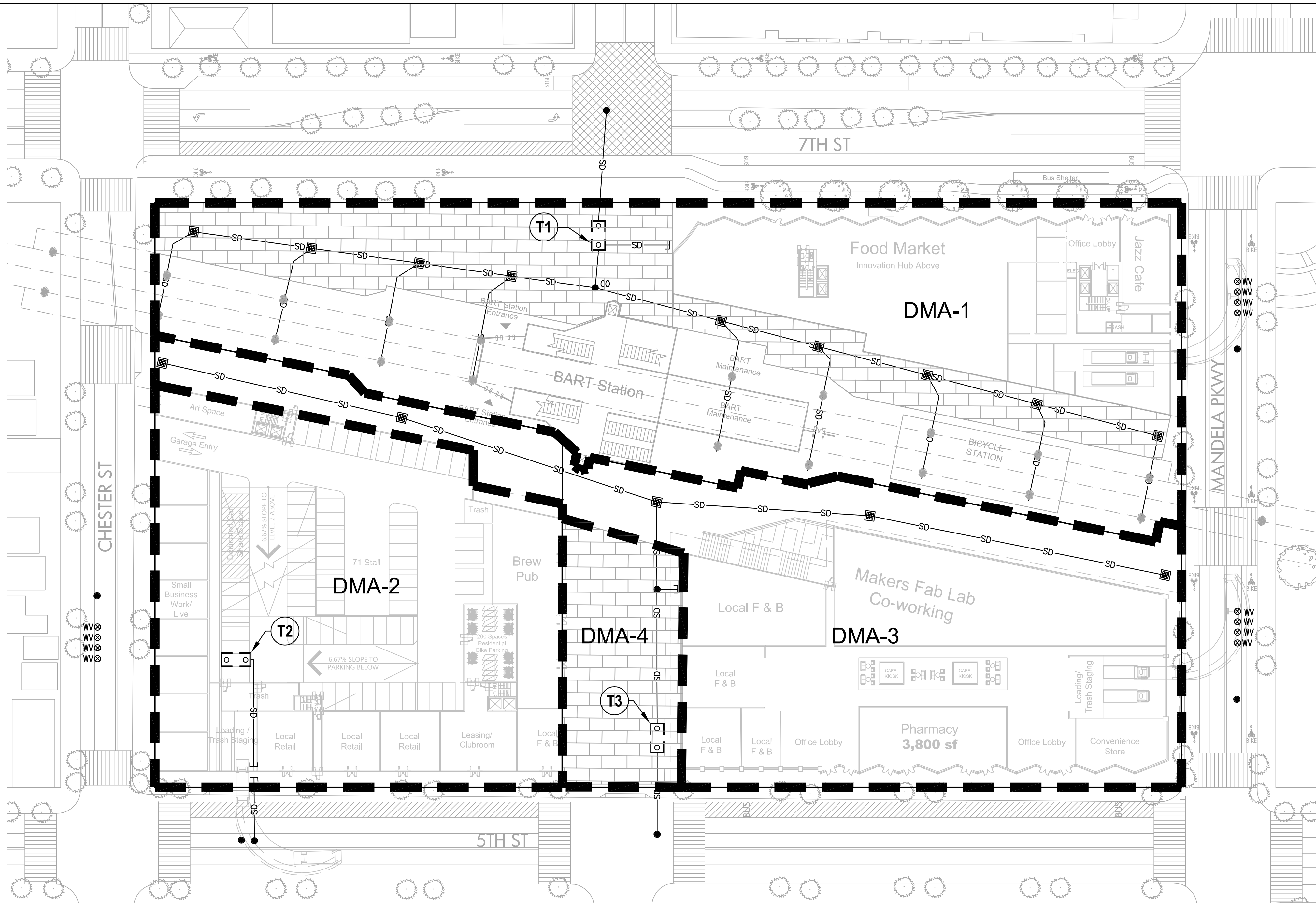
PROJ. # 168-153 WO BART

DATE: December 06, 18

PROPOSED GRADING PLAN

SHEET:

C2.00



LEGEND:

- DRAINAGE MANAGEMENT AREA (DMA)
- PERMEABLE PAVERS
- FILTER VAULT SEE SHEET C3.01
- T# TREATMENT AREA LABEL

STORMWATER MANAGEMENT NOTES:

1. THE TREATMENT VAULTS WERE SELECTED BASED ON 243,131 SF OF IMPERVIOUS SURFACE AND A TREATMENT INTENSITY OF 0.2 IN/HR. SEE OLD CASTLE WASHINGTON GULD PF-V-8-WA-0001 PERK FILTER DETAIL ON SHEET C3.01. ALL FILTER VAULTS SHOWN ARE COMPRISED OF (31) – 18" CARTRIDGES.

0 40 80

SCALE: 1" = 80'

DMA	Impervious Area (SF)	Pervious Area (SF)	Treatment Type	Designated Treatment Area
1	74,600	28,445	Filter Vault	T1
2	58,278	0	Filter Vault	T2
3	69,667	0	Filter Vault	T3
4	0	12,140	Permeable Pavers	T4

TOTAL SITE AREA (SF)	TOTAL LAND AREA DISTURBED (SF)	TOTAL EXISTING/PRE-PROJECT IMPERVIOUS SURFACE (SF)	REPLACED IMPERVIOUS SURFACE (SF)	NEW IMPERVIOUS SURFACE (SF)	TOTAL POST-PROJECT IMPERVIOUS SURFACE (SF)
243,130	243,130	212,865	177,410	25,135	202,545

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WEST OAKLAND BART

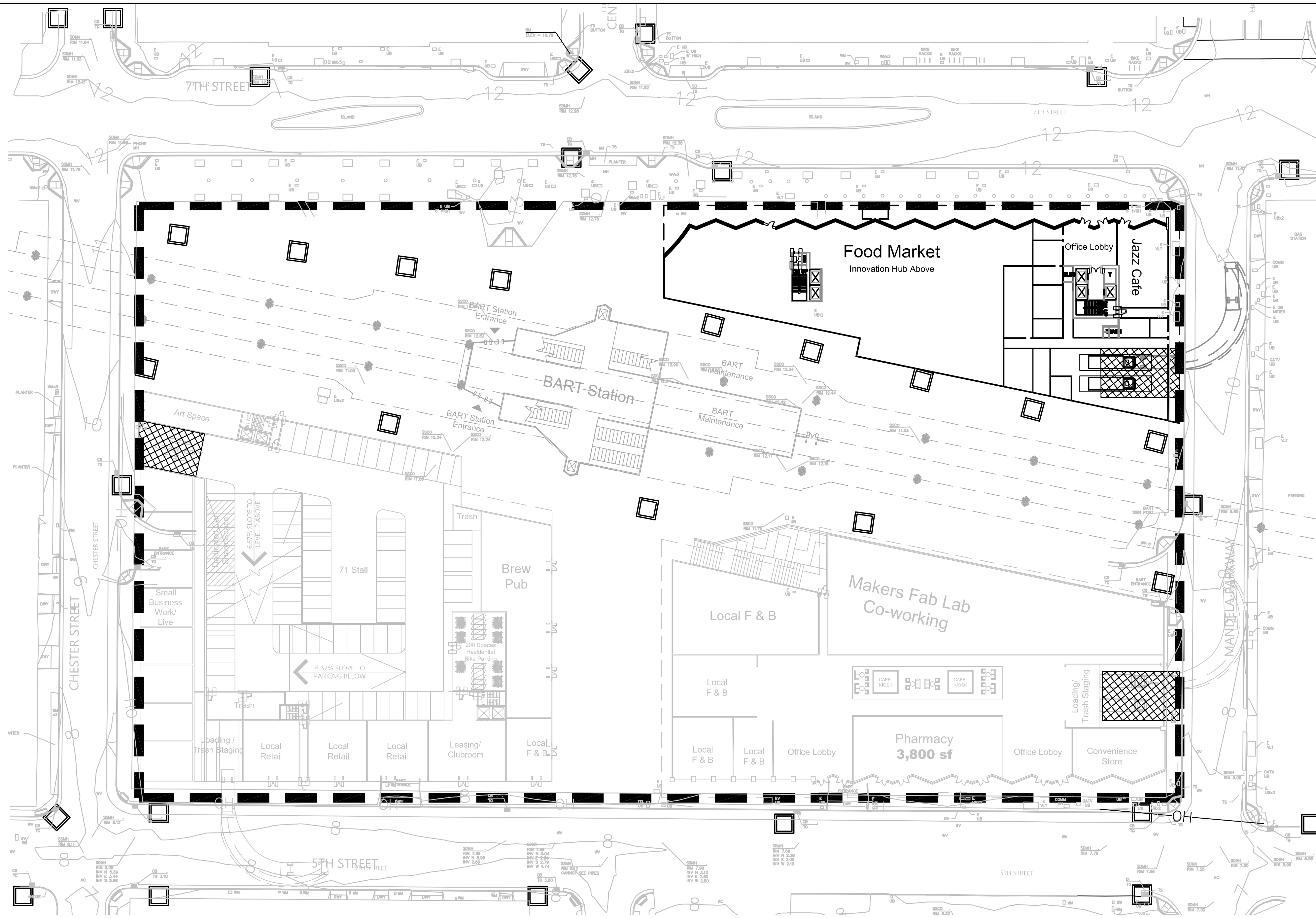
1451 7th St, Oakland, CA 94607

PROJ. # 168-153 WO BART

DATE: December 06, 18

STORMWATER MANAGEMENT PLAN

SHEET: C3.00



EROSION CONTROL LEGEND:

STABILIZED CONSTRUCTION ENTRANCE (TC-1)** WITH ENTRANCE/OUTLET TIRE WASH (TC-3)**

STORM DRAIN INLET PROTECTION (SC-10)**

FIBER ROLL (SC-05)**

**REFER TO SHEET C4.01 FOR DETAILS

EROSION CONTROL NOTES:

1. SITE ACCESS SHOWN ON THIS PLAN IS PROVIDED FOR INFORMATION PURPOSES ONLY. CONTRACTOR SHALL LOCATE CONSTRUCTION ACCESS DRIVEWAYS AS NECESSARY.
2. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN EFFECT AND MAINTAINED BY THE CONTRACTOR ON A YEAR-ROUND BASIS UNTIL ALL DISTURBED AREAS ARE STABILIZED UNLESS OTHERWISE PERMITTED BY THE COUNTY INSPECTOR.
3. ALL INLETS RECEIVING STORM WATER RUNOFF FROM THE PROJECT AREA MUST BE EQUIPPED WITH REQUIRED INLET PROTECTION.
4. ALL PAVED AREAS SHALL BE KEPT CLEAR OF EARTH MATERIALS AND DEBRIS. THE SITE SHALL BE MAINTAINED SO AS TO MINIMIZE SEDIMENT LADEN RUNOFF ENTERING THE STORM DRAIN SYSTEM.
5. STOCKPILED EARTHEN MATERIAL SHALL BE EITHER COVERED WITH A TARP OR WATERED SUFFICIENTLY TO ELIMINATE DUST.
6. REFERENCE: "CALIFORNIA STORM WATER BEST MANAGEMENT PRACTICE (BMP) HANDBOOK", JANUARY 2015.

0 40 80

SCALE: 1" = 80'

CHEC

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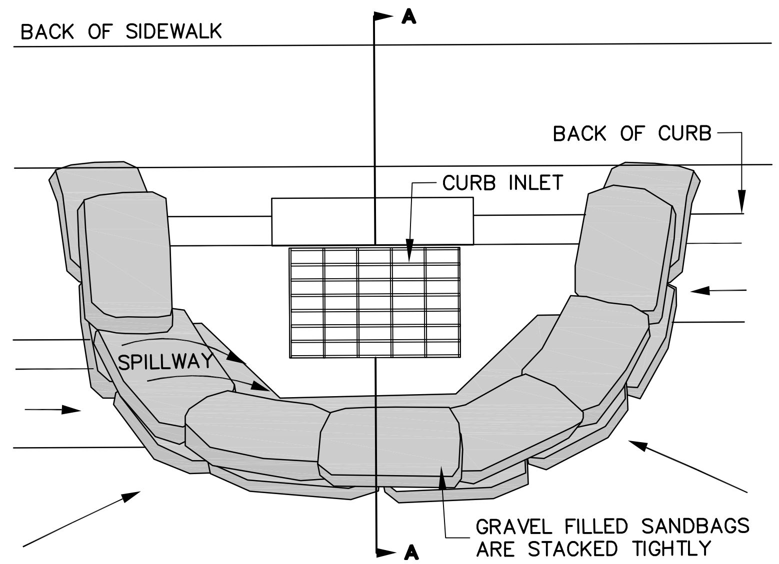
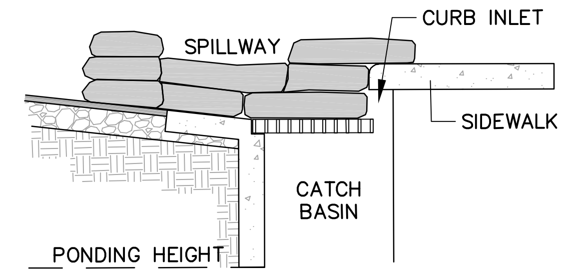
DATE: December 06, 18

EROSION CONTROL PLAN

SHEET: C4.00



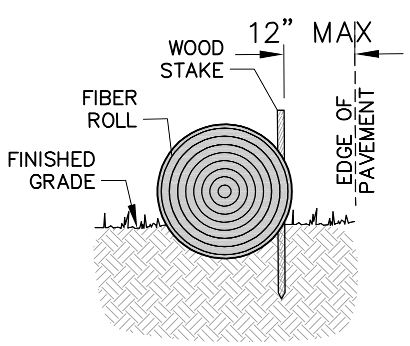


SECTION A–A

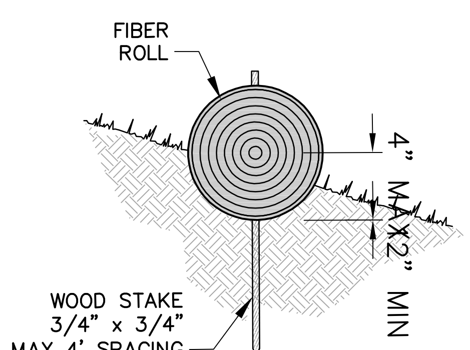
NOTES:

1. PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREET SEGMENTS, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. SANDBAGS OF EITHER BURLAP OR WOVEN 'GEOTEXTILE' FABRIC, ARE FILLED WITH GRAVEL LAYERED AND PACKED TIGHTLY.
3. LEAVE A ONE SANDBAG GAP IN THE TOP ROW TO PROVIDE A SPILLWAY FOR OVERFLOW.
4. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

1 CURB INLET SEDIMENT BARRIER
NOT TO SCALE



ENTRENCHMENT DETAIL
IN FLAT AREA

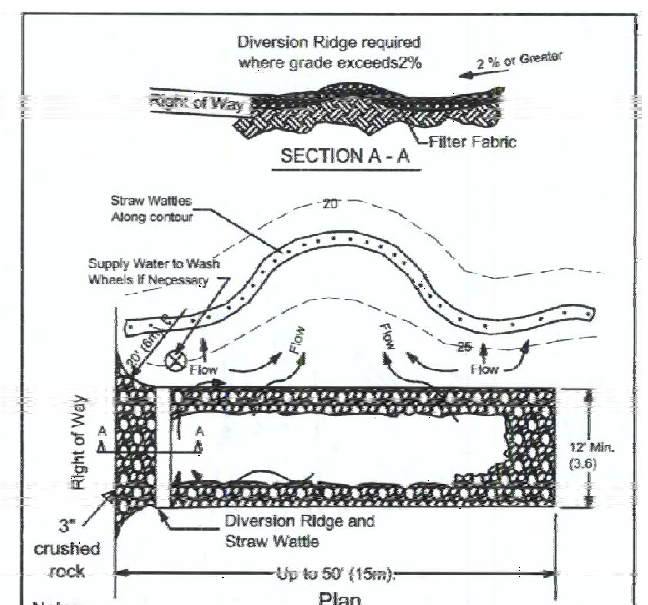


ENTRENCHMENT DETAIL
IN SLOPED AREA

NOTES

1. FIBER ROLLS ARE TUBES MADE FROM POROUS BIODEGRADABLE FIBER STUFFED IN A PHOTO-DEGRADABLE OPEN WEAVE NETTING. THEY ARE APPROXIMATELY 8" DIAMETER.
2. FIBER ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 2"-4" DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL. ROLLS SHOULD BE ABUTTED SECURELY TO PROVIDE A TIGHT JOINT, NOT OVERLAPPED.

2 FIBER ROLL
NOT TO SCALE



Notes:
1. The entrance shall be maintained to prevent sediment tracking or flowing onto public right-of-ways. This may require top dressing, repair and/or cleanout or other measures that trap sediment.
2. When necessary, wheels shall be cleaned prior to entering public right-of-way.
3. When washing is required, it shall be done on an area stabilized with crushed stone that drains into an approved sediment trap or sediment basin

3 Site Entrance

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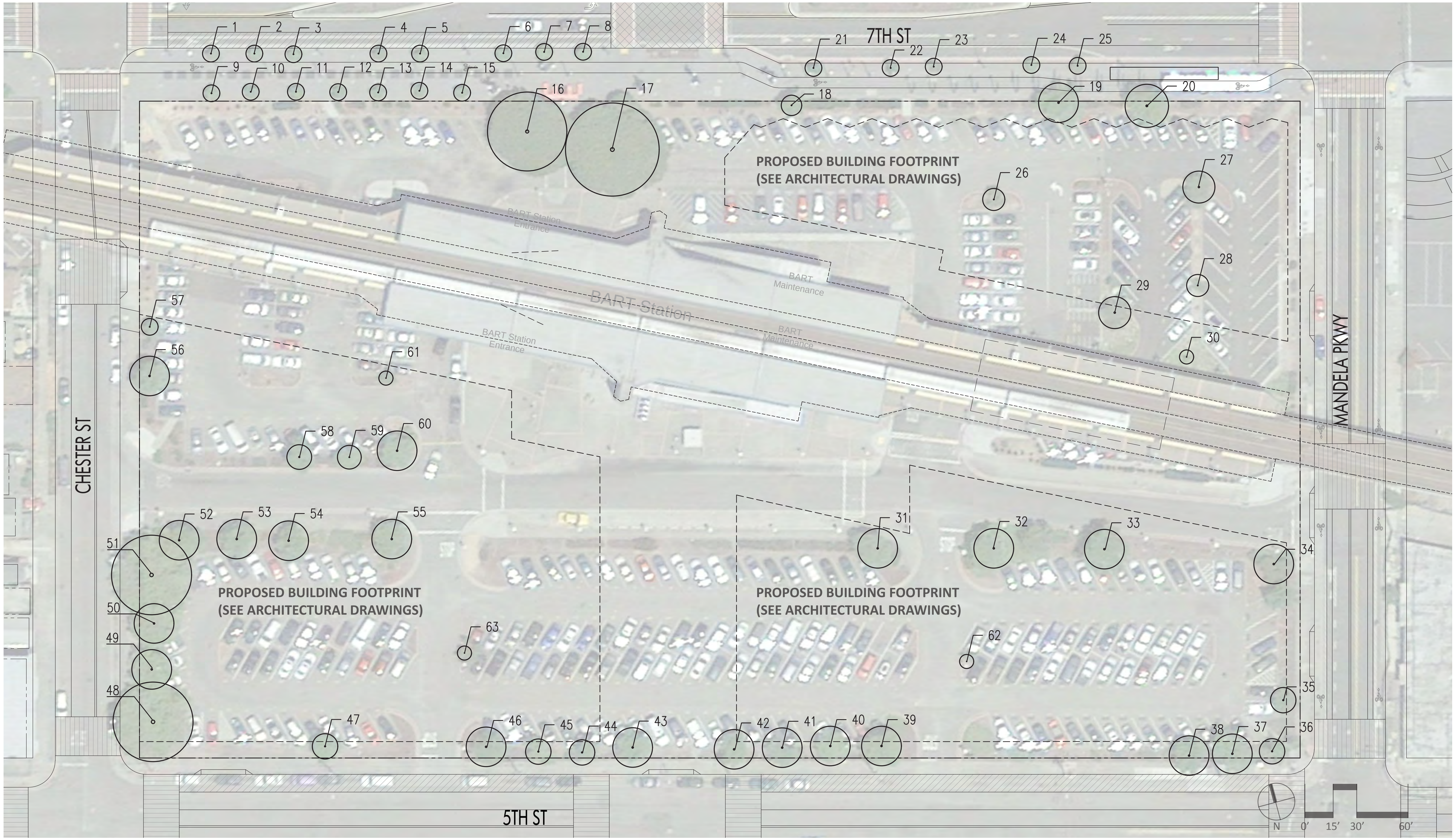
WEST OAKLAND BART
1451 7th St, Oakland, CA 94607

PROJ. # 168-153 WO BART
DATE: December 06, 18

EROSION CONTROL PLAN DETAILS

SHEET:
C4.01



Trees Proposed for Removal

Key	Species	DBH (in)
1	**Pistacia chinensis**	**4**
2	**Pistacia chinensis**	**4**
3	**Pistacia chinensis**	**4**
4	**Pistacia chinensis**	**3**
5	**Pistacia chinensis**	**5**
6	**Pistacia chinensis**	**4**
7	**Pistacia chinensis**	**4**
8	**Pistacia chinensis**	**4**
9	**Pistacia chinensis**	**4**
10	**Pistacia chinensis**	**4**
11	**Pistacia chinensis**	**4**
12	**Pistacia chinensis**	**4**
13	**Pistacia chinensis**	**4**
14	**Pistacia chinensis**	**4**
15	**Pistacia chinensis**	**4**
16	**Pinus pinea**	**36**
17	**Pinus pinea**	**32**
18	**Liriodendron tulipifera**	**9**
19	**Liriodendron tulipifera**	**11**
20	**Liriodendron tulipifera**	**13**
21	**Pistacia chinensis**	**4**
22	**Pistacia chinensis**	**4**
23	**Pistacia chinensis**	**4**
24	**Pistacia chinensis**	**4**
25	**Pistacia chinensis**	**5**
26	Maytenus boaria	7
27	**Maytenus boaria**	**12**
28	Maytenus boaria	5
29	**Maytenus boaria**	**16**
30	Maytenus boaria	2
31	**Liriodendron tulipifera**	**13**
32	**Liriodendron tulipifera**	**11**
33	**Liriodendron tulipifera**	**13**
34	**Liriodendron tulipifera**	**11**
35	**Liriodendron tulipifera**	**9**
36	**Liriodendron tulipifera**	**12**
37	**Liriodendron tulipifera**	**11**
38	**Liriodendron tulipifera**	**10**
39	**Liriodendron tulipifera**	**11**
40	**Liriodendron tulipifera**	**9**
41	**Liriodendron tulipifera**	**10**
42	**Liriodendron tulipifera**	**10**
43	**Liriodendron tulipifera**	**9**
44	Liriodendron tulipifera	7
45	Liriodendron tulipifera	8
46	Liriodendron tulipifera	8
47	**Liriodendron tulipifera**	**9**
48	**Platanus X acerifolia**	**18**
49	**Platanus X acerifolia**	**10**
50	**Platanus X acerifolia**	**10**
51	**Platanus X acerifolia**	**17**
52	**Liriodendron tulipifera**	**12**
53	Liriodendron tulipifera	8
54	Liriodendron tulipifera	8
55	**Liriodendron tulipifera**	**9**
56	**Liriodendron tulipifera**	**10**
57	Liriodendron tulipifera	5
58	Liriodendron tulipifera	8
59	Liriodendron tulipifera	7
60	**Liriodendron tulipifera**	**9**
61	Maytenus boaria	5
62	Maytenus boaria	5
63	Maytenus boaria	7

Bolded trees are protected trees.

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1/10/2019
Date
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WEST OAKLAND BART

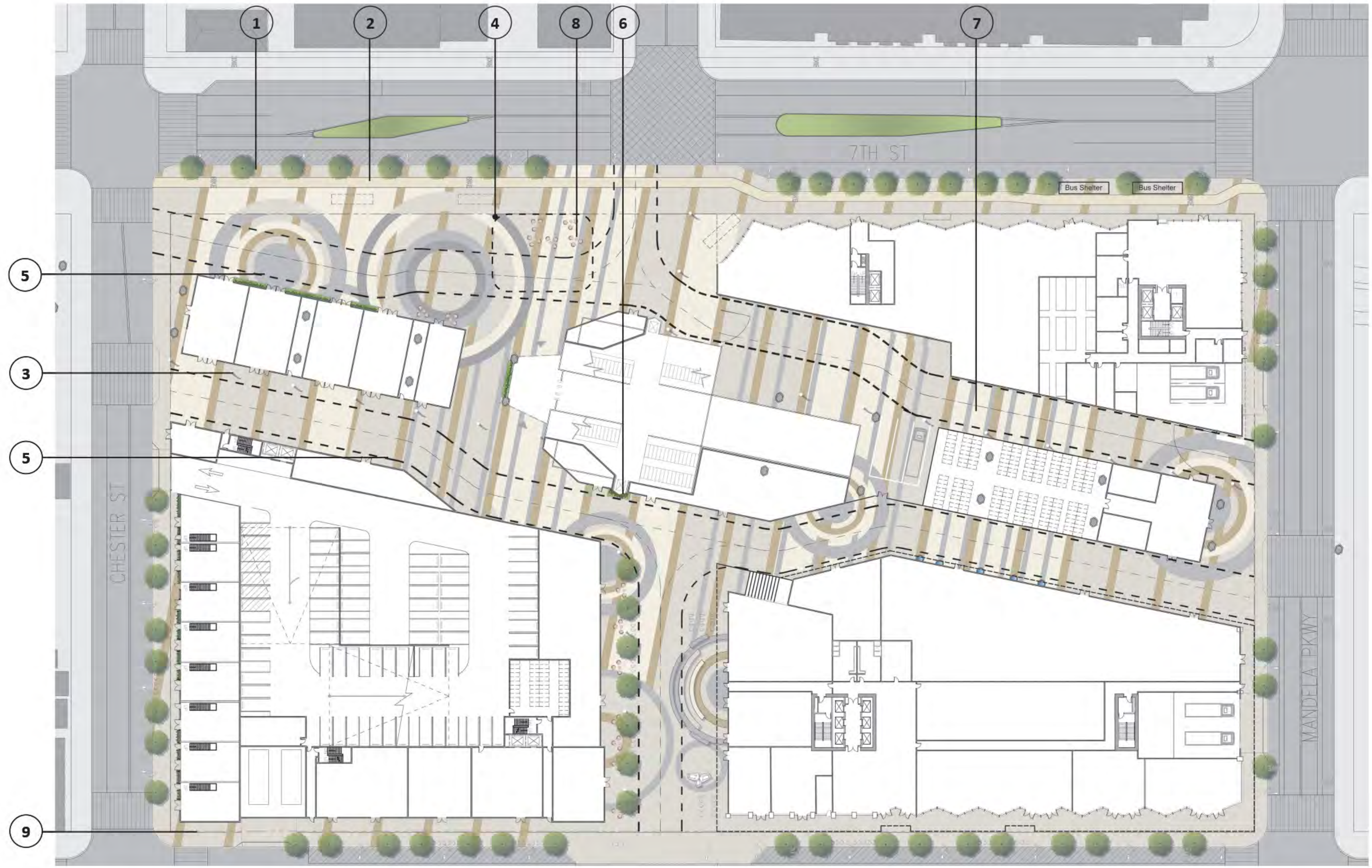
1451 7th St, Oakland,
CA 94607

PROJ. # 168-153 WO BART

DATE: JANUARY 11, 2019

TREE REMOVAL PLAN

SHEET: L-00.01



1. CYCLE TRACK a separated, protected bike lane located adjacent to 7th street, distinct from both the sidewalk and 7th street.
2. PERVIOUS PAVING see Stormwater Management Plan
3. ALLEY OF LIGHTS
4. OPEN PLAZA the space between 7th Street and the fair gates to the station will be kept open
5. EMEGENCY VEHICLE ACCESS
6. GREENWALLS, TYP. Vertical panels of wire mesh with living plants, 15' high.
7. PEDESTRIAN HARDSCAPE paving bands of concrete pavers, poured in place colored concrete, and stone highlights.
8. MOVEABLE FURNITURE custom planters, benches, seats, and tables, that can be manually positioned to create a variety of seating arrangements and support a variety of programed activities.
9. STREETSCAPE sidewalks designed with a substructure to support healthy street trees.

N 0' 30' 60' 120'

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PROJ. # 168-153 WO BART
DATE: JANUARY 11, 2019

LANDSCAPE PLAN ON-GRADE

SHEET:

L-00.02

Planting Design Intent & Notes

1 The project planting and irrigation design will be designed with low water use plants and efficient irrigation system which will meet the state's model water efficient landscape ordinance. Completed calculations and worksheets will be provided during building permit phase.

2 Plants selected will be primarily low water use and irrigation will consist of subsurface drip with a smart irrigation controller.

3 All shrubs, groundcovers, trees and vines selected for planting are low water use. All shrubs and groundcover areas (non-turf areas) to be irrigated with drip irrigation. All turf areas irrigated with high-efficiency spray.

4 Non-turf areas: at least 75% of the plant selection is native or climate appropriate low water use species and require minimal water once established. Up to 25% of the plant may be non-drought tolerant variety as long as they are appropriately grouped together and irrigated separately and efficiently as hydrozones.

5 No planted species can be listed by CAL-IPC (California Invasive Plant Council) as invasive in the San Francisco bay area, and plant right, keep invasive plants in check by California Horticultural Invasive's Prevention (CAL-HIP).

Irrigation Design Intent & WELO

1 Irrigation system will be designed to provide the minimum amount of water necessary to sustain good plant health. All selected components to be commercial grade, selected for durability, vandal resistance and minimum maintenance requirement.

2 The system will be a combination of overhead sprinkler and subsurface irrigation as appropriate to plant type, exposure and slope conditions.

3 Control of the system will be via a weather-enabled controller capable of daily self-adjustment based on real-time weather conditions as measured by an on-site weather sensor.

4 The system will include a master control valve and flow sensing capability which will shut down all or part of the system if leaks are detected.

5 The landscape is over 2,500 square feet of new landscaping and will therefore meet the requirements of the water efficiency landscape ordinance (WELO): https://water.ca.gov/legacyfiles/wateruseefficiency/docs/mwelo09-10-09.pdf

Irrigation Notes will Comply with Following:

Landscape design to comply with City of Oakland Bay-Friendly's ordinance, in addition the nine required practices are summarized below:

1 Mulch all shrub areas with 3-inch-thick layer of mulch. All soil on site is protected with a minimum of 3 inches of mulch after construction. All mulch is arbor waste material.

2 Amend soil with compost before planting. Compost is specified as the soil amendment, at the rates indicated by a soil analysis to bring the soil organic matter content to a minimum of 3.5% by dry weight or 1 inch of compost. Option 1: require import topsoil to meet organic matter content of a minimum 3.5% by dry weight. Option 2: submit soils report that identifies existing topsoil meets organic matter content of 3.5% by dry weight or greater.

3 Reduce and recycle landscape construction waste. Divert 50% of landscape construction and demolition waste by volume or weight.

4 Choose and locate plants that grow to natural size and avoid shearing. No plant species will require shearing. Select species and spacing to allow plants to grow to natural size and shape without shearing at any point in the lifespan of the plant, excluding structural and regular maintenance.

5 Do not plant invasive species. None of the plant species listed by CAS-IPC as invasive in the San Francisco Bay area are included in the planting design.

6 Grow drought tolerant, California native, Mediterranean, or climate adapted plants. A minimum of 75% of the total number of plants in the non-turf areas must be species that require no or little summer watering once established. Species should be adapted to the climate in which they will be planted, as referenced by a third-party source. Plant shall be rated for moderate or occasional water use for this region and climate.

7 Minimize turf. A maximum of 25% of total irrigated area is specified as turf, with sports or multi-use fields exempted.

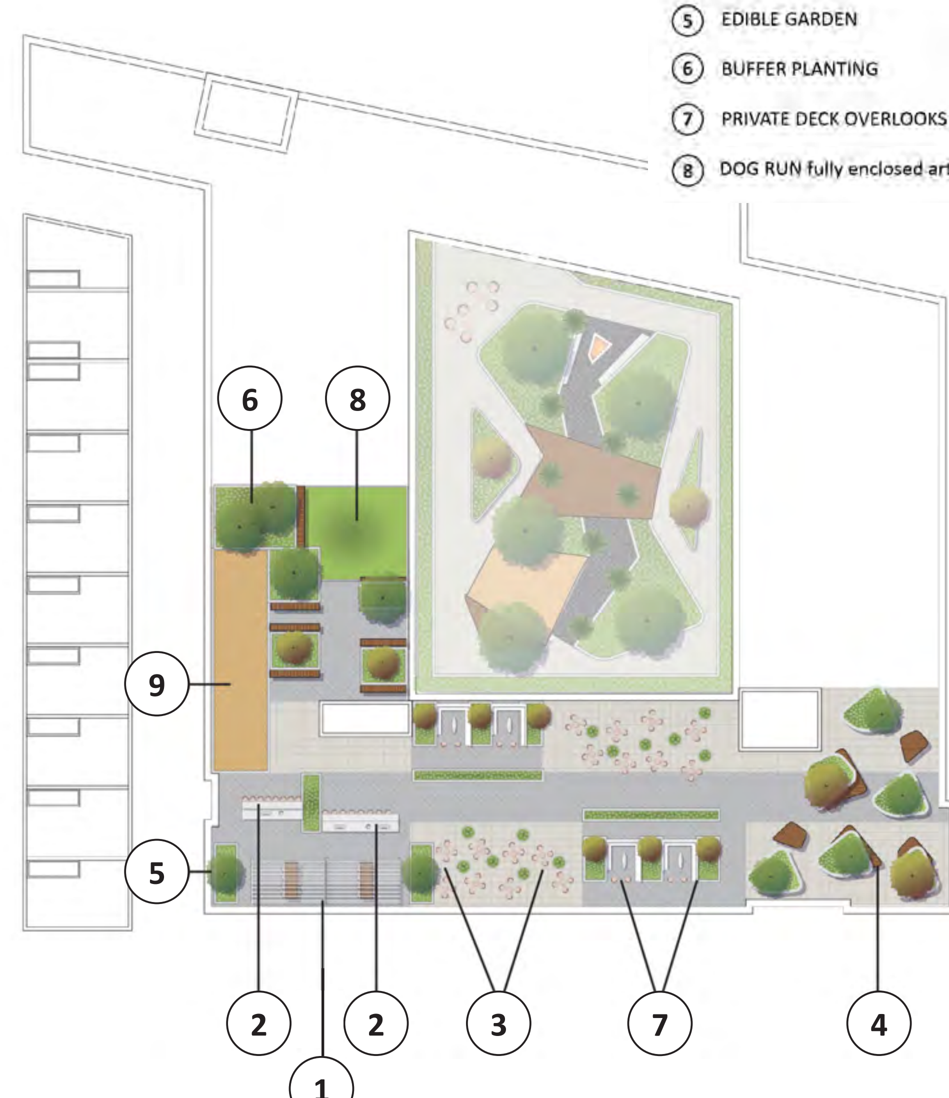
8 Specify automatic weather-based controller with soil moisture and/or rain sensor. Weather-based irrigation controllers, soil moisture-based controllers, or other self-adjusting irrigation controllers, shall be required for entire irrigation system.

9 Sprinkler and spray heads are not specified in areas less than 8 feet wide. Sprinkler and spray heads are not specified in areas less than or equal to 8 feet wide to prevent overspray and runoff. Acceptable alternatives include bubbler or drip with subsurface rigid lateral pipes. Bubblers shall not exceed 1.5 gallons per minute per bubbler.

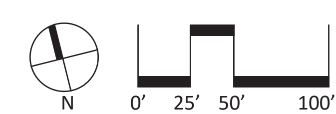
1 OPEN GREEN
2 ROOFTOP DINNING ROOM SERVES AS OUTDOOR DINING ARE FOR RESIDENTS AND GUESTS
3 OUTDOOR KITCHEN AND GRILL
4 MOVEABLE TABLES AND CHAIRS
5 COMMUNAL SEATING UNDER CANOPY
6 WOOD LOUNGE PLATFORMS
7 EDIBLE GARDEN

T-3 COURTYARD PLAN

1 ROOFTOP DINNING ROOM SERVES AS OUTDOOR DINING ARE FOR RESIDENTS AND GUESTS
2 OUTDOOR KITCHEN AND GRILL
3 MOVEABLE TABLES AND CHAIRS
4 TREE SHADED WOOD LOUNGE PLATFORMS
5 EDIBLE GARDEN
6 BUFFER PLANTING
7 PRIVATE DECK OVERLOOKS gathering areas for small groups
8 DOG RUN fully enclosed artificial turf with expandable obverhead canopy
9 BOCCE COURT
10 CHILDREN PLAY SPACE
11 GAS FIRE PIT
12 WOOD DECK



T-3 ROOF DECK PLAN



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CHRISTOPHER W. KENT #4289
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1/11/2019
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PROJ. # 168-153 WO BART

DATE: JANUARY 11, 2019

LANDSCAPE PLAN ON-STRUCTURE

SHEET:

L-00.03

Gleditsia triacanthos 'Street Keeper'

Azara microphylla 15'x15'

Mahonia 'Soft Caress' 4'x4'

Agave attenuata 'Raea's Gold' 3'x3'

Cordyline 'Design-a Line'
3'x3'

Pittosporum tobira 'Mojo'
3'x3'

Digiplexis Illumination 'Apricot'
2'Hx18"W

Phormium 'Tony Tiger' 2.5'x2.5'

Echeveria 'Black Prince' 1'x1'

Mahonia repens 18"Hx3'W

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DATE: JANUARY 11, 2019

PROPOSED PLANTS-IMAGES

SHEET:

L-00.04


Prunus seratta


Maytenus boaria


Cotinus coggygria


Woodwardia fimbriata


Acer palmatum 'Sango kaku' *12'Hx8'W*


Arbutus 'Marina' Multi trunk *15'x15'*


Helleborus argutifolius *3'x3'*


Berberis 'Orange Rocket' *4'Hx2'W*


Nandina domestica Alba 'Lemon-Lime' *4'Hx3'W*


Abutilon megapotamicum 'Lemon' *3'x3'*


Arctostaphylos 'Emeral Carpet'


Phormium 'Yellow Wave'


Carex divulsa

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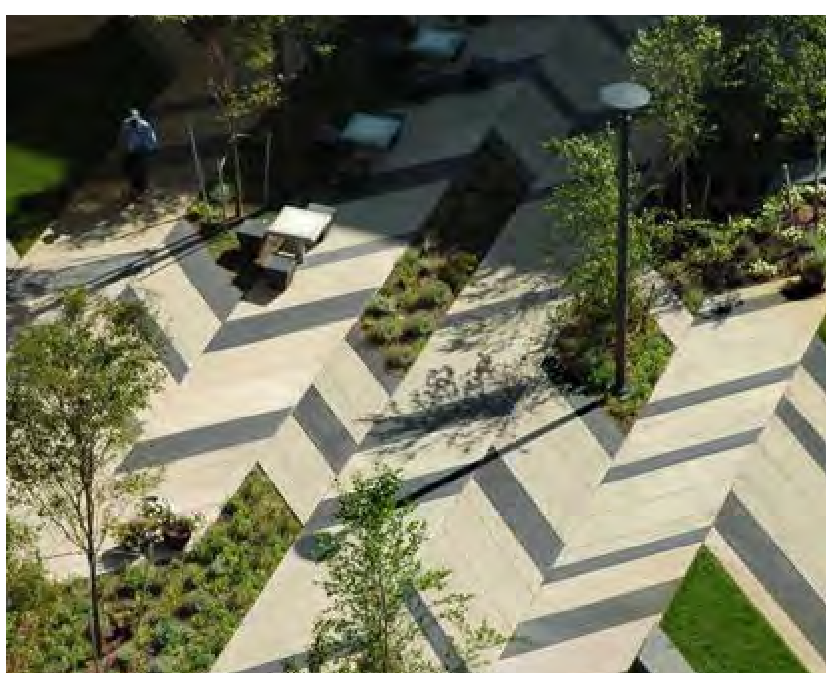
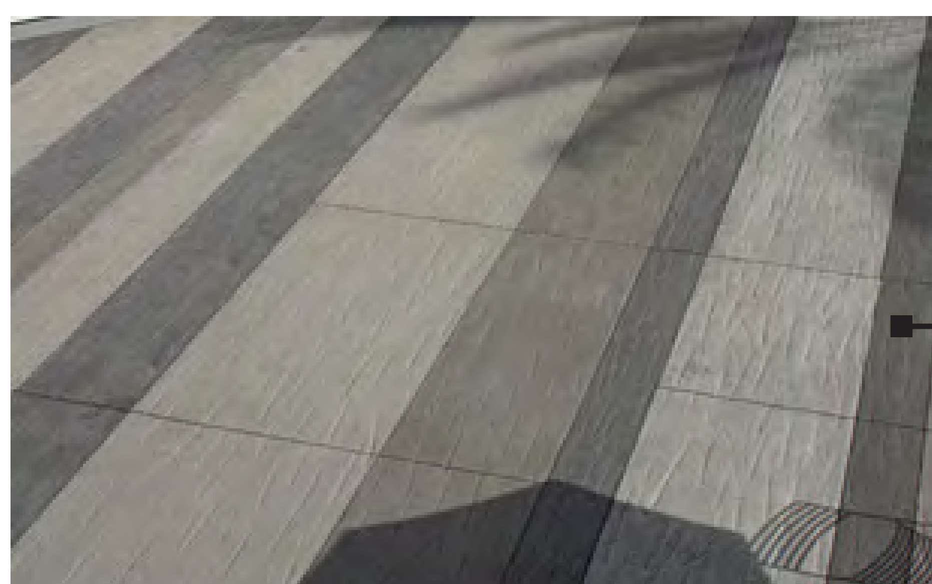
PROPOSED PLANTS-IMAGES

SHEET:
L-00.05

PERVIOUS PAVING

CONCRETE PAVERS





COLORED CONCRETE

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DATE: JANUARY 11, 2019

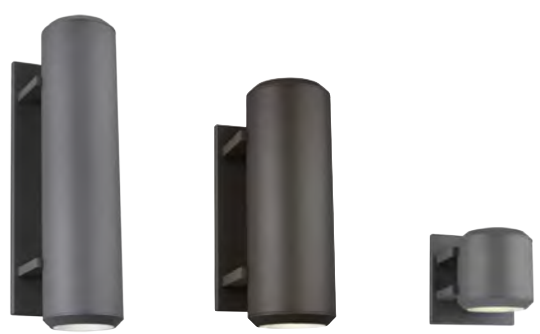
PROPOSED PAVING-IMAGES

SHEET:

L-00.06

ASPENTI COLLECTION

Aspenti provides a modern industrial look with flexible illumination options.
The integrated LED light with a textured diffuser illuminates up and down.



ASPENTI 20
CHARCOAL

ASPENTI 14
BRONZE

ASPENTI 5
CHARCOAL

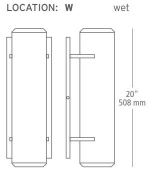
ASPENTI 20

MODEL: **OD1061**

FINISH: **BZ** bronze
CH charcoal

LAMP: **LED930** integrated LED; 120v; 10.4w; 996 delivered lumens; 3000K; 90 CRI LED T24
LED 930277 integrated LED; 277v; 10.4w; 996 delivered lumens; 3000K; 90 CRI LED T24

LOCATION: **W** wet



wall projection 7"/ 178 mm

sample item number **OD1061BZLED930W**
Aspenti 20, bronze, integrated LED, wet

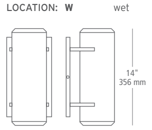
ASPENTI 14

MODEL: **OD1062**

FINISH: **BZ** bronze
CH charcoal

LAMP: **LED930** integrated LED; 120v; 10.4w; 996 delivered lumens; 3000K; 90 CRI LED T24
LED 930277 integrated LED; 277v; 10.4w; 996 delivered lumens; 3000K; 90 CRI LED T24

LOCATION: **W** wet



wall projection 7"/ 178 mm

sample item number **OD1062CHLED930277W**
Aspenti 14, charcoal, integrated LED, wet

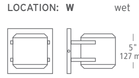
ASPENTI 5

MODEL: **OD1060**

FINISH: **BZ** bronze
CH charcoal

LAMP: **LED930** integrated LED; 120v; 10.4w; 996 delivered lumens; 3000K; 90 CRI LED T24
LED 930277 integrated LED; 277v; 10.4w; 996 delivered lumens; 3000K; 90 CRI LED T24

LOCATION: **W** wet

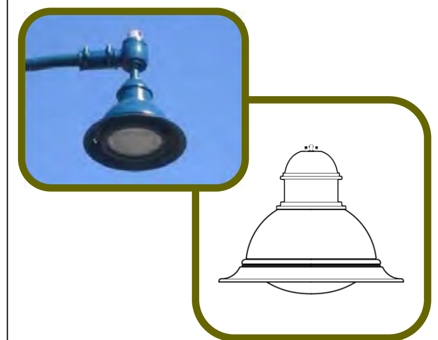


wall projection 7"/ 178 mm

sample item number **OD1060CHLED930W**
Aspenti 5, charcoal, integrated LED, wet

WALL LIGHTING

Domus Luminaire



Manufacturer(s): Lumec

Catalog #:
DMS50-HPS-SC3M-SMB-SCITX (Large Domus)
DOSHPS-SG3--SMB-SCITX-LMS (Small Domus)

Photometric File:
s0105312.ies (Domus DMS50, 200-250W)
s0206071.ies (Domus DOS, 35-150W)

Application:
Domus DMS50 - Arterial and/or collector street lighting
Domus DOS – Residential street lighting and/or sidewalk side pedestrian lighting

Lamp Type: 35W, 100W, 150W, 250W HPS

Optical System: Type III

Ballast Voltage: Multi-tap 120/240V

Color: Teal Green only

Special Requirements:

Luminaire Cost: $$$

As shown: Domus DOS luminaire w/ 3' arm on 16' octagonal pole.
Color: Teal Green
Location: Coliseum Gardens

Public Works Agency
Electrical Services Division
Dept of Infrastructure and Operations

STREET LIGHTING

Ritorno® Square Asymmetrical selux

Series	Mounting	Height	Lamping	Lamp Color	Finish	Voltage	Options
RSA Ritorno® Square Asymmetrical	**1** Single **W** Wall Mount	**RP10** 10 ft. **RP12** 12 ft. **RP14** 14 ft. **RP16** 16 ft.	**Metal Halide** **H050** 50w **H070** 70w **H100** 100w **H150** 150w	**NOL** No Lamp Supplied **830** 3000° K **940** 4000° K	**WH** White **BK** Black **BZ** Bronze **SV** Silver **SP** Specify Premium Color	**120** **208** **240** **277** **347**	**REC** GFCI Receptacle (pole mount only) **FS**[1] Single Fusing Consult factory for other options.
			T6 Metal Halide **H070T6**[2] 70w **H150T6** 150w	**NOL** No Lamp Supplied **830** 3000° K **942** 4200° K			
			HPS **S050**[2] 50w **S070** 70w **S100** 100w **S150** 150w	**NOL** No Lamp Supplied **221** 2100° K			
			QL Induction **QL85**[1] 85w **QL165**[1] 165w	**830** 3000° K **840** 4000° K **850** 5000° K			

[1] Not available with 347v [2] Not available with 240V/208V

PEDESTRIAN LIGHTING ON PLAZA

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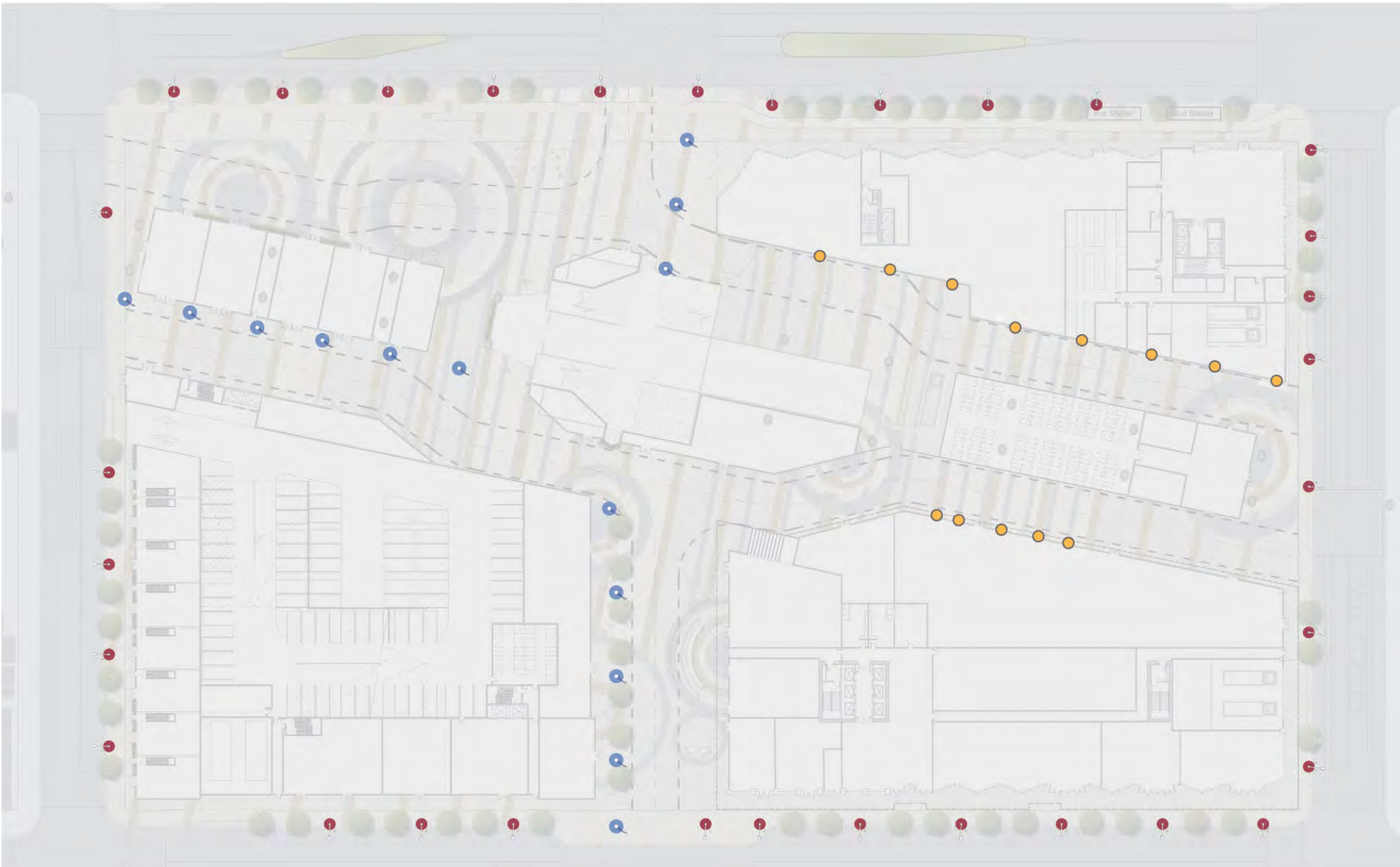
DATE: JANUARY 11, 2019

PROPOSED LIGHTING- IMAGES

SHEET:

L-00.07



LEGEND

- WALL LIGHTING
- STREET LIGHTING
- PEDESTRIAN LIGHTING

N

0' 30' 60' 120'

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PROJ. # 168-153 WO BART

DATE: JANUARY 11, 2019

PRELIMINARY LIGHTING PLAN

SHEET:

L-00.08

Plazas & Pedestrian Walkways

Public Space Improvements:
The public spaces for the West Oakland Station site will be designed to reinforce the vibrant mixed-use development that furthers Oakland's efforts to promote urban living at key transit sites, and provides an active and delightful center for the West Oakland community.

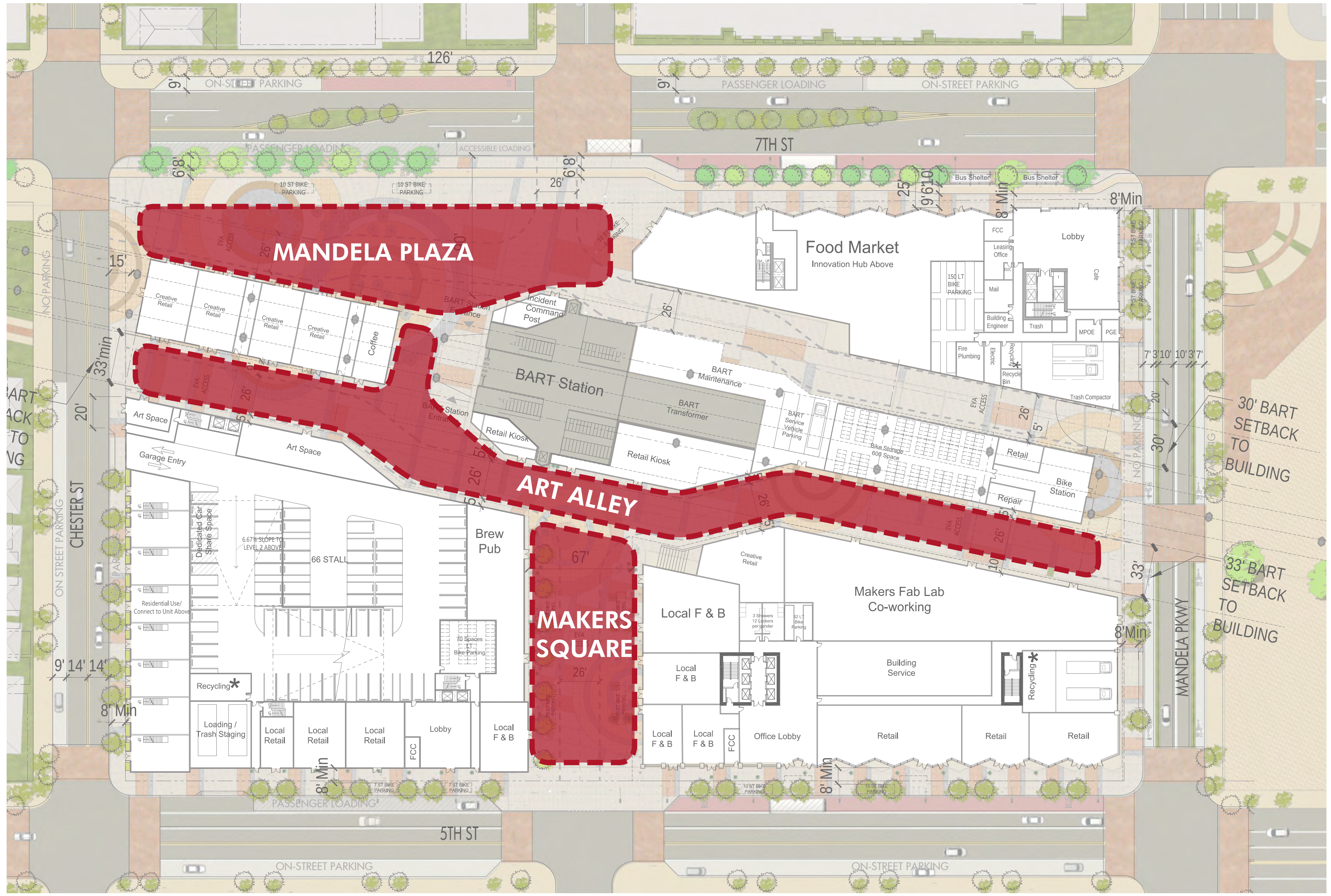
The site is designed with a series of important civic open spaces, including:

- **Mandela Plaza,** major community civic plaza at 7th Street fronting BART Station entrance;
- **Maker Square,** a pedestrian plaza replacing the vacated Center Street, and
- **Art Alley**, a pedestrian paseo along the BART trackway.

The perimeter of the site is designed to promote public access and to provide an enhanced pedestrian experience, with expanded sidewalks and retail frontages along 7th and 5th Streets.

Hardscape and Green-scape Design:
Landscape plan should be designed to enhance the pedestrian public spaces to create a high quality of pedestrian experience and civic prominence. The existing trees will be replaced because of conflicts with the access plan.

The new tree planting will complement the overall landscape strategy of the 7th and 5th Street corridors to ensure a continuous, interesting and varied visual experience. Planting and paving materials shall be of high quality and will be aesthetically designed to differentiate unique spaces within the pedestrian plazas, promote visual access to the BART station entrance, and to create opportunities for cultural, community and arts events.



Landscape Materials: The landscape materials are designed with high quality stone, brick, finished concrete and other materials to create a high quality public pedestrian experience and to maximize the types of uses that can occur on site. The landscape will be designed to relate to a larger vision for the 7th Street corridor. The new tree planting will complement the overall landscape strategy of the 7th Street corridor to ensure a continuous, interesting and varied visual experience.

Planting and paving materials will be of high quality and will be aesthetically designed to differentiate unique spaces within the pedestrian plazas, promote visual access to the BART station entrance, and to create opportunities for cultural, community and arts events.

Site Lighting: The Lighting plan will be designed to create well lighted plazas and pedestrian pathways through the site. The visual security of all pedestrian spaces within the site is facilitated by locating retail and other public activities along all edges of the development. The landscape plan will provide adequate lighting to provide a safe environment while conforming to current best practices to mitigate light pollution.

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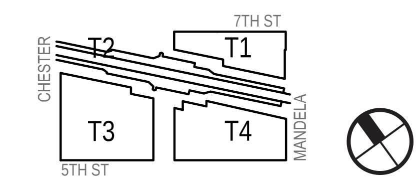

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JRDV Architects, Inc
The Cathedral Building
Broadway and Telegraph
PO Box 70126
Oakland, CA 94612 USA
510 295 4392 T
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LICENSED ARCHITECT EDWARD MCFARLAN C-14723 EXP. 05-31-19 STATE OF CALIFORNIA

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PROJ. # 168-153 WO BART
DATE: January 18, 2019

PUBLIC SPACE IMPROVEMENT: PLAZA & PUBLIC WALKWAYS

SHEET: A-10.00.0

Mandela Plaza

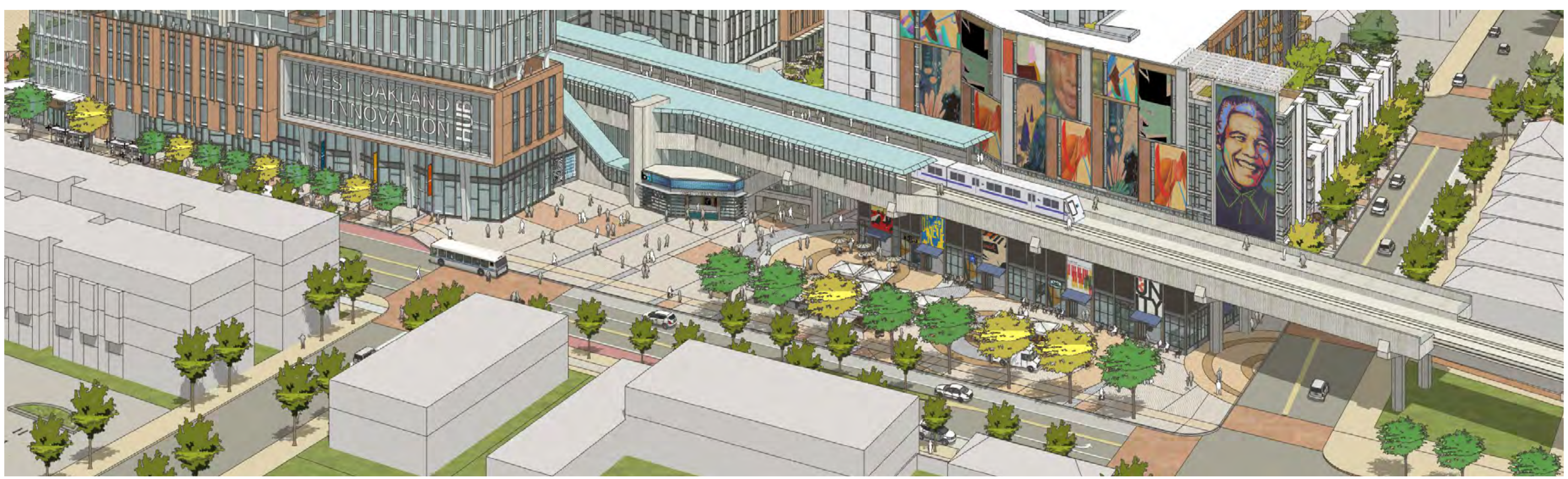
Mandela Plaza - Community Civic Space:
A larger civic plaza will be provided along 7th Street at the BART station to provide increased visibility and access to the BART station, and also to celebrate the civic importance of this site in the community. This plaza is located to be central to the overall site in order to increase its public importance, public access, and public use for community, arts and cultural events. The central plaza should be designed to enhance the 7th Street corridor activation and public experience.

The Landscape plan is designed to enhance 7th street corridor and to create a high quality pedestrian experience and civic prominence.

The new tree planting will complement the overall landscape strategy of the 7th Street corridor to ensure a continuous, interesting and varied visual experience.

Paving materials will be of high quality and will be aesthetically designed to differentiate unique spaces within the pedestrian plazas, promote visual access to the BART station entrance, and to create opportunities for cultural, community and arts events. The landscape plan is designed to create a visually significant destination and center for the West Oakland community and users of the transit hub.

VIEW FROM 7TH STREET



VIEW FROM 7TH STREET

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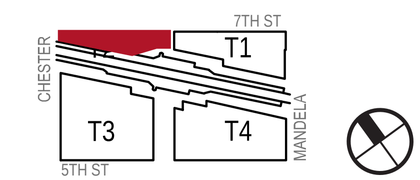

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LANDSCAPE ARCHITECTS

PROJ. # 168-153 WO BART
DATE: January 18, 2019

PUBLIC SPACE IMPROVEMENT: MANDELA PLAZA

SHEET: A-10.00.1

Mandela Plaza

VIEW OF BART ENTRANCE AT 7TH STREET

VIEW FROM CHESTER STREET

HENSEL PHELPS

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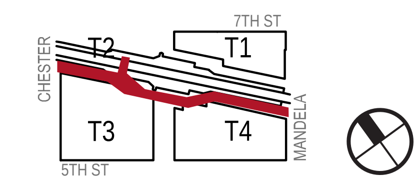

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EXP 05-31-19
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PROJ. #	168-153 WO BART
DATE:	January 18, 2019

PUBLIC SPACE
IMPROVEMENT:
ART ALLEY

SHEET:

A-10.00.2

Art Alley

Art Alley: The mid-block passage south of the BART trackway will be designed as an active pedestrian paseo. Buildings will set back to provide both adequate emergency vehicle access and to create a delightful and activated pedestrian passage through the site to the BART station. The space will be lined with public uses that activate the space, including: retail kiosks, maker spaces, a bike station, and other cultural uses that provide day and night activation and safety for pedestrians using the space. Art and other cultural/historical installations should be introduced into this space to provide a meaningful and innovative public experience.

Landscape Materials: The landscape materials are designed with high quality stone, brick, finished concrete and other materials to create a high quality public pedestrian experience and to maximize the types of uses that can occur on site.

Site Lighting: The Lighting plan will be designed to create well lighted plazas and pedestrian pathways through the site. The visual security of all pedestrian spaces within the site is facilitated by locating retail and other public activities along all edges of the development. The landscape plan will provide adequate lighting to provide a safe environment while conforming to current best practices to mitigate light pollution.

VIEW FROM CHESTER STREET

VIEW AT MAKER SQUARE

VIEW FROM MANDELA PARKWAY

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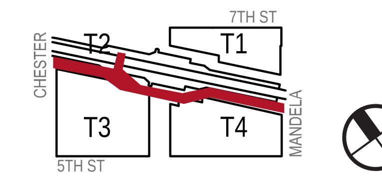

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DATE: January 18, 2019

PUBLIC SPACE IMPROVEMENT: ART ALLEY

SHEET: A-10.00.2

Maker Square

Maker Square: The vacated Center Street will be transformed into an active urban destination for the neighborhood. This space is both an important pedestrian connection to the BART station and a significant public plaza for the surrounding community. It will be lined with public uses, including: retail, food, cultural and maker spaces. The space will be an inviting place for the neighborhood to shop, dine, and relish a quality community experience.

The landscape materials are designed with high quality stone, brick, finished concrete and other materials to create a high quality public pedestrian experience and to maximize the types of uses that can occur on site.

Site Lighting: The Lighting plan will be designed to create well lighted plazas and pedestrian pathways through the site. The visual security of all pedestrian spaces within the site is facilitated by locating retail and other public activities along all edges of the development. The landscape plan will provide adequate lighting to provide a safe environment while conforming to current best practices to mitigate light pollution.

VIEW FROM 5TH STREET

VIEW TOWARD BART STATION

VIEW OF ART ALLEY FROM MAKER SQUARE

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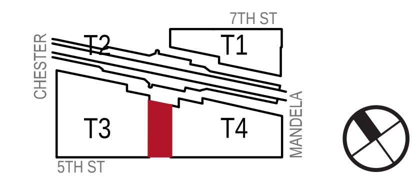

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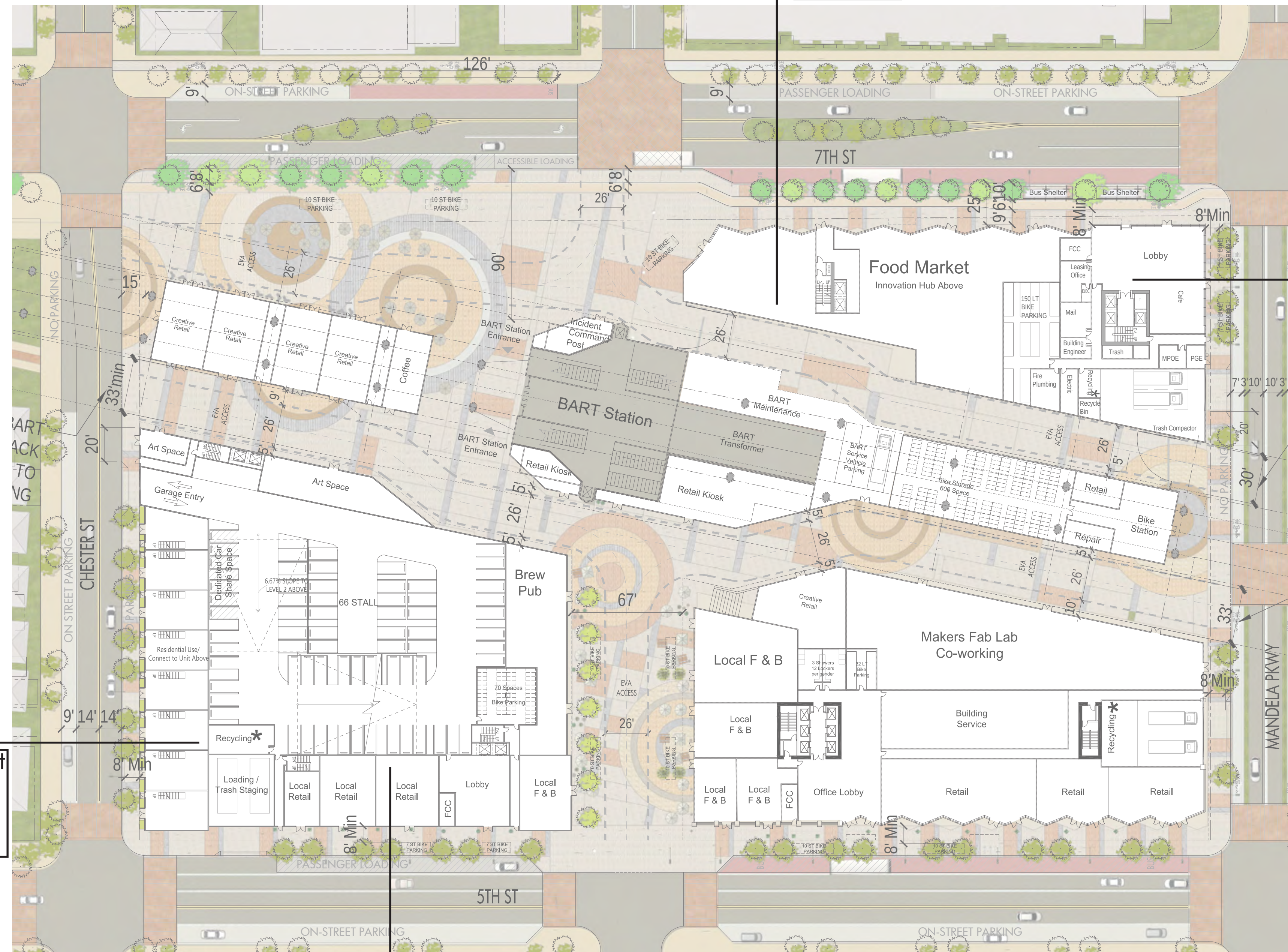
PUBLIC SPACE IMPROVEMENT: MAKER SQUARE

SHEET: A-10.00.3

Sidewalks

7th Street (between Mandela Parkway and Chester Street):
The sidewalk width will be min 8' pedestrian clear zone. in order to accommodate the needs of pedestrians, bus passengers, and curbside passenger loading. The sidewalk will be buffered from adjacent parking and street traffic by a street furnishings zone including pedestrian-scale lighting and street trees and/or other plantings.

5th Street (between Mandela Parkway and Center Street):
The sidewalk width will be min 8' pedestrian clear zone in order to accommodate the needs of pedestrians, bus passengers, and curbside passenger loading.



5th Street (between Center and Chester Street):
Between 5th and 7th Streets, sidewalks adjacent to the project site will be min 8' pedestrian clear zone. The sidewalk will be buffered from adjacent parking and street traffic by a street furnishings zone including pedestrian-scale lighting and street trees and/or other plantings.

Parking and Truck Loading Entrances: For the project will be designed to provide clear sight lines, should include ADA features such as tactile warning strips, and should provide audible warnings for when vehicles cross the pedestrian path of travel.

Wayfinding Signage: Lighting, and installation of other pedestrian amenities (e.g., seating, trash receptacles, trees and other landscaping) will be provided along all public roadways bordering the project site.

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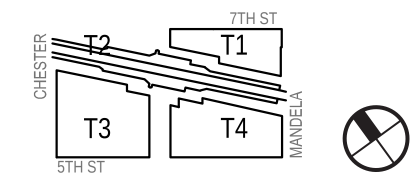

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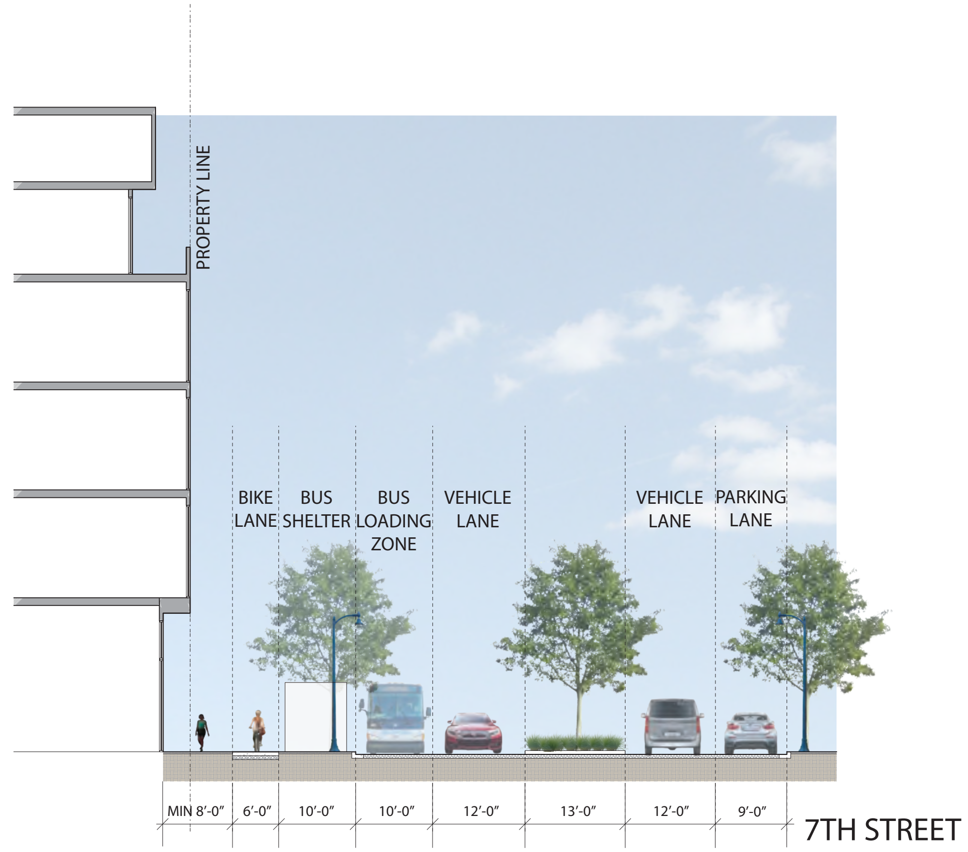
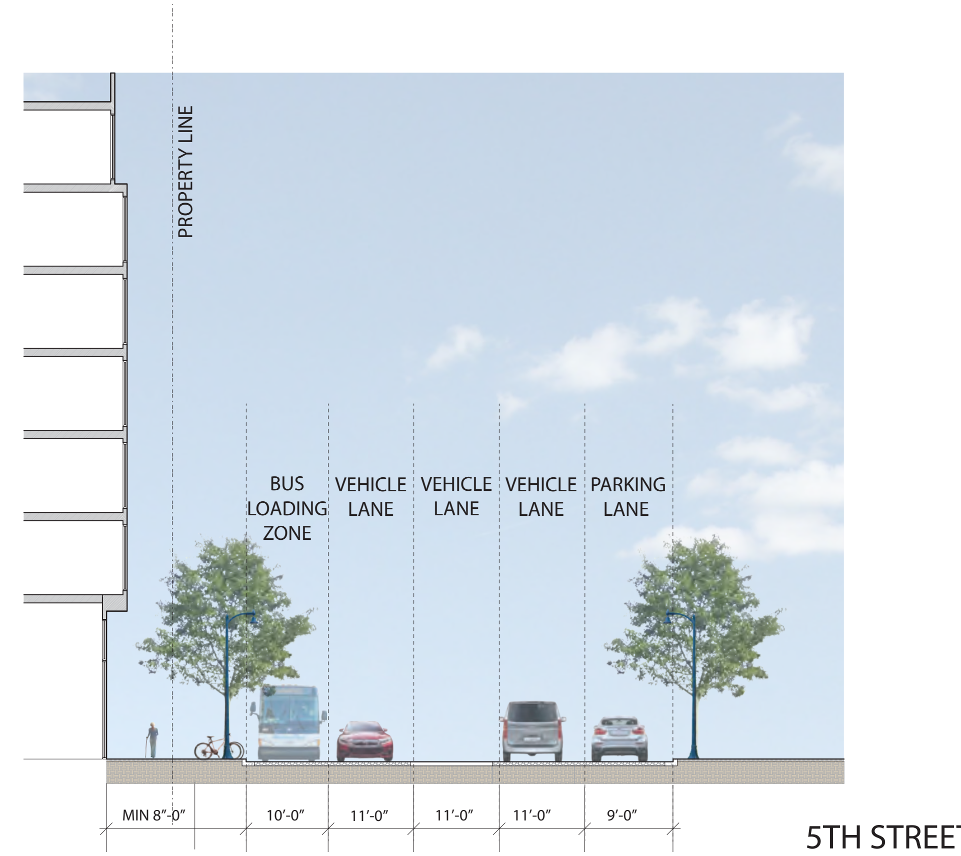
PUBLIC SPACE IMPROVEMENT: SIDEWALKS

SHEET: A-10.00.4

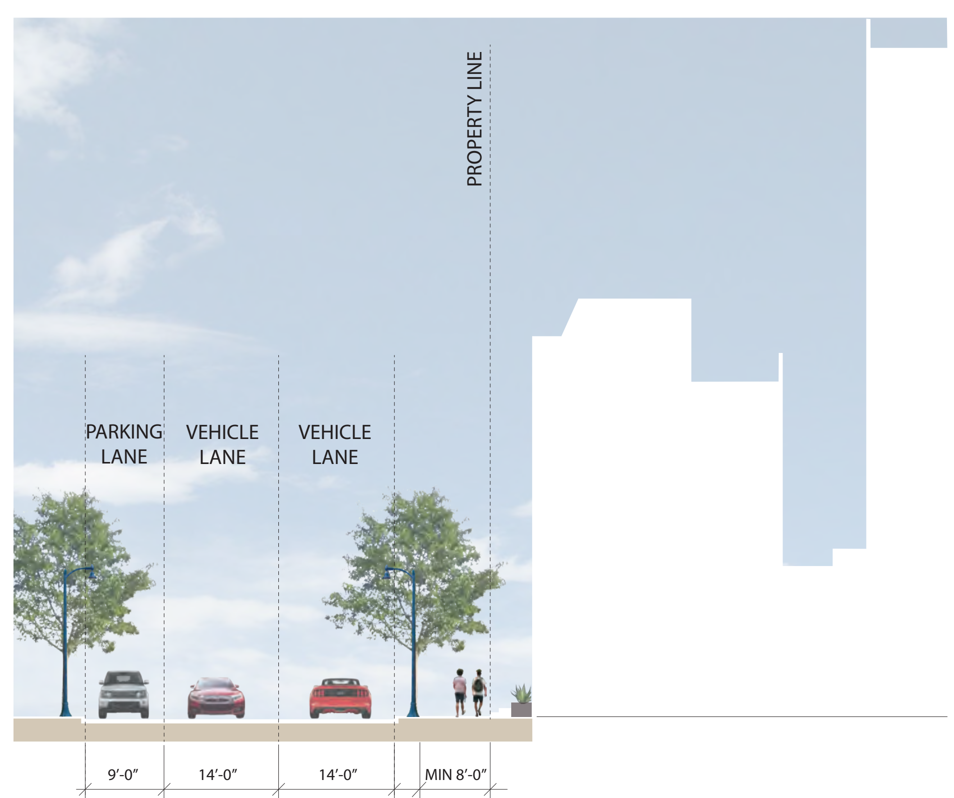
Sidewalk Sections



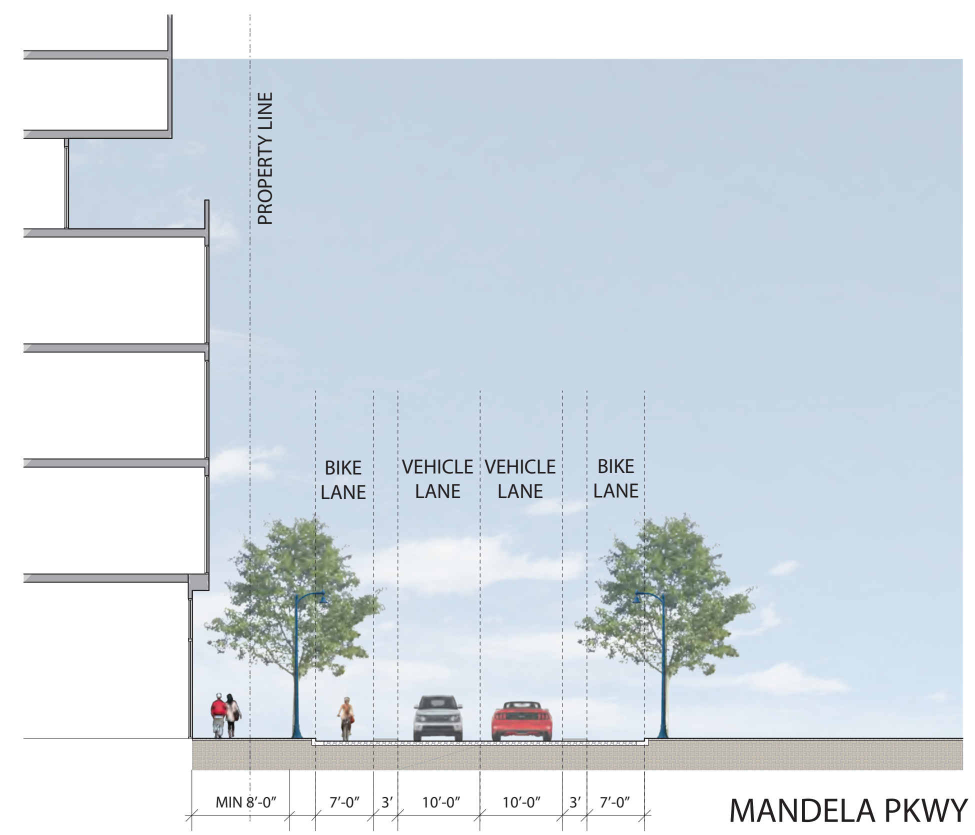
SECTION AT 7TH STREET



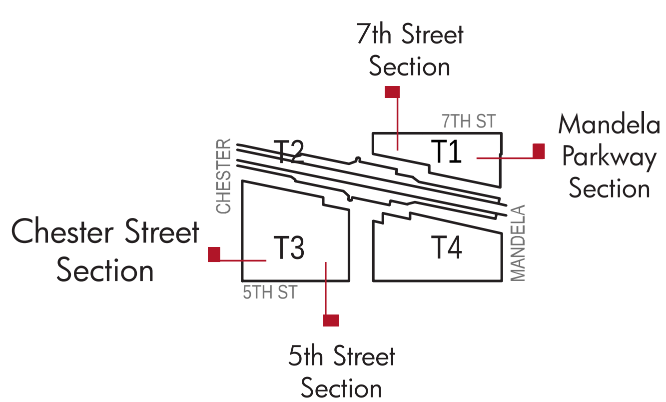
SECTION AT 5TH STREET



SECTION AT CHESTER STREET



SECTION AT MANDELA PARKWAY



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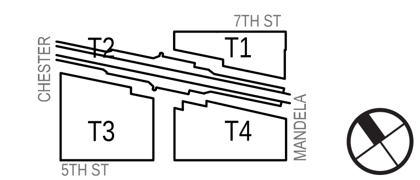

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PUBLIC SPACE IMPROVEMENT: SIDEWALKS

SHEET:
A-10.00.5

Bikeways

Mandela Cycle Tracks:
To facilitate bicycle access from the bicycle lanes on Mandela Parkway south of 7th Street and north of 5th Street, two one-way cycle tracks are recommended along the west and east sides of Mandela Parkway between 7th and 5th Streets.

The recommended width for a one-way cycle track travel surface is 6 feet, and a three-foot buffer from the face of curb to the edge of the cycle track is also recommended. In addition to the cycle track and buffer, sidewalks with a minimum width of eight feet should also be provided.

7th St Cycle Tracks Eastbound:
To facilitate bicycle access in conjunction with passenger loading from vehicles and buses along eastbound 7th Street between Chester Street and Mandela Parkway, a one-way cycle track will be located with a minimum width of 6 feet.

The recommended width for a one-way cycle track travel surface is 6 feet, and an 8-foot buffer and sidewalk from the face of curb to the edge of the cycle track is also recommended.

7th St Cycle Tracks Westbound:
On westbound 7th Street between Mandela Parkway and Chester Street, a one-way cycle track will be located with a minimum width of 6 feet.

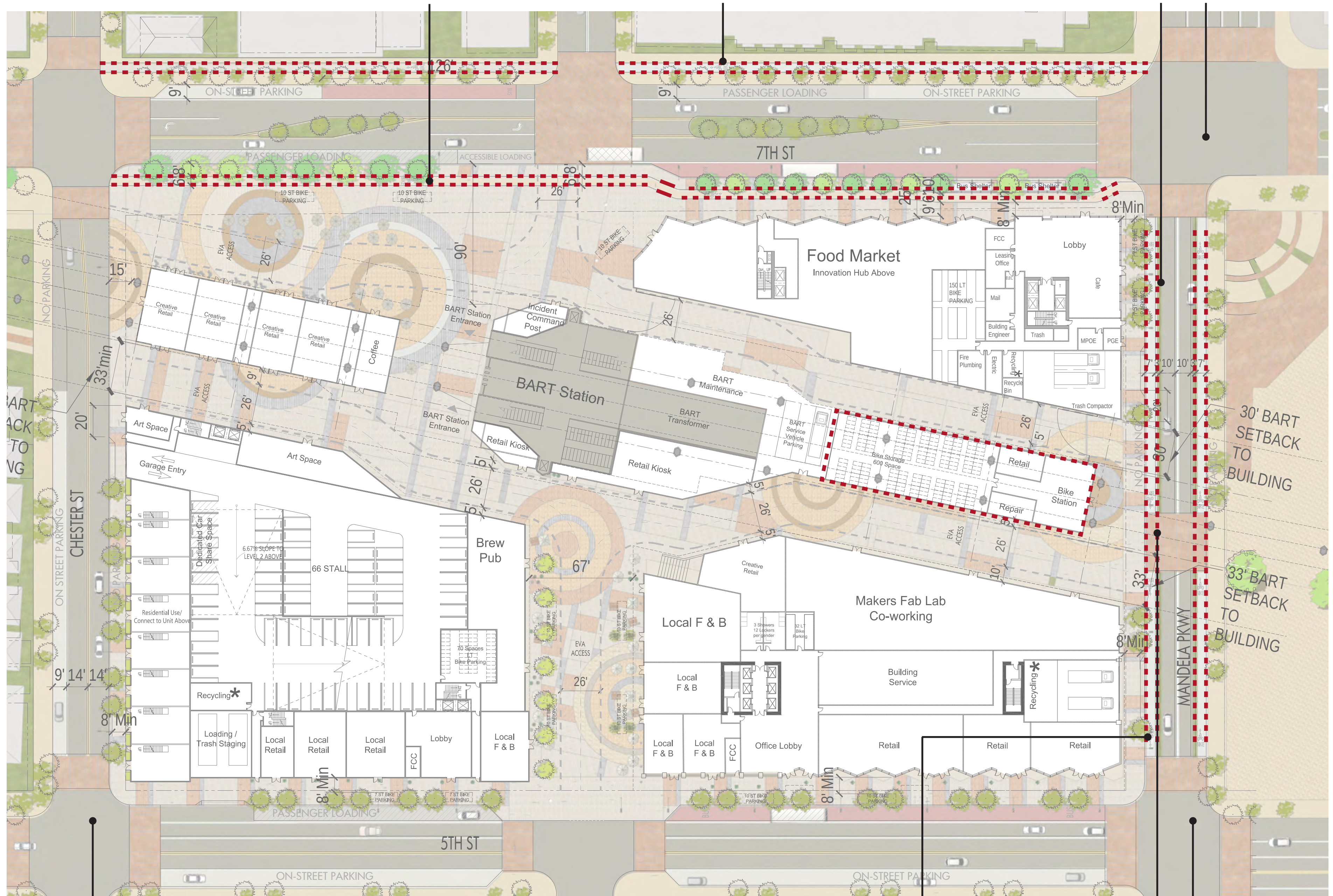
The recommended width for a one-way cycle track travel surface is 6 feet, and an 8-foot buffer and sidewalk from the face of curb to the edge of the cycle track is also recommended.

Install eastbound cycle track at grade with sidewalk on 7th St

Install parking-separated west-bound cycle track on 7th St

Ban through truck traffic on Mandela between 7th & 5th

Install dedicated bicycle signal phase



Install high-visibility crosswalks, directional curb ramps & pedestrian refuges on 5th St

Install 2 one-way cycle tracks on Mandela between 7th & 5th on grade with sidewalk

Install high-visibility mid-block crosswalk

Install dedicated bicycle signal phase

Bike Station:
The project will include an enhanced bicycle station located on the east side of the station structure that provides both valet and 24-hour secure bicycle parking to accommodate a minimum of 500 bicycles. The bike station will also include a retail and repair facility (both self-service and a bike shop).

Additional bicycle parking for BART and commercial patrons will be provided throughout the site in the form of bicycle racks. Bicycle parking for the TOD's commercial and residential tenants will also be provided in accordance with City of Oakland requirements.

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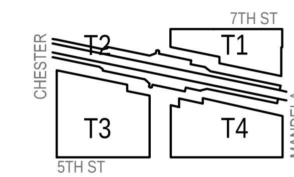

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PUBLIC SPACE IMPROVEMENT: BIKEWAYS

SHEET: A-10.00.6

Crosswalks & Intersections

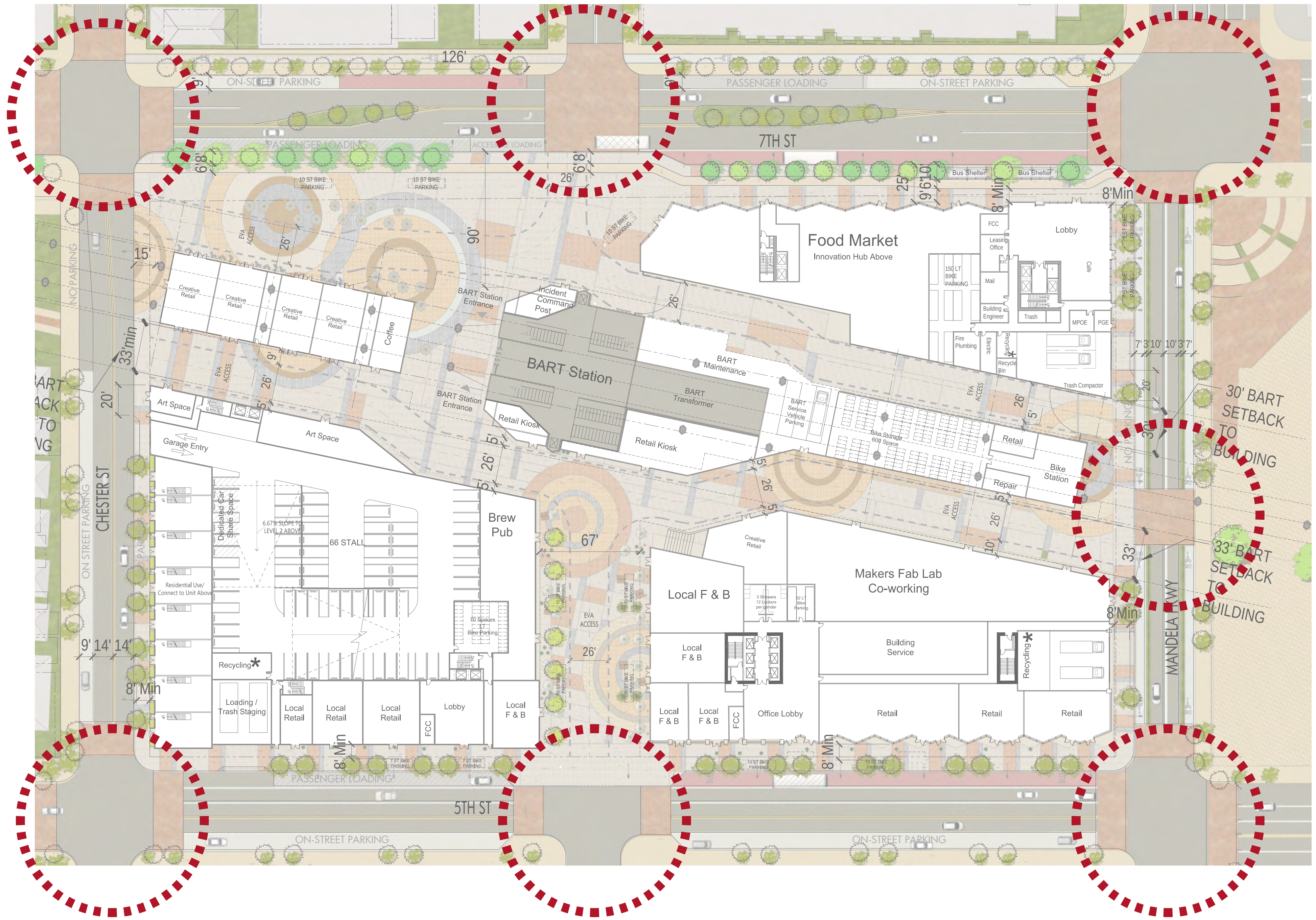
5th Street/Center Street and 5th Street/Chester Street Intersection: High-visibility crosswalks will be installed along with directional, ADA compliant curb ramps, and pedestrian refuges on 5th Street.

Mandela Parkway/7th Street Intersection:
Further design and engineering analyses will be required for this intersection.

Mid-Block Crossing on Mandela: A high-visibility, mid-block pedestrian crossing is recommended on Mandela Parkway between 7th and 5th Streets. The crossing design will need to be coordinated with the design of the two-way cycle track to facilitate safe pedestrian crossing of both the roadway and the cycle track.

Currently, there are a relatively large number of pedestrians crossing Mandela Parkway at this location because it is the most direct path of travel from parking locations east of the station to the station entrance. It is expected that this will continue to be a preferred pedestrian path of travel once the surface parking lots to the east of the station are redeveloped.

Mandela Parkway/5th Street Intersection: Crosswalks at this intersection will be straightened to minimize pedestrian crossing distances and ADA-compliant, directional curb ramps should be installed.



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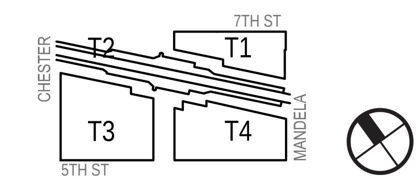

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PUBLIC SPACE IMPROVEMENT: CROSSWALKS & INTERSECTIONS

SHEET:
A-10.00.7

Passenger Loading

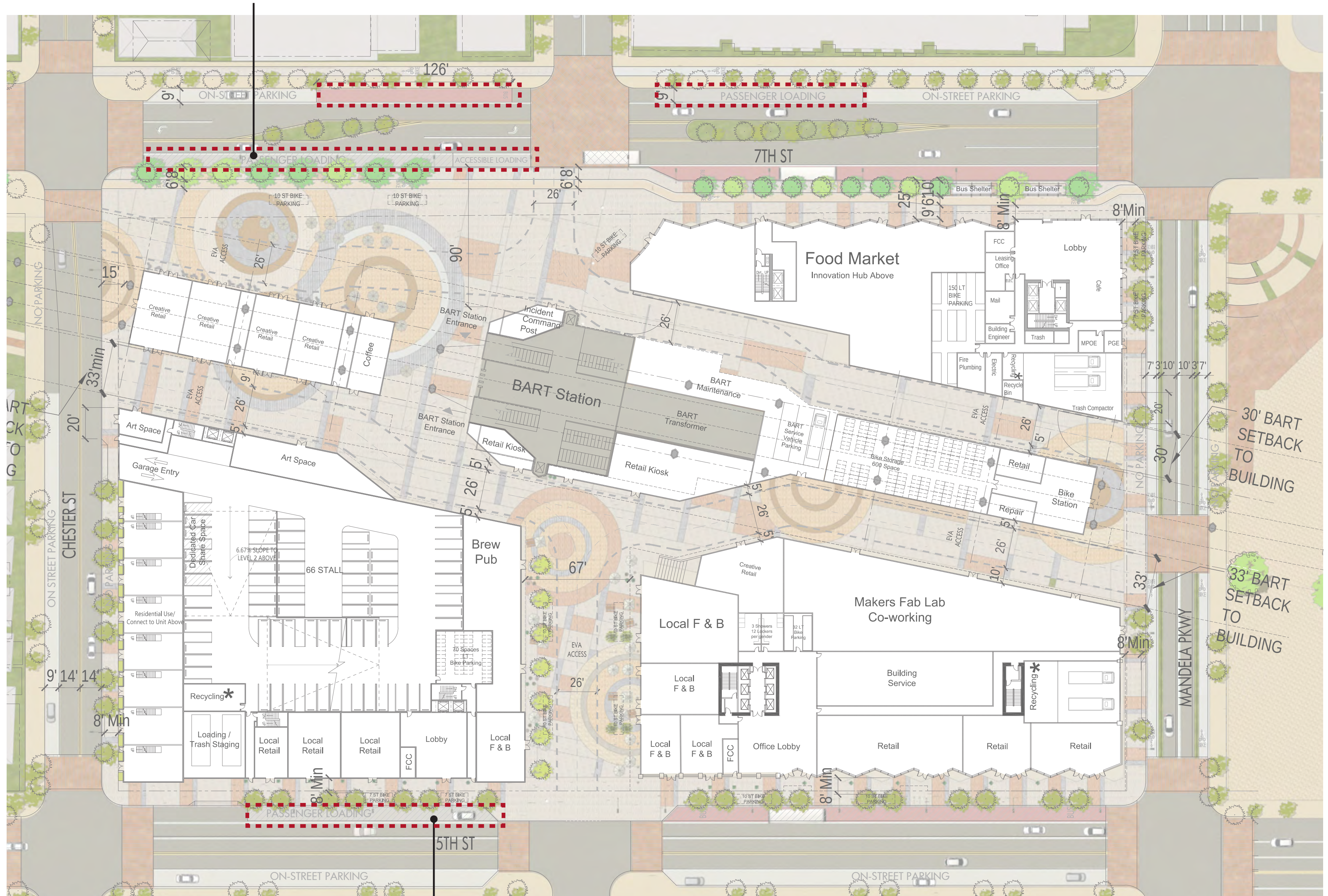
7th Street Passenger Loading:
Will be located on the south side of 7th Street west of Center Street. A portion (at least 50 linear feet) of this loading area closest to the intersection with Center Street should be designated as a loading space for passengers with disabilities. This area provides the most direct access to the station entrance.

5th Street Passenger Loading:
Approximately 130 feet of linear curb is proposed along westbound 5th street on the nearside of the intersection with Center Street, and another 255 feet of linear curb is proposed on eastbound 7th Street on the near side of the intersection with Center Street for passenger loading and unloading.

Differentiated TNC Loading:
Loading zones will be further differentiated between kiss-and-ride and TNC passenger loading with on-the-ground and in-app wayfinding for TNC passengers.

Wayfinding:
Signage directing vehicles to loading zones will be provided at key decision points like the Mandela Parkway and 7th Street intersection and the 5th Street and Kirkham or Union Street intersections. Loading zone locations should also be incorporated into smartphone mapping and TNC apps to facilitate safe and efficient circulation and access.

Install curbside passenger loading for BART pick-up/ drop-off (~255' of curb length)



Install curbside passenger loading for BART pick-up/ drop-off (~130' of curb length)

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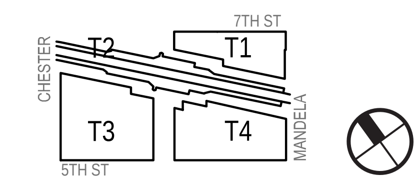

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PUBLIC SPACE IMPROVEMENT: PASSENGER LOADING

SHEET: A-10.00.8

Bus Stops

7th Street Eastbound:
The existing bus stop on eastbound 7th Street will be retained and extended to the intersection with Center Street for an approximate total length of 270 linear feet. This stop would serve AC Transit Lines 29, 36, and 62 and would serve as both a stop and layover space for AC Transit Line 14. If Emery-Go-Round service is extended to the West Oakland Station, this stop could serve Emery-Go-Round vehicles as well.

7th Street Westbound: A new bus stop will be installed on westbound 7th Street to serve AC Transit Line 29 and Emery-Go-Round, if the service is extended to the West Oakland Station. A minimum of 126 feet of linear curb is needed at this location to accommodate transit vehicles, as well as a concrete bus pad in the roadway. If a bus stop is installed at this location, AC Transit has requested that a barrier be placed in the median of 7th Street to prevent illegal mid-block pedestrian crossings between the bus stop and the BART station.

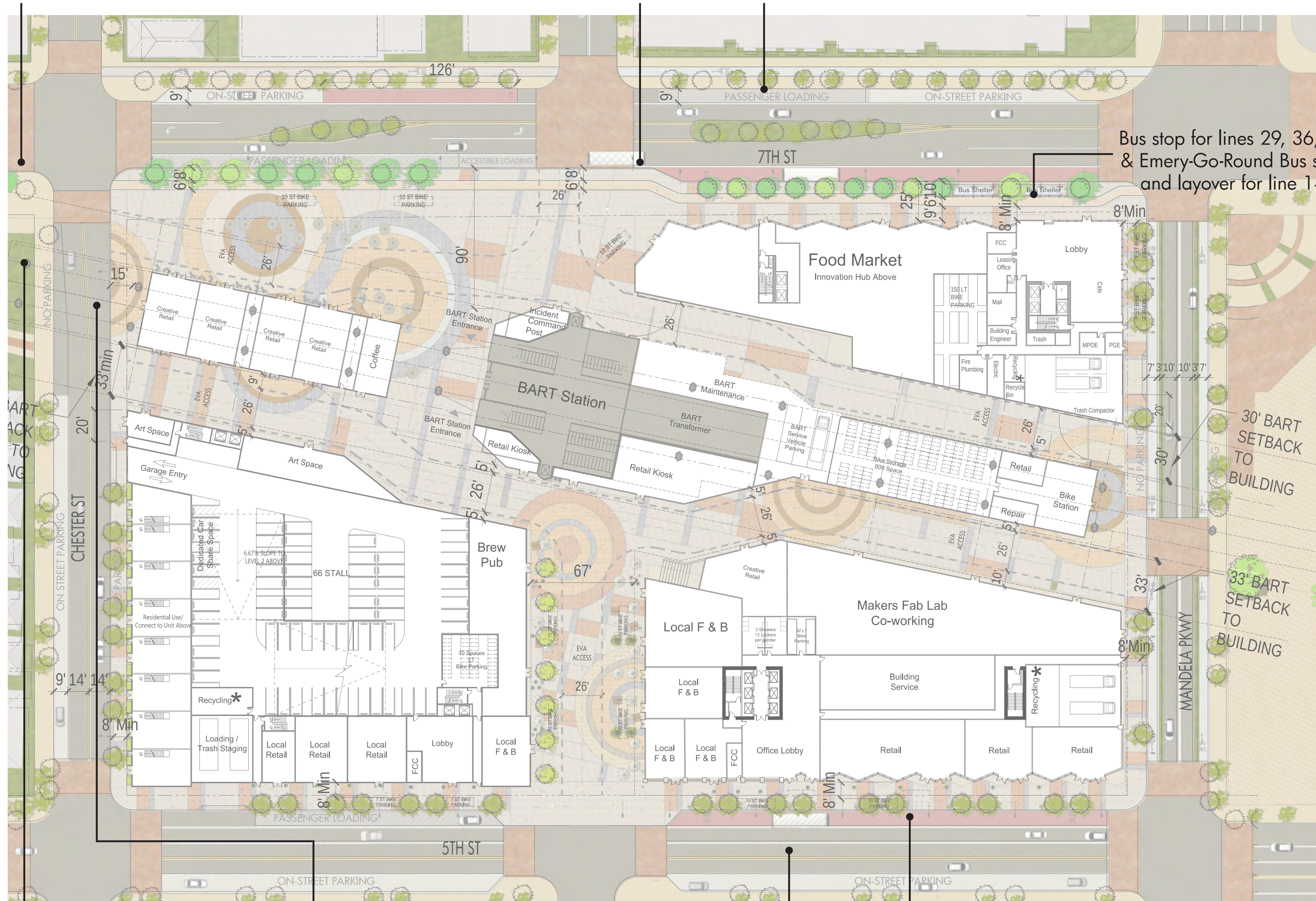
5th Street Westbound: The bus stop and layover for lines 36 and 62 will be relocated to westbound 5th Street on the far side of the intersection with Mandela Parkway. At least 170 feet of curb length will be provided to accommodate the bus stops and layovers, and a concrete bus pad would need to be installed in the roadway.

Install bus stop for intercity coaches (Bolt, Megabus)

Start sidwalk taper immediately after cross-walk to better accomodate bus acess

Install bus stop for line 29 and Emery-Go-Round (at least 126' of curb length needed)

Bus stop for lines 29, 36, 62 & Emery-Go-Round Bus stop and layover for line 14



Potential layover space for lines 36 & 62, requires further evaluation

Redesign Chester St cross-section to facilitate buses turning right

Install median barrier to prevent jaywalking to/from bus stop

Bus stop and layover for lines 62 & 36 (~170' of curb length)

Intercity & Private Bus Stops: A bus stop for intercity coaches (e.g., Megabus and Bolt) could be installed on 7th Street between Henry and Chester Streets. Private employer shuttle could also utilize this stop. The existing BART surface parking immediately adjacent to this curb could be utilized for bus and shuttle transit passenger pick-up and drop-off (if not utilized as a layover space for AC Transit buses).

Passenger Amenities:
All bus stops should provide a high level of passenger amenities, including shelters with seating, maps and other information, and real-time bus arrival information; trash receptacles; and lighting.

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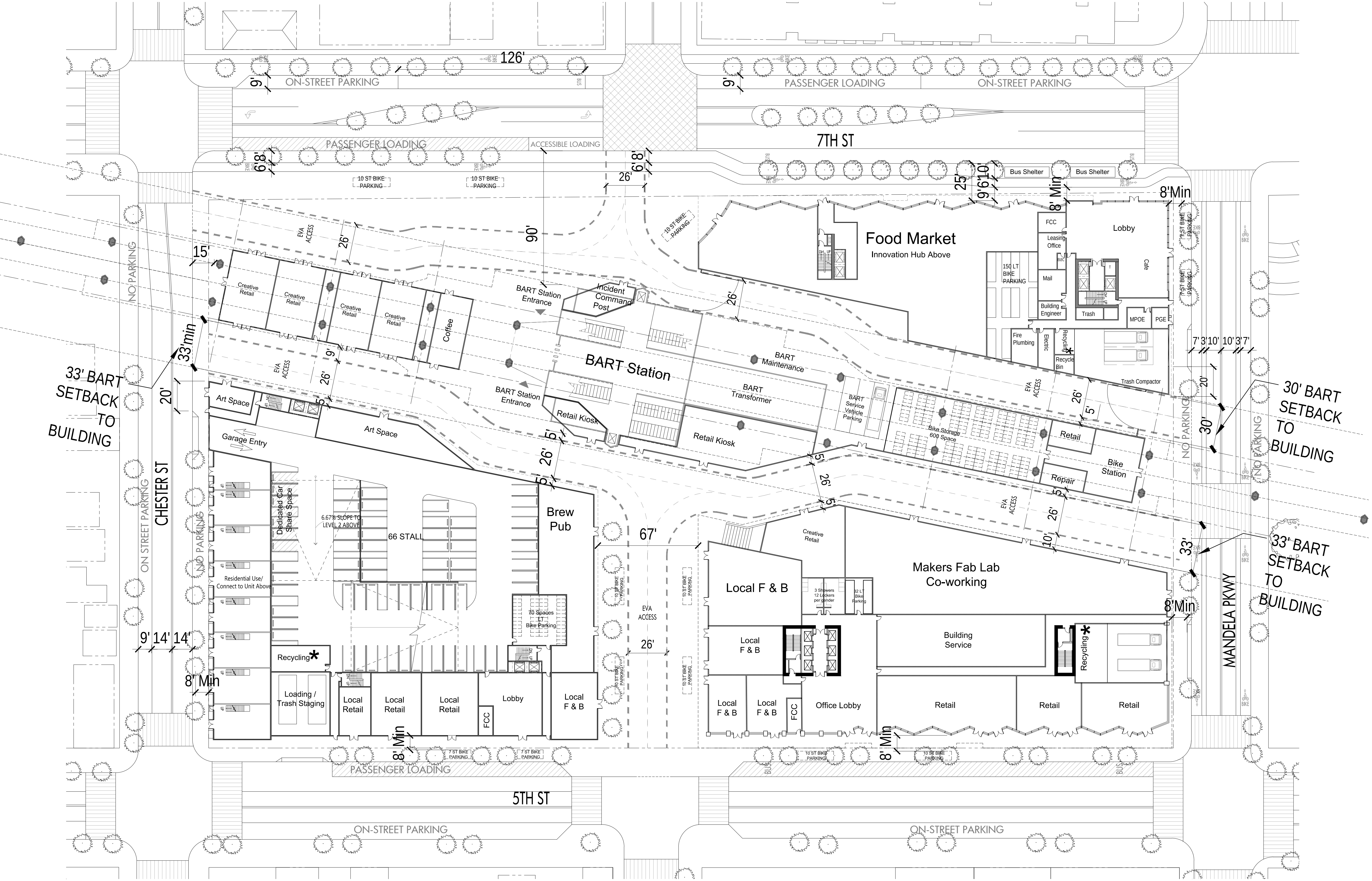
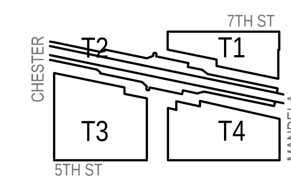
PUBLIC SPACE IMPROVEMENT: BUS STOPS

SHEET: A-10.00.9





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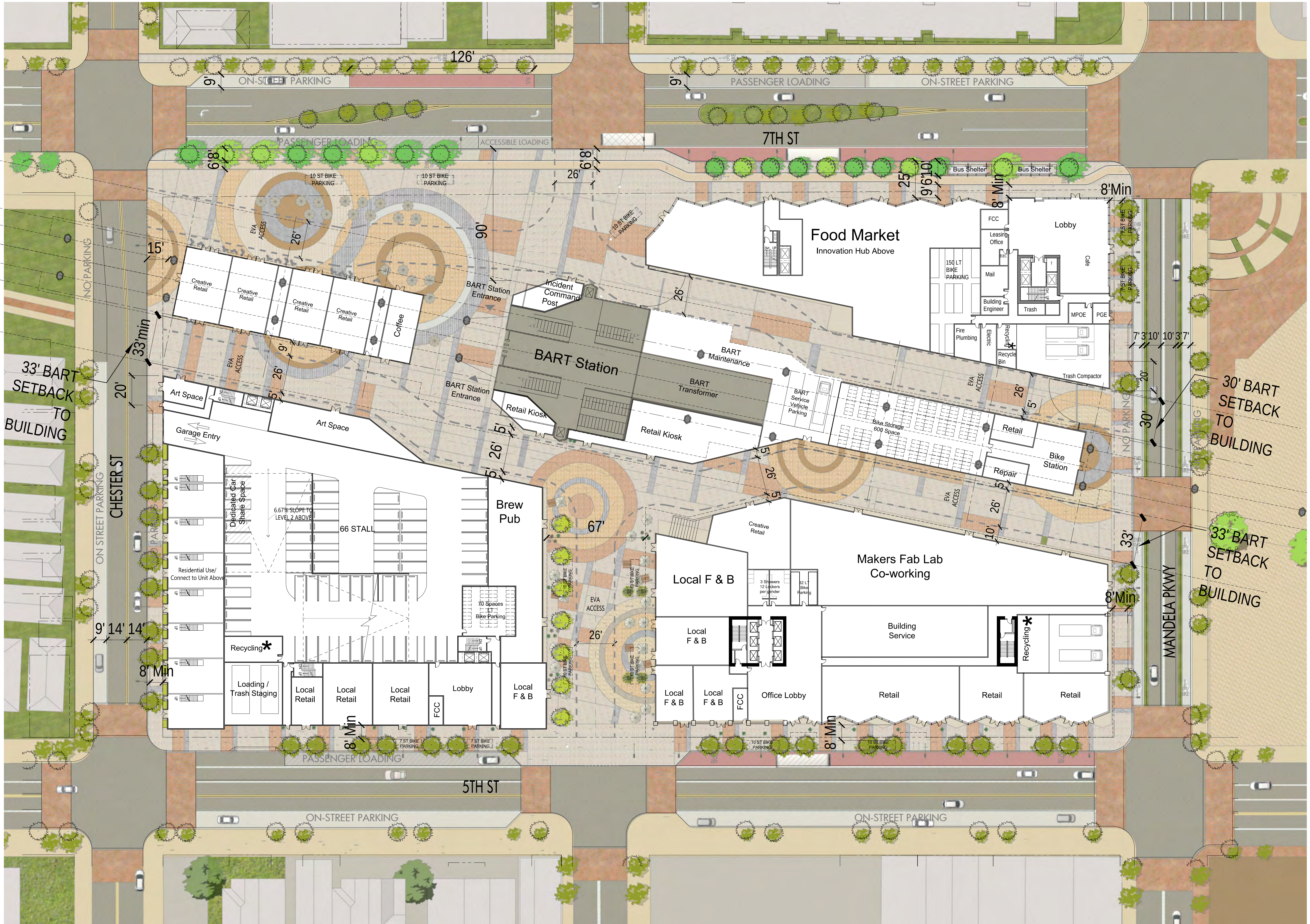
SITE PLAN

SHEET: A-10.01



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SITE PLAN

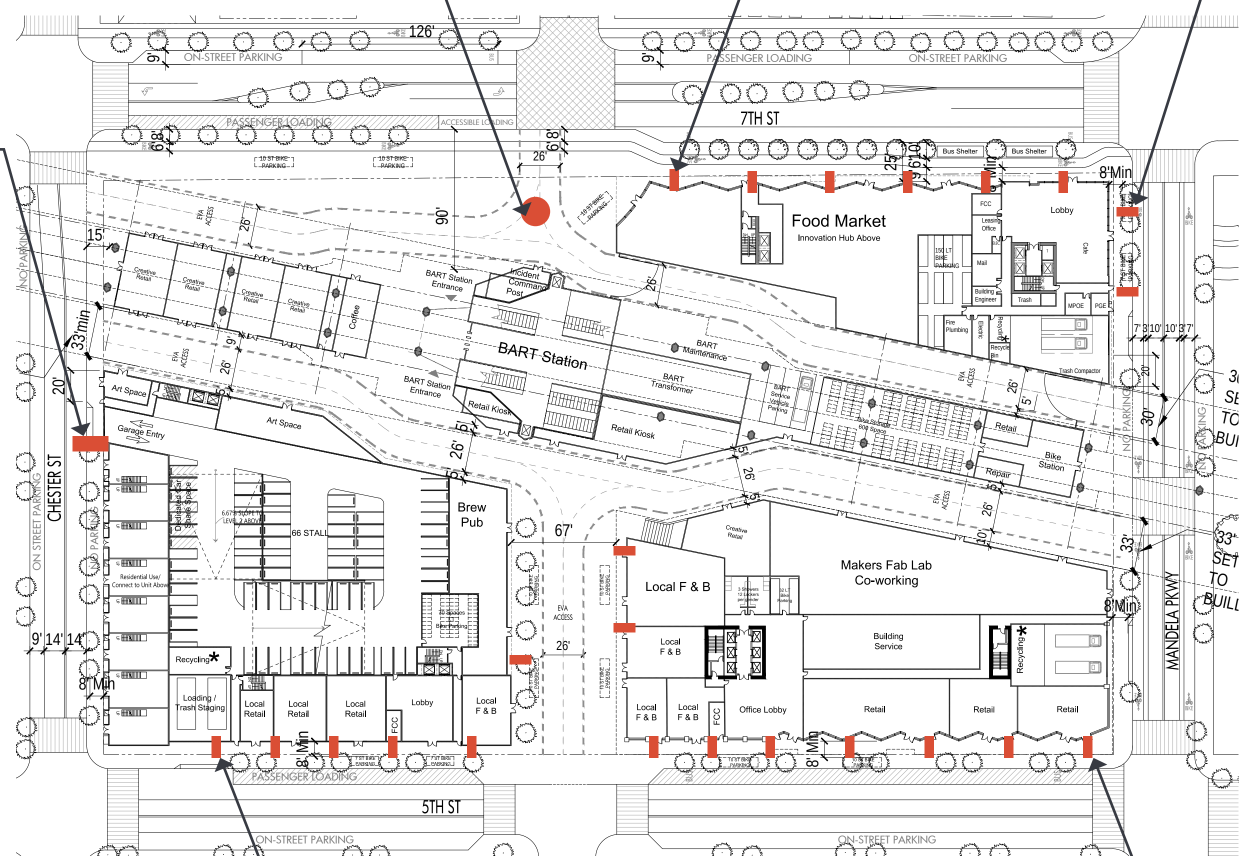
SHEET: A-10.01

PYLON WITH BART SINAGE

COMERCIAL BLADE SIGN

COMERCIAL BLADE SIGN

GARAGE ENTRANCE SIGN



COMERCIAL BLADE SIGN

COMERCIAL BLADE SIGN

PYLON WITH BART SIGNAGE

CORPORATE SIGN

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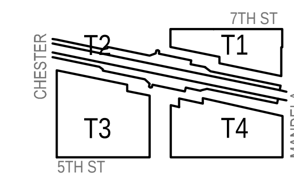

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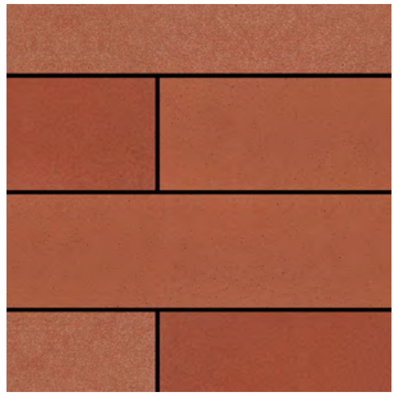
SIGN PLAN

SHEET:

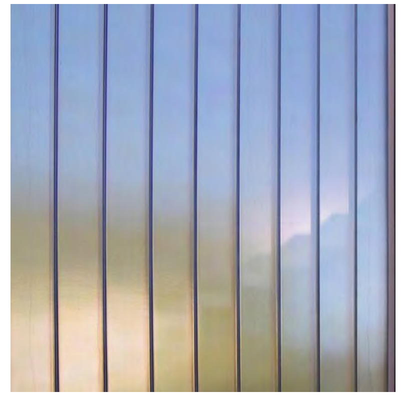
A-10.02

T1 RESIDENTIAL TOWER



PODIUM
CONC. PRE-CAST W/ INTEGRATED COLOR & TEXTURE

CURTAIN WALL
HIGH SOLAR PERFORMANCE WINDOW SYSTEM



CHANNEL GLASS SCREEN
HIGH PERFORMANCE CHANNEL GLASS

PANEL SYSTEM
PRE-CAST FIBER CEMENT PANEL

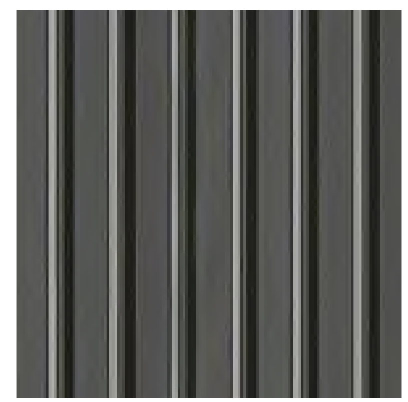
PANEL SYSTEM
HIGH SOLAR PERFORMANCE GLASS - OPERABLE

T3 RESIDENTIAL MID-RISE

CONC. PRE-CAST W/ INTEGRATED COLOR & TEXTURE

CONC. PRE-CAST W/ INTEGRATED COLOR & TEXTURE

GLAZING
HIGH SOLAR PERFORMANCE WINDOW SYSTEM



PANEL SYSTEM
CORRUGATED METAL

T4 OFFICE BUILDING

PODIUM
CONC. PRE-CAST W/ INTEGRATED COLOR & TEXTURE

PODIUM
CONC. PRE-CAST W/ INTEGRATED COLOR & TEXTURE

CURTAIN WALL
HIGH SOLAR PERFORMANCE WINDOW SYSTEM

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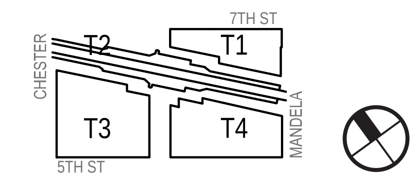

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PROJ. # 168-153 WO BART
DATE: January 18, 2019

MATERIAL BOARD

SHEET: A-10.03

CURTAIN WALL
HIGH SOLAR PERFORMANCE WINDOW SYSTEM

PANEL SYSTEM
PRE-CAST FIBER CEMENT PANEL

CHEC
suda
HENSEL PHELPS

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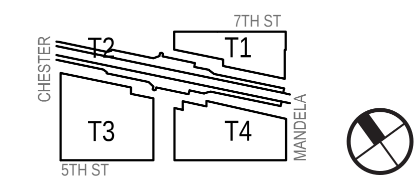

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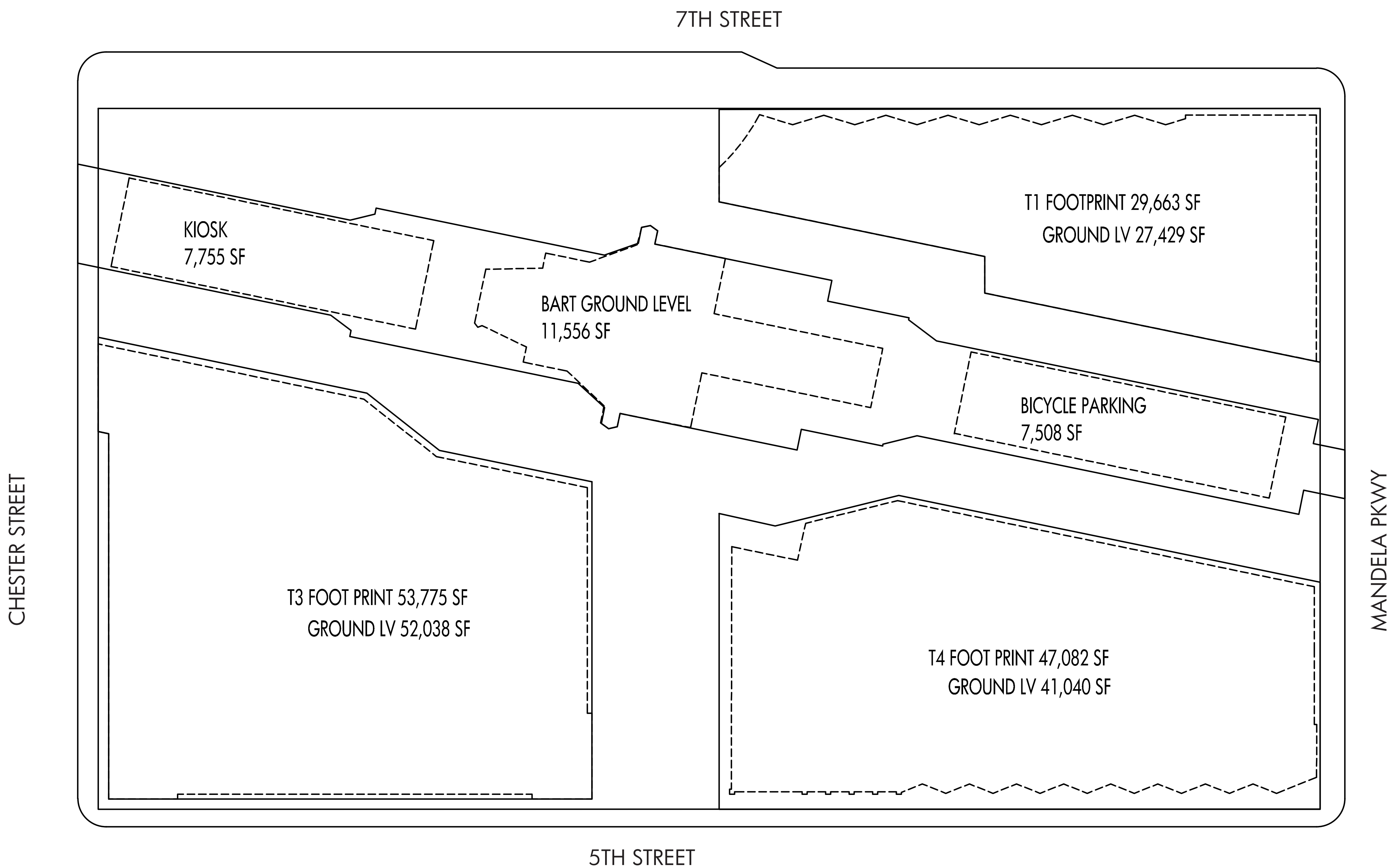
PROJ. # 168-153 WO BART
DATE: January 18, 2019

MATERIAL BOARD

SHEET: A-10.04



SITE AREA 273,756 SF
PROPERTY 243,132 SF

BART GROUND LEVEL 11,556 SF
BART FOOTPRINT 42,865 SF

TOTAL BUILDING FOOTPRINT 146,955 SF
OPEN SPACE 85,793 SF

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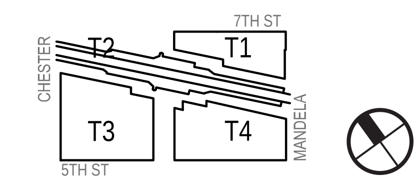

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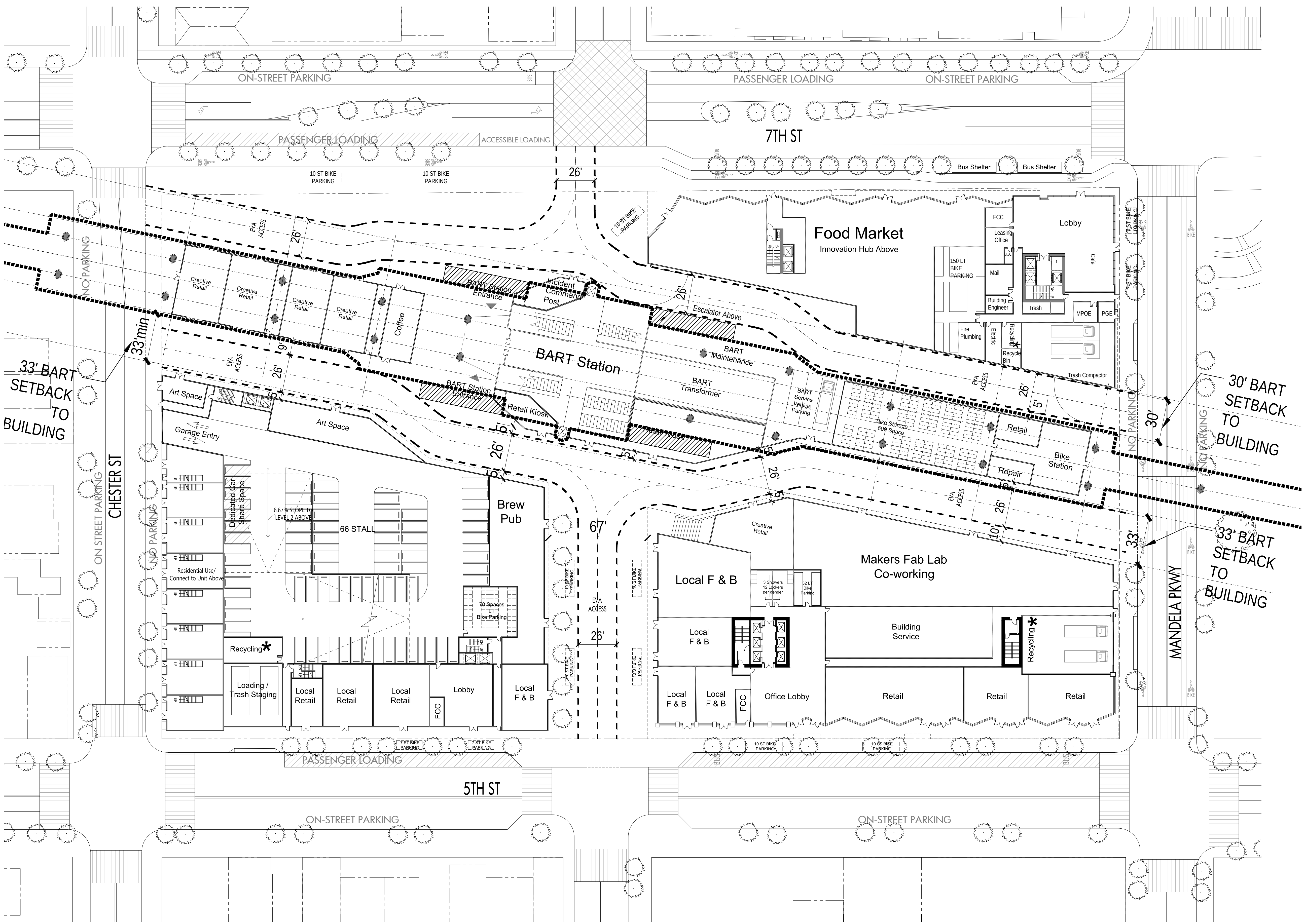
FOOTPRINT AREA

SHEET: A-10.05



EMERGENCY VEHICLE ACCESS
1/32" = 1' - 0"

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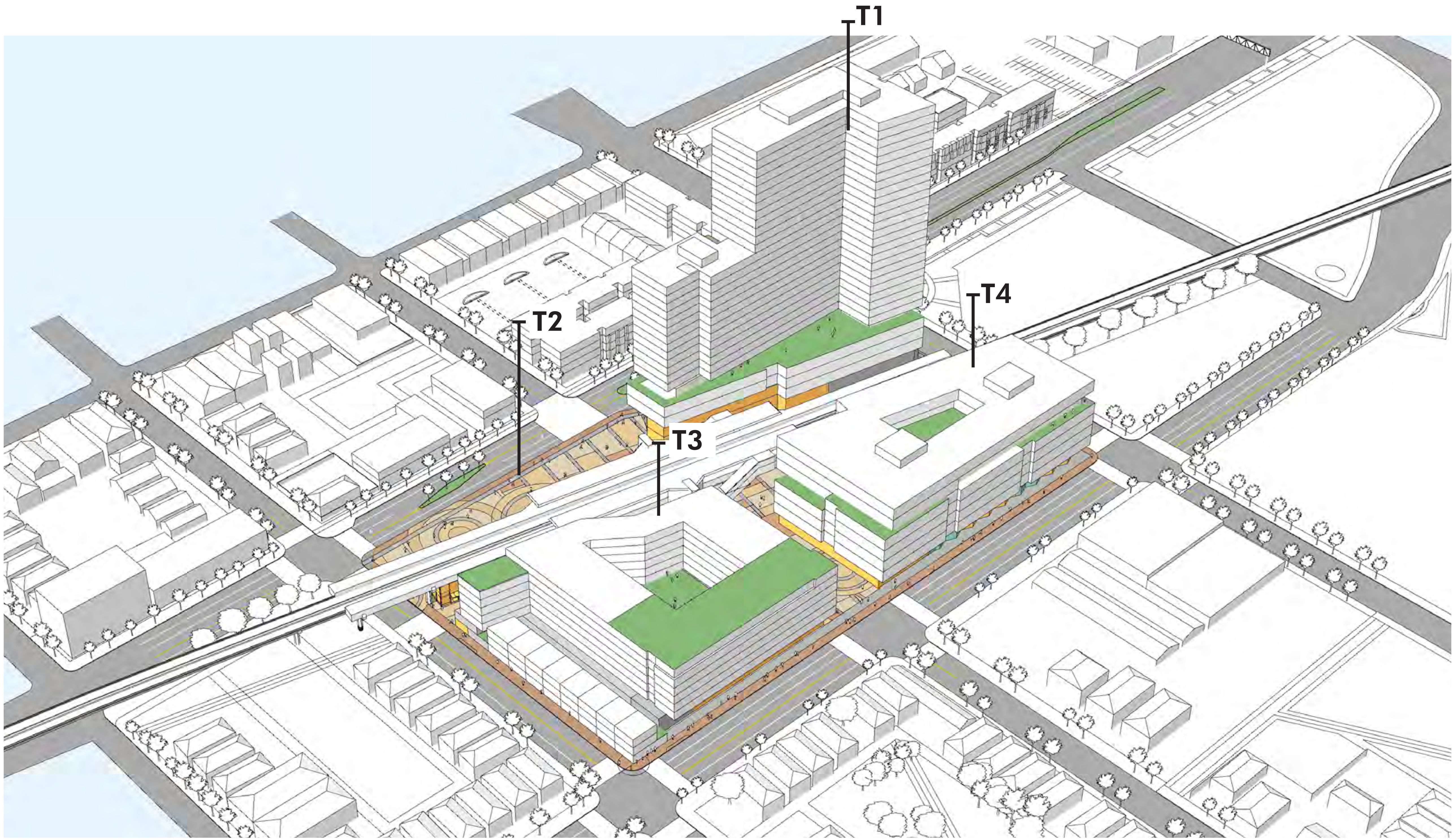
EMERGENCY VEHICAL ACCESS

SHEET: A-10.06



HENSEL PHELPS

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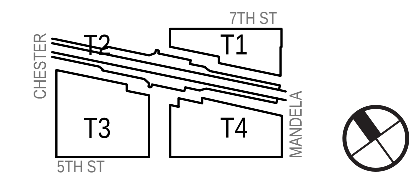

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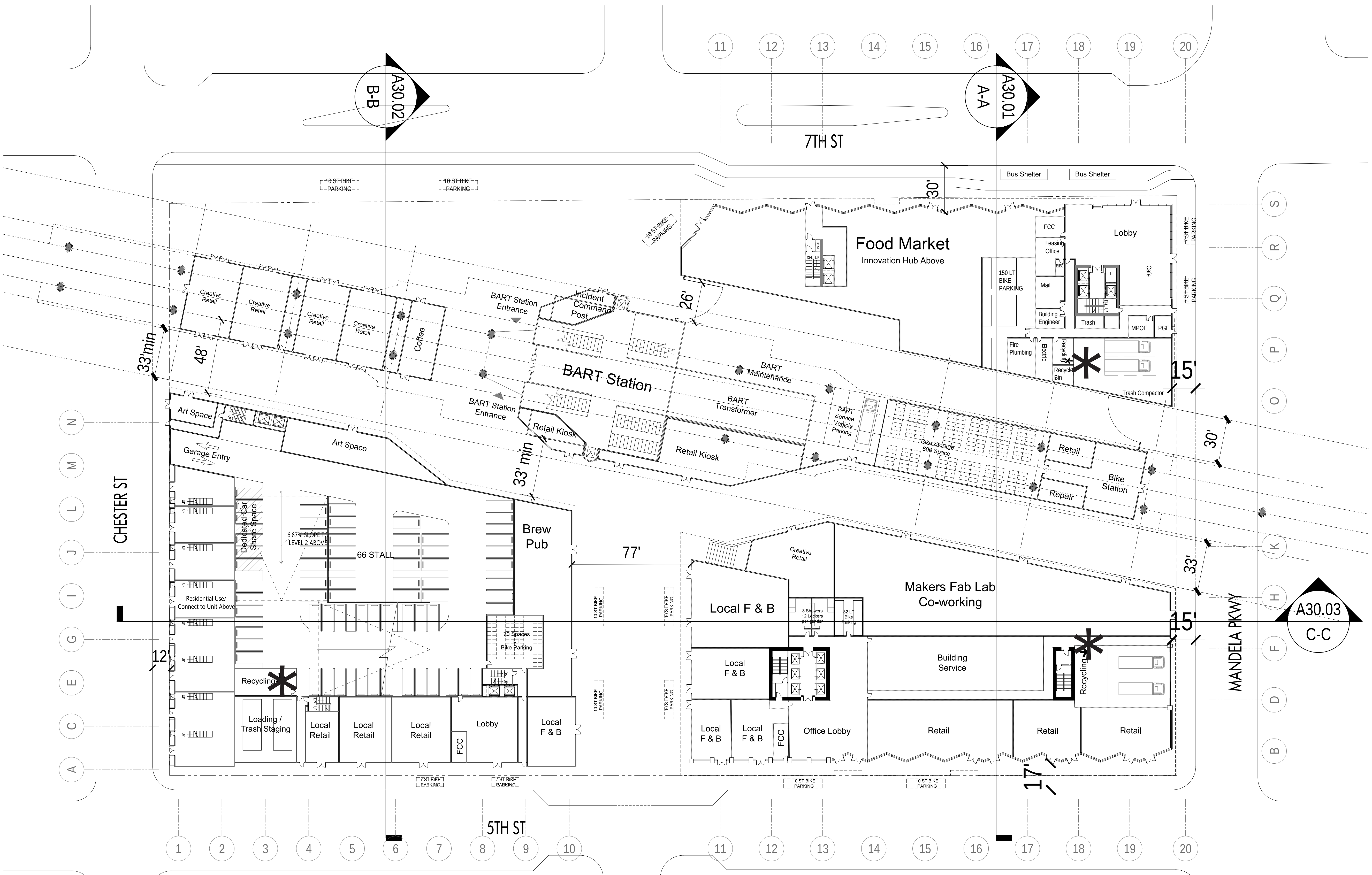
DATE: January 18, 2019

MASSING DIAGRAM

SHEET: A-10.07



* The recycling space on T1 site is 1,207 cubic feet, on T3 site is 548 cubic feet, and on T4 site is 654 cubic feet. The total recycling space on site is 2,409 cubic feet.

1 GROUND FLOOR PLAN
1/32" = 1' - 0"

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7TH ST
T1
T2
T3
T4
CHESTER
MANDELA
5TH ST

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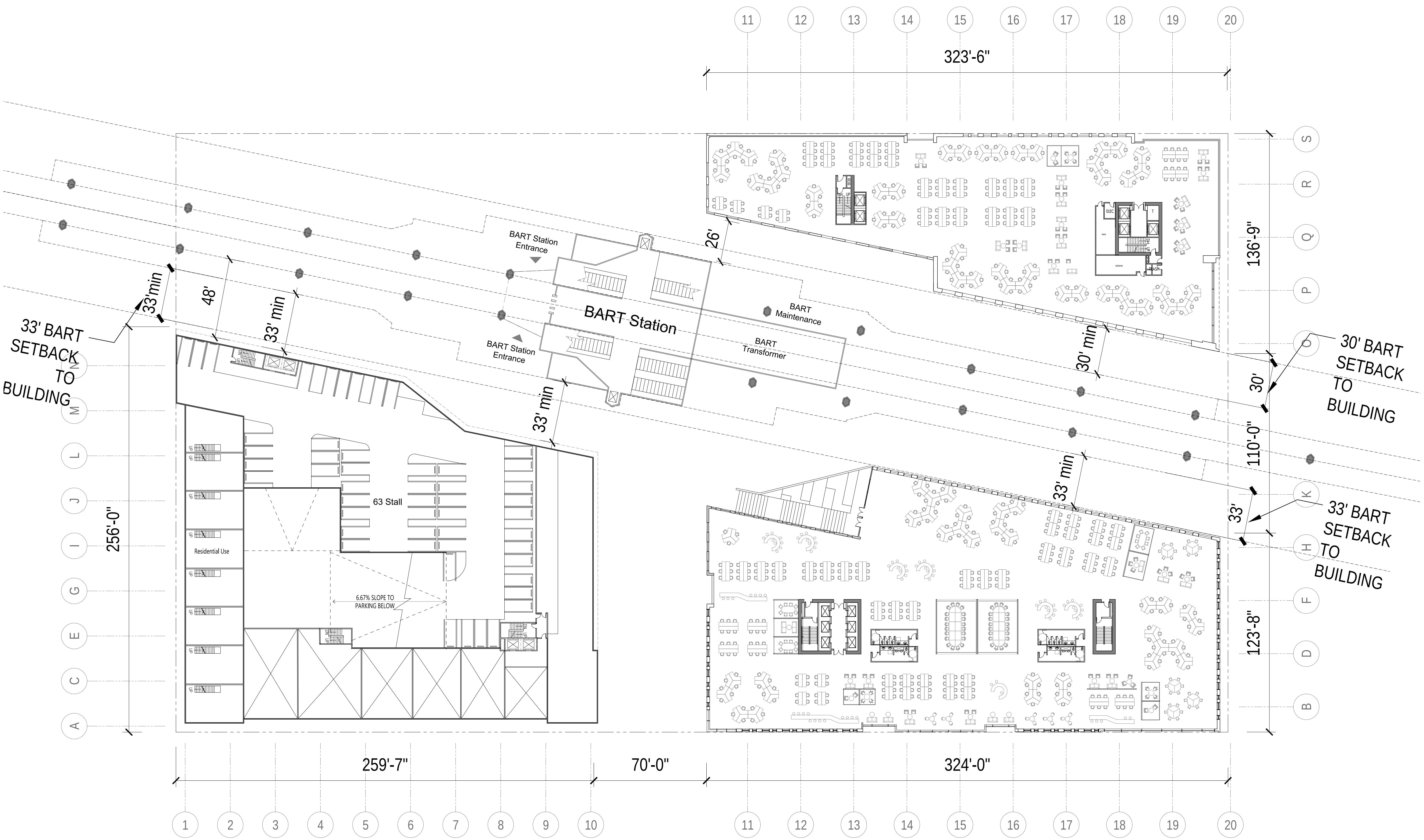
DATE: January 18, 2019

GROUND FLOOR PLAN

SHEET:
A-11.01



1 2ND FLOOR PLAN
1/32" = 1' - 0"

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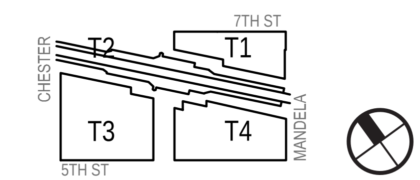

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2ND FLOOR PLAN

SHEET: A-11.02

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7TH ST
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T1 T2 T3 T4
5TH ST
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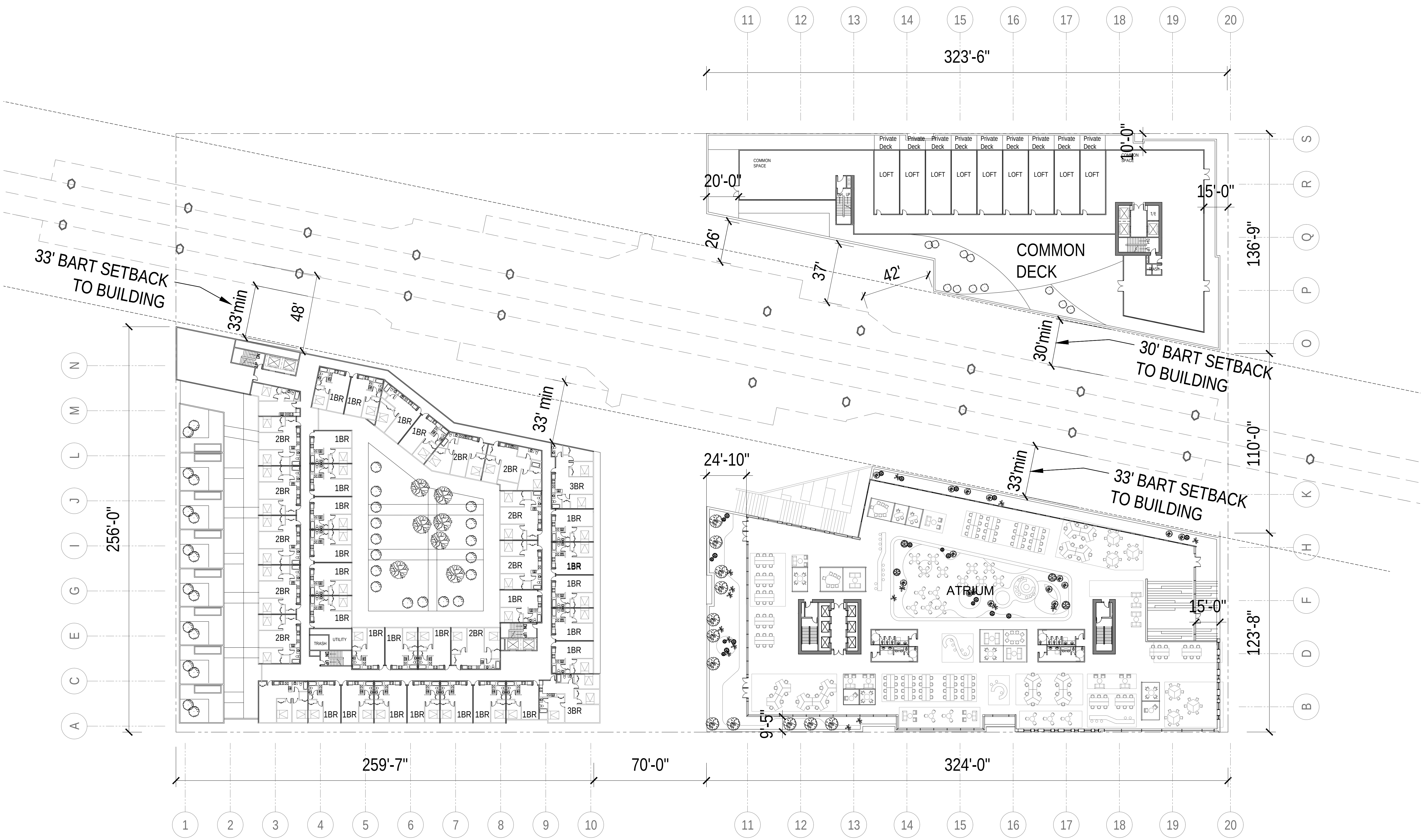
3-4TH FLOOR PLAN

SHEET: A-11.03



1 5TH FLOOR PLAN
1/32" = 1' - 0"

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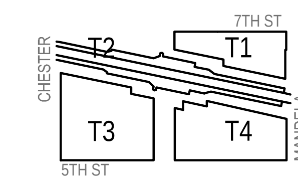

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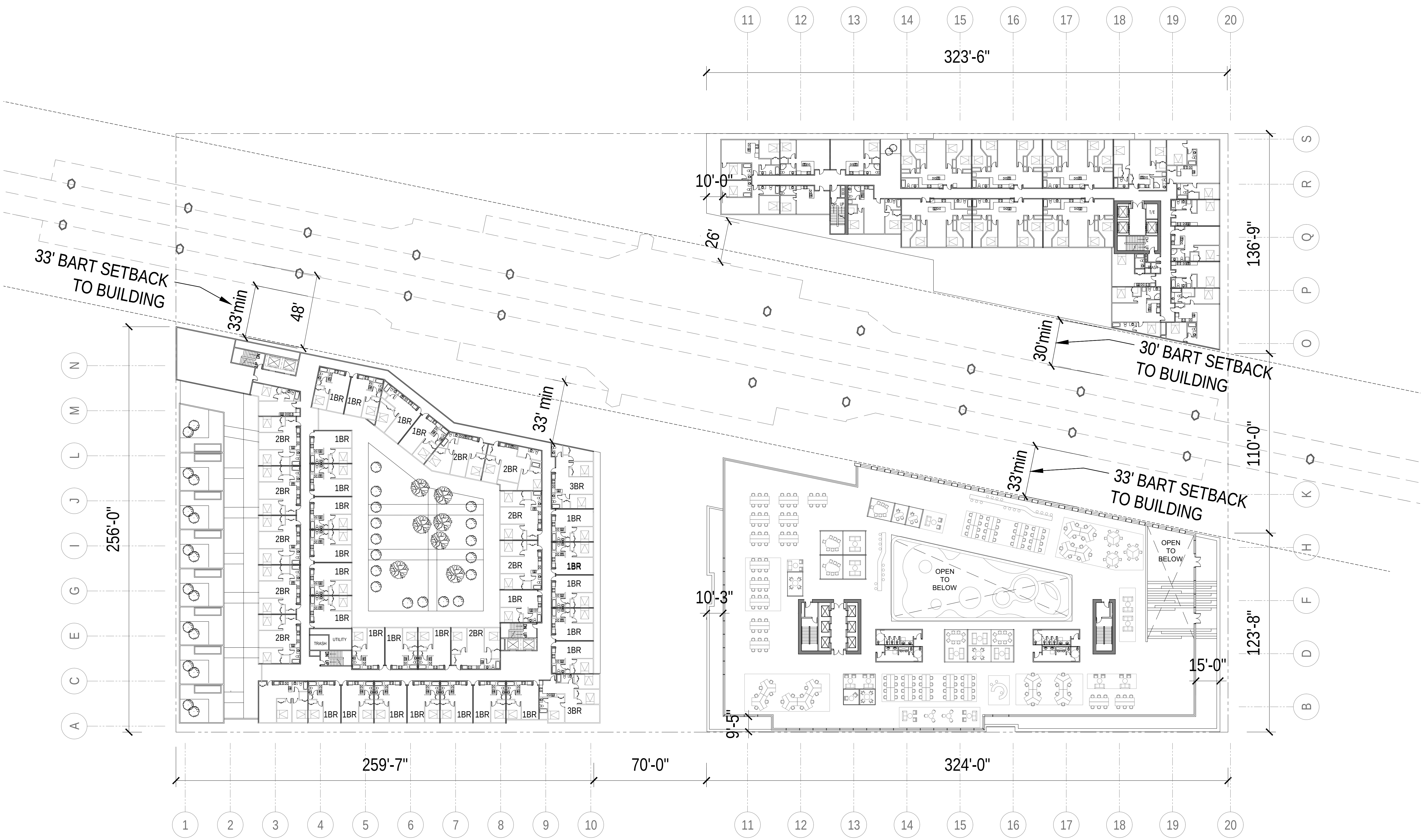
5TH FLOOR PLAN

SHEET: A-11.04



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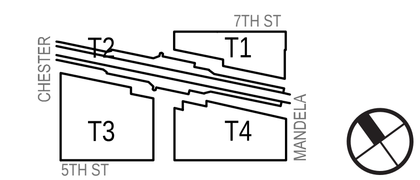

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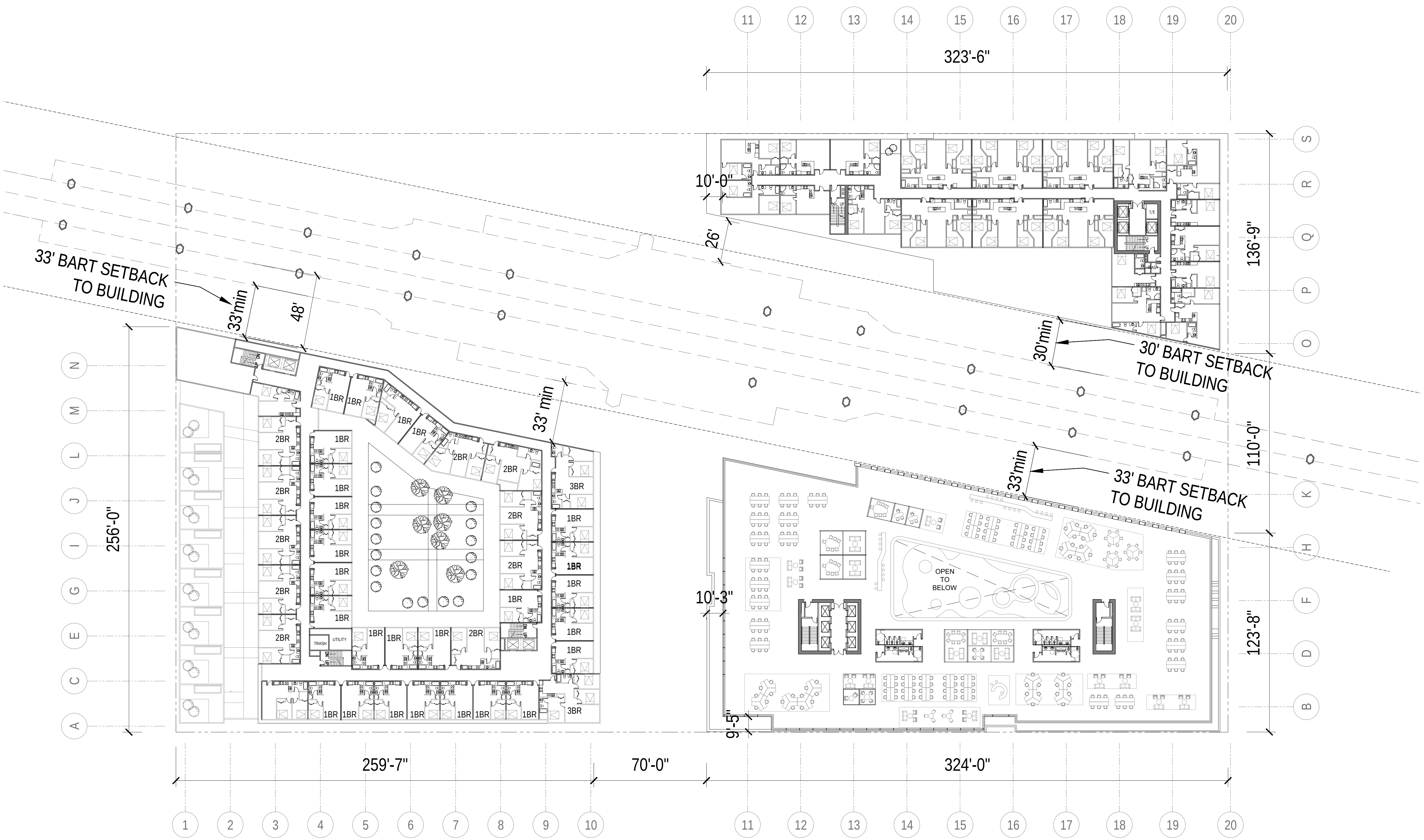
DATE: January 18, 2019

6TH FLOOR PLAN

SHEET: A-11.05

1 6TH FLOOR PLAN
1/32" = 1' - 0"



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7TH ST
T1
T2
T3
T4
CHESTER
MANDELA
5TH ST

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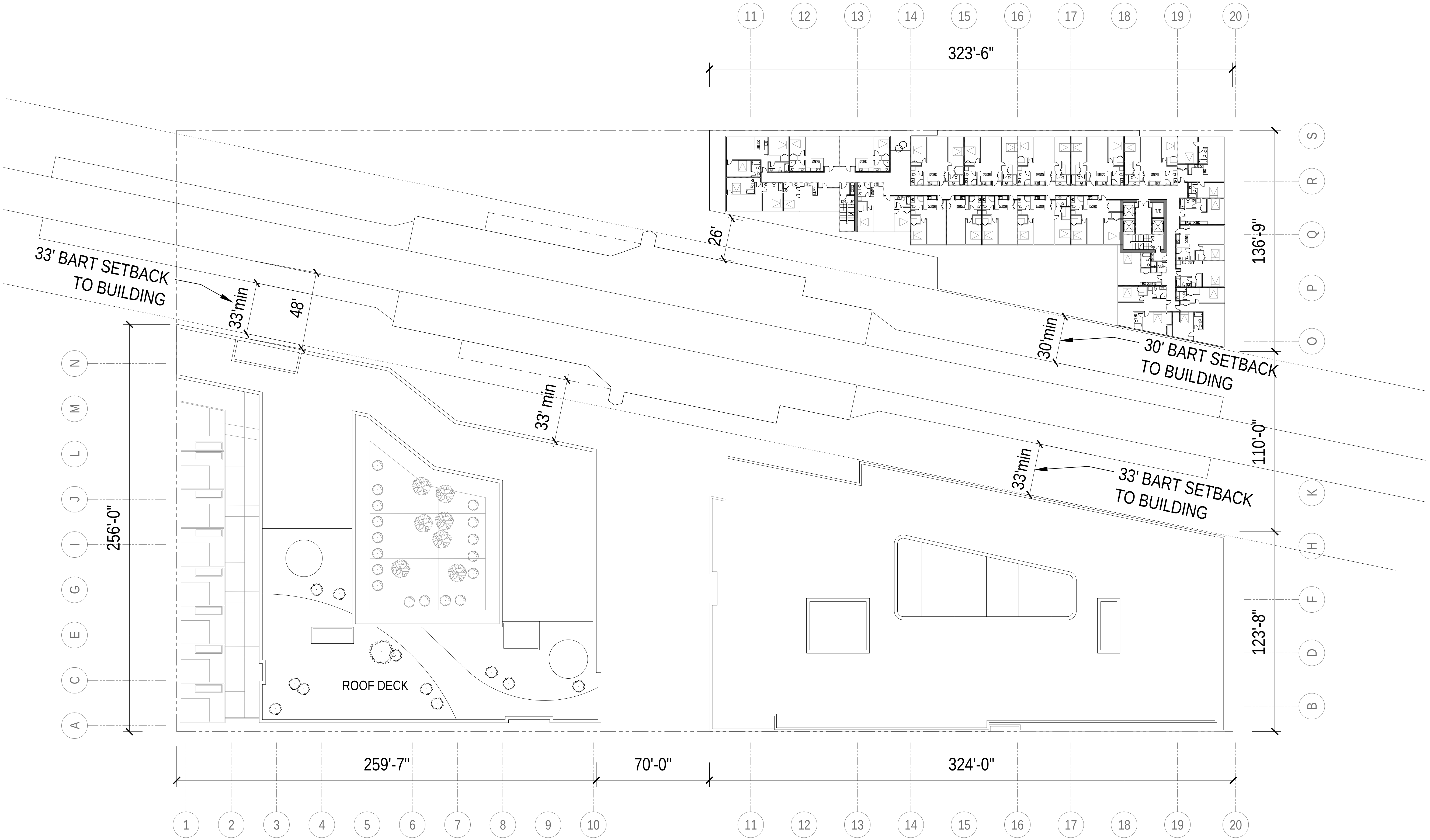
7TH FLOOR PLAN

SHEET: A-11.06

1 7TH FLOOR PLAN
1/32" = 1' - 0"



1 8-18TH FLOOR PLAN
1/32" = 1' - 0"

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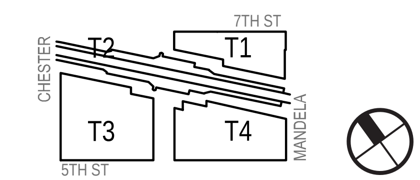

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8-18TH FLOOR PLAN

SHEET: A-11.07

CHEC

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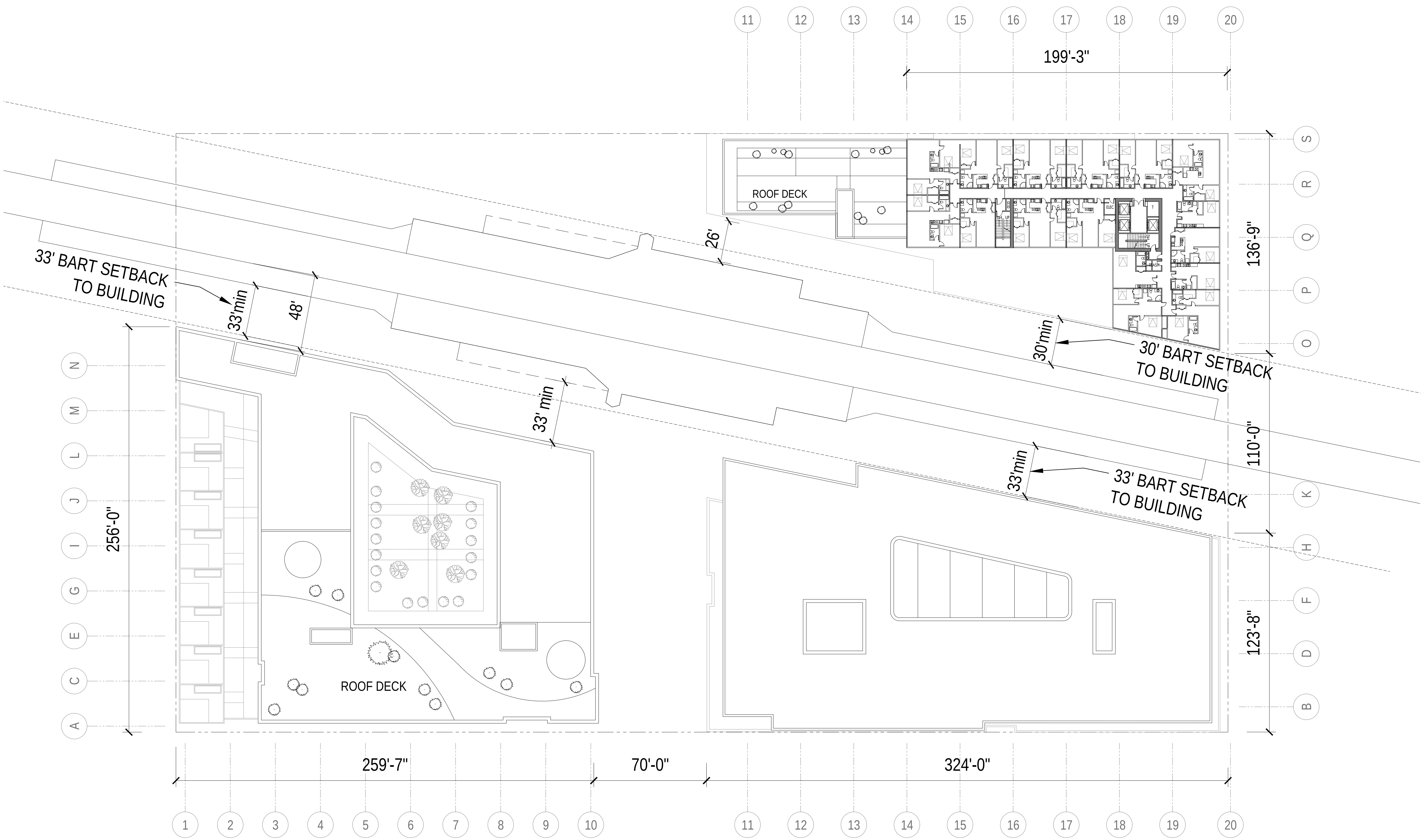

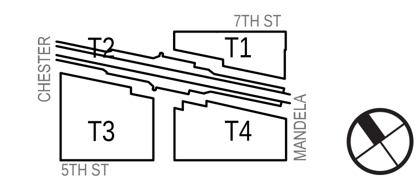

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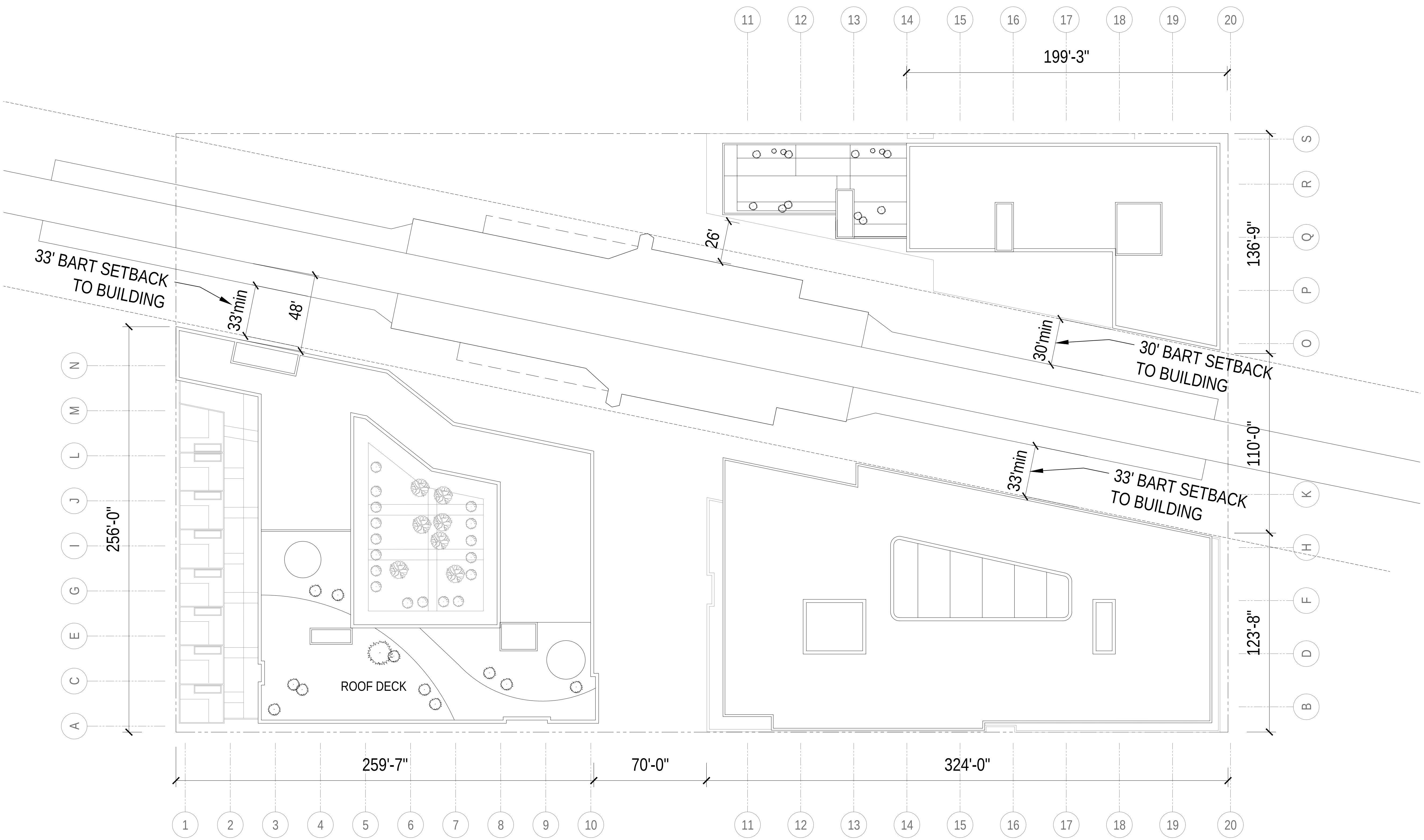
19-30TH FLOOR PLAN

1 19-30TH FLOOR PLAN
1/32" = 1' - 0"

SHEET:

A-11.08



1 ROOF PLAN
1/32" = 1' - 0"

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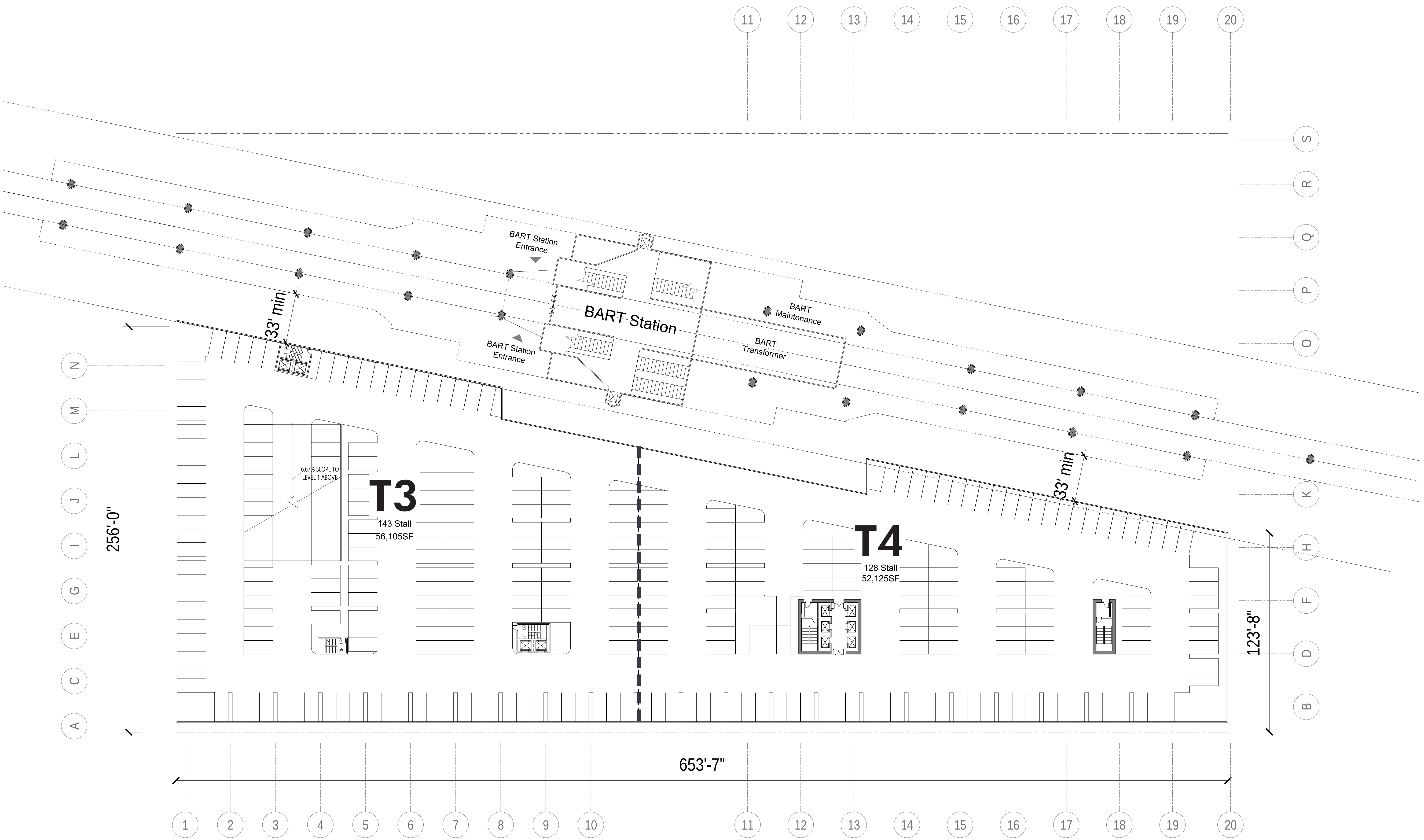
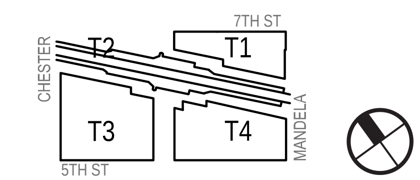
ROOF PLAN

SHEET: A-11.09





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BASEMENT FLOOR PLAN

1 BASEMENT PLAN
1/32" = 1' - 0"

SHEET: A-11.10

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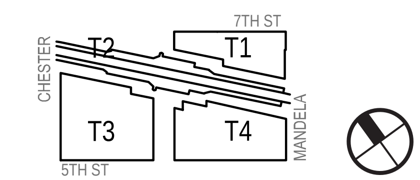

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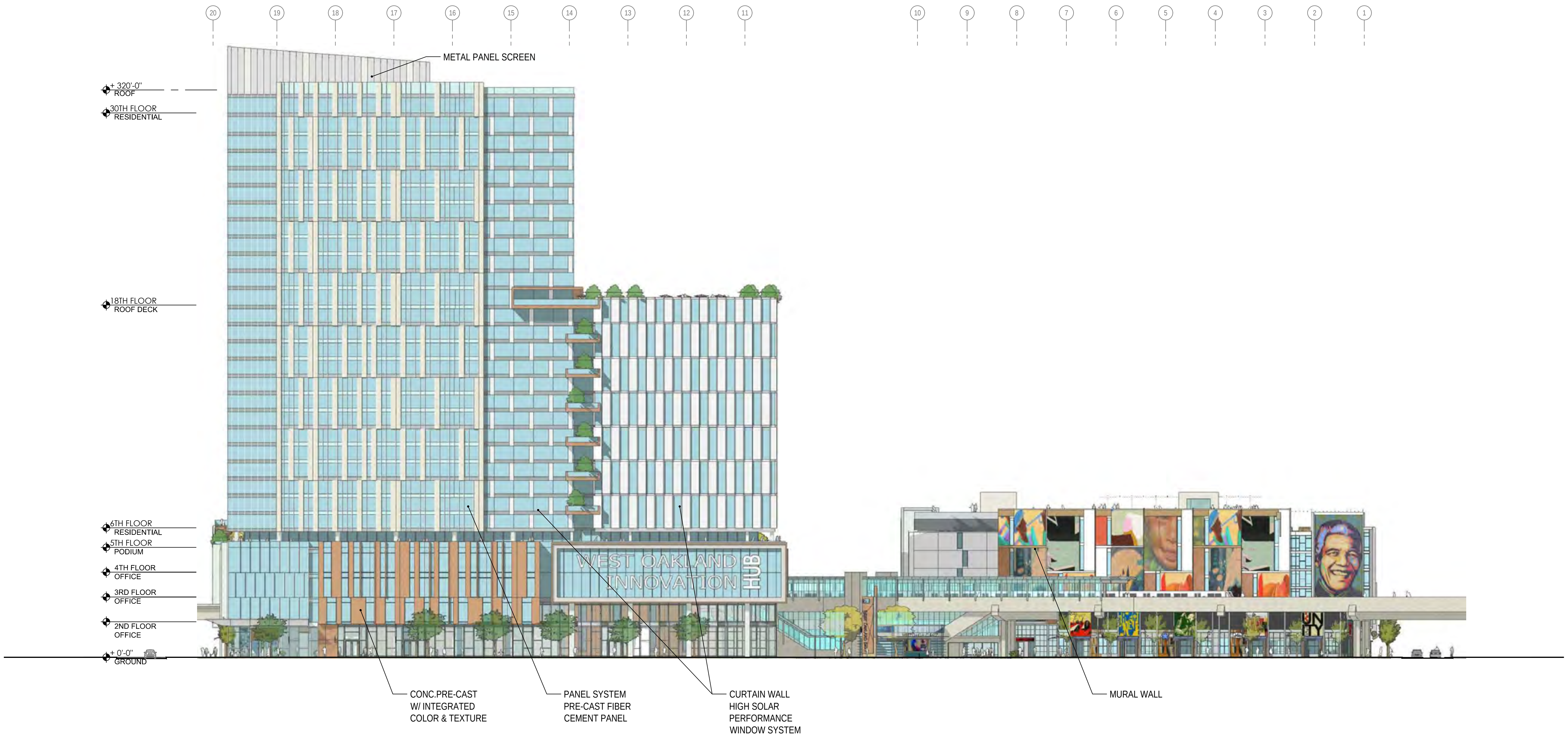

0 15' 30' 60'

7TH STREET ELEVATION 1

PROJ. #	168-153 WO BART
DATE:	January 18, 2019

7TH STREET ELEVATION

SHEET:

A-20.01

MANDELA PKWY ELEVATION 1

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7TH ST
CHESTER
T2
T1
T3
T4
MANDELA
5TH ST

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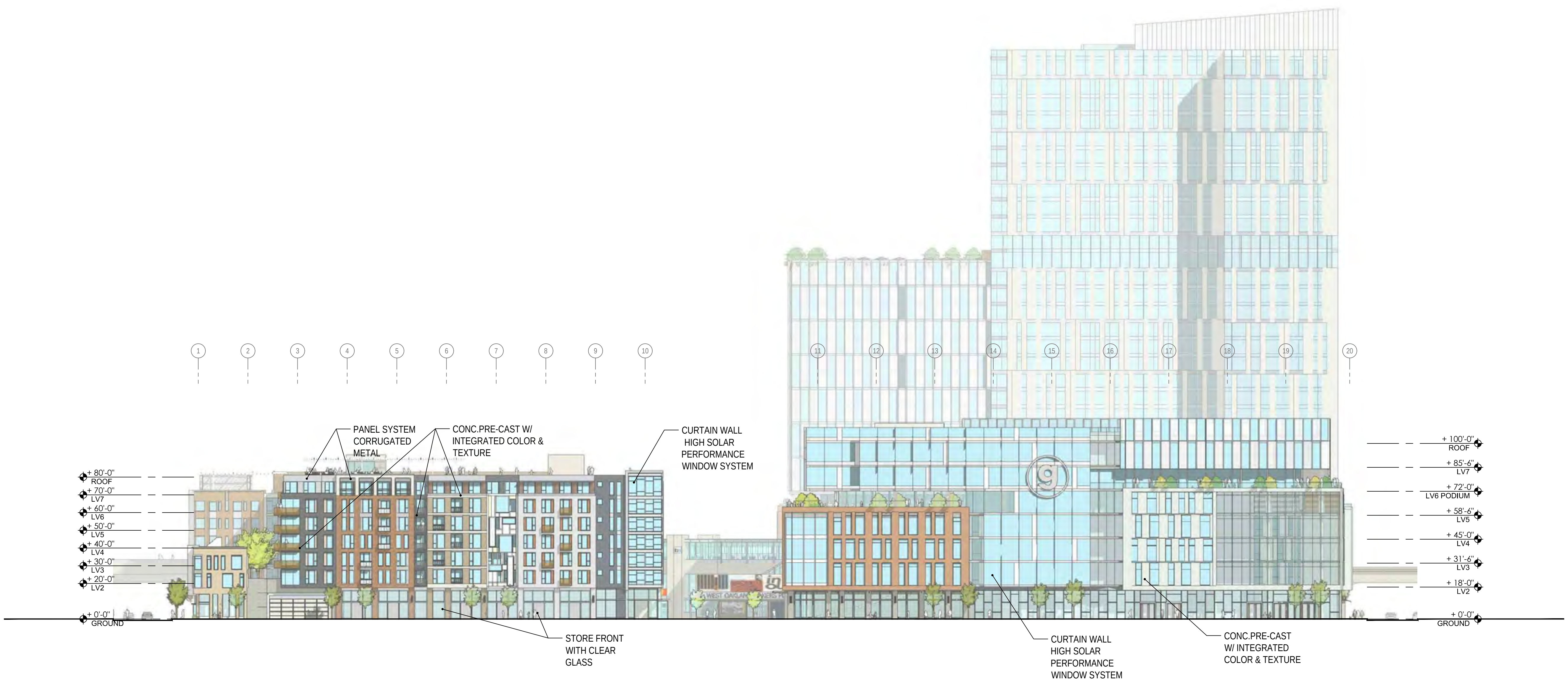
PROJ. # 168-153 WO BART
DATE: January 18, 2019

MANDELA PKWY ELEVATION

SHEET: A-20.02



0 15' 30' 60'

5TH STREET ELEVATION 1

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HENSEL PHELPS

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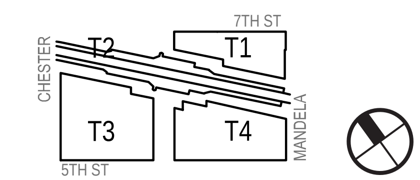

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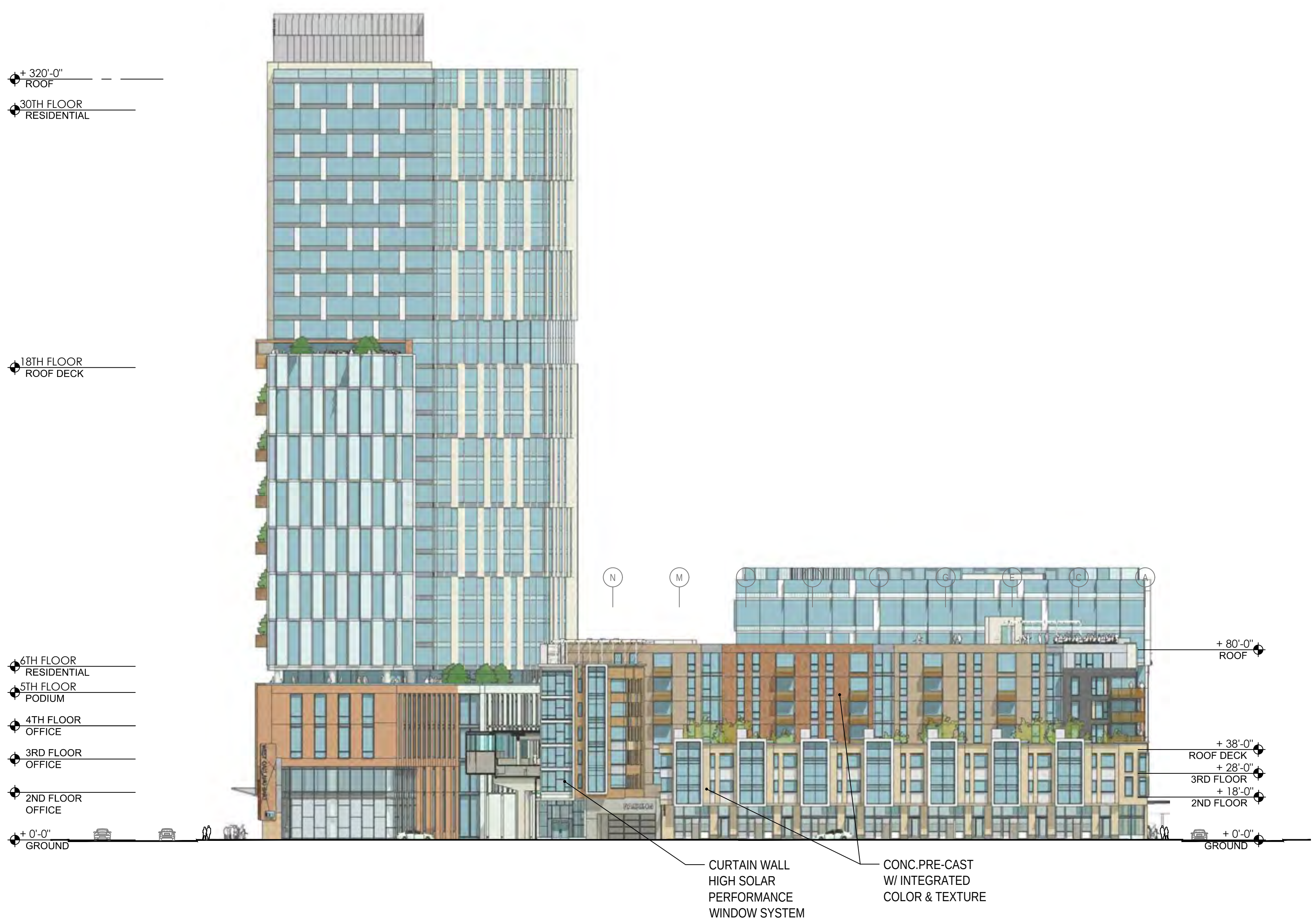
5TH STREET ELEVATION

SHEET: A-20.03



0 15' 30' 60'

CHESTER STREET ELEVATION 1

HENSEL PHELPS

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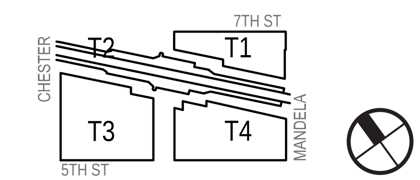

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DATE: January 18, 2019

CHESTER STREET ELEVATION

SHEET: A-20.04

0 15' 30' 60'

T1 SOUTH ELEVATION

1

HEC

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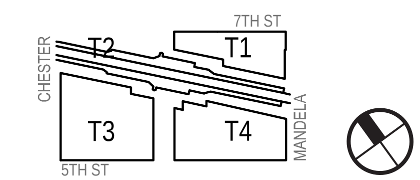

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DATE: January 18, 2019

T1 SOUTH
ELEVATION

SHEET:

A-20.05

0 15' 30' 60'

T1&T4 WEST ELEVATION
1

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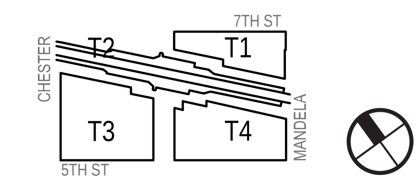

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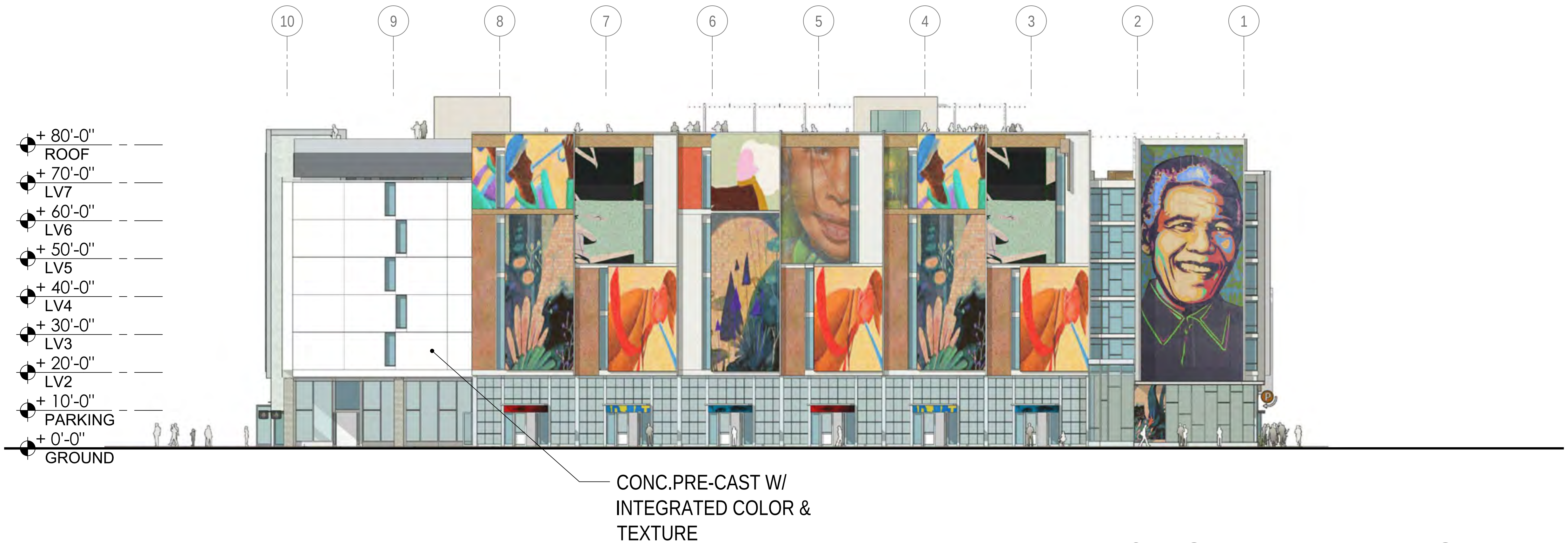
DATE: January 18, 2019

T1 & T4 WEST ELEVATION

SHEET: A-20.06



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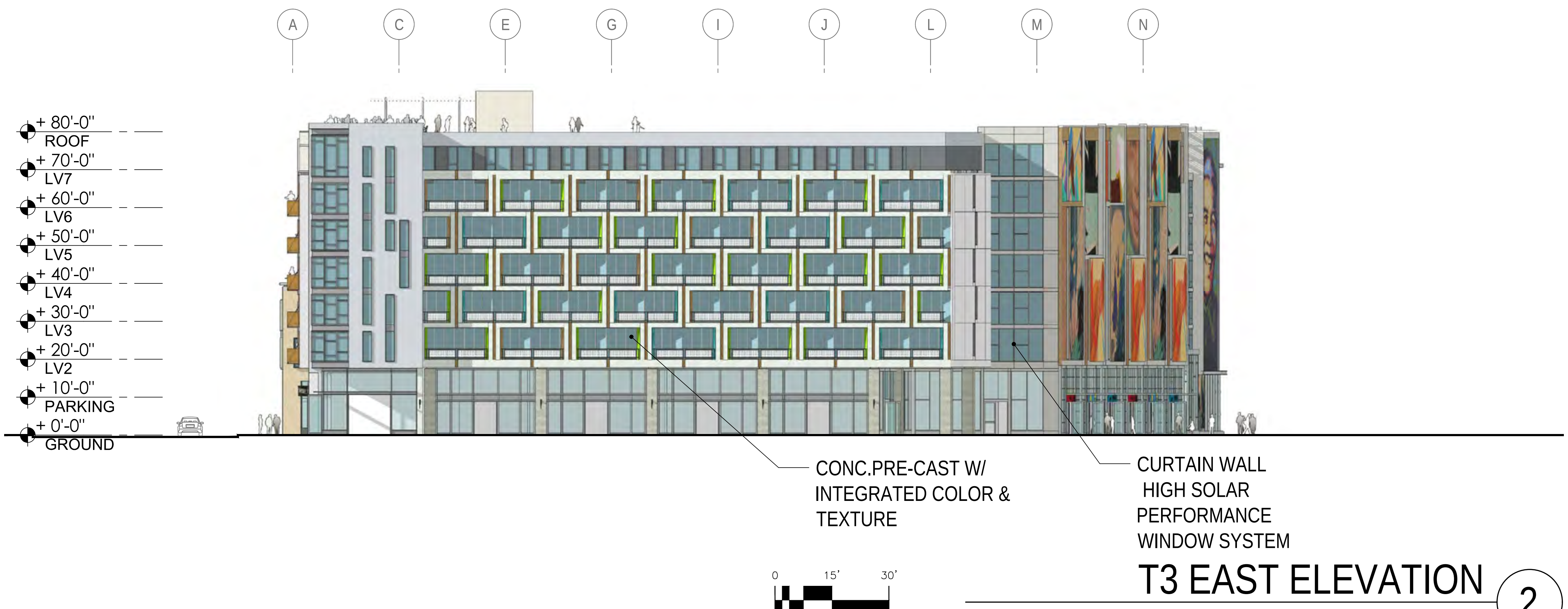
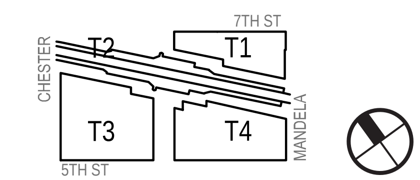


T3 EAST ELEVATION 2

HENSEL PHELPS

WEST OAKLAND BART

1451 7th St, Oakland,
CA 94607



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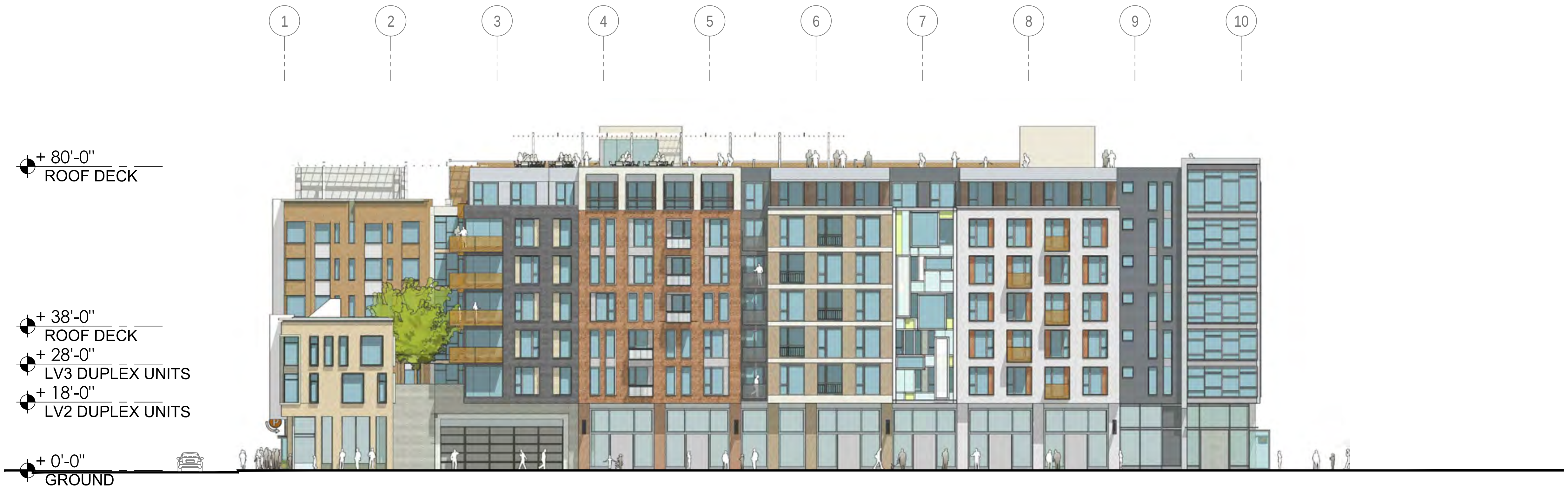
PROJ. # 168-153 WO BART
DATE: January 18, 2019

T3 NORTH & EAST ELEVATION

SHEET: A-20.07



0 15' 30'

T3 SOUTH ELEVATION

1

0 15' 30'

T3 WEST ELEVATION

2

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suda
HENSEL PHELPS

WEST OAKLAND BART

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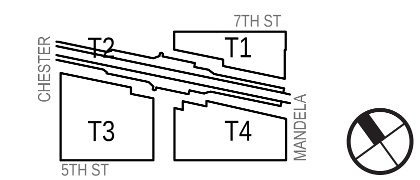
CA 94607



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T3 SOUTH & WEST ELEVATION

SHEET:
A-20.08

T4 NORTH ELEVATION
1

T4 EAST ELEVATION
2

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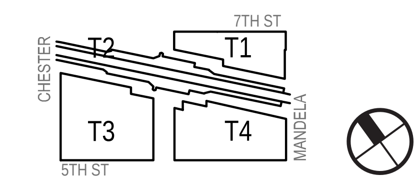

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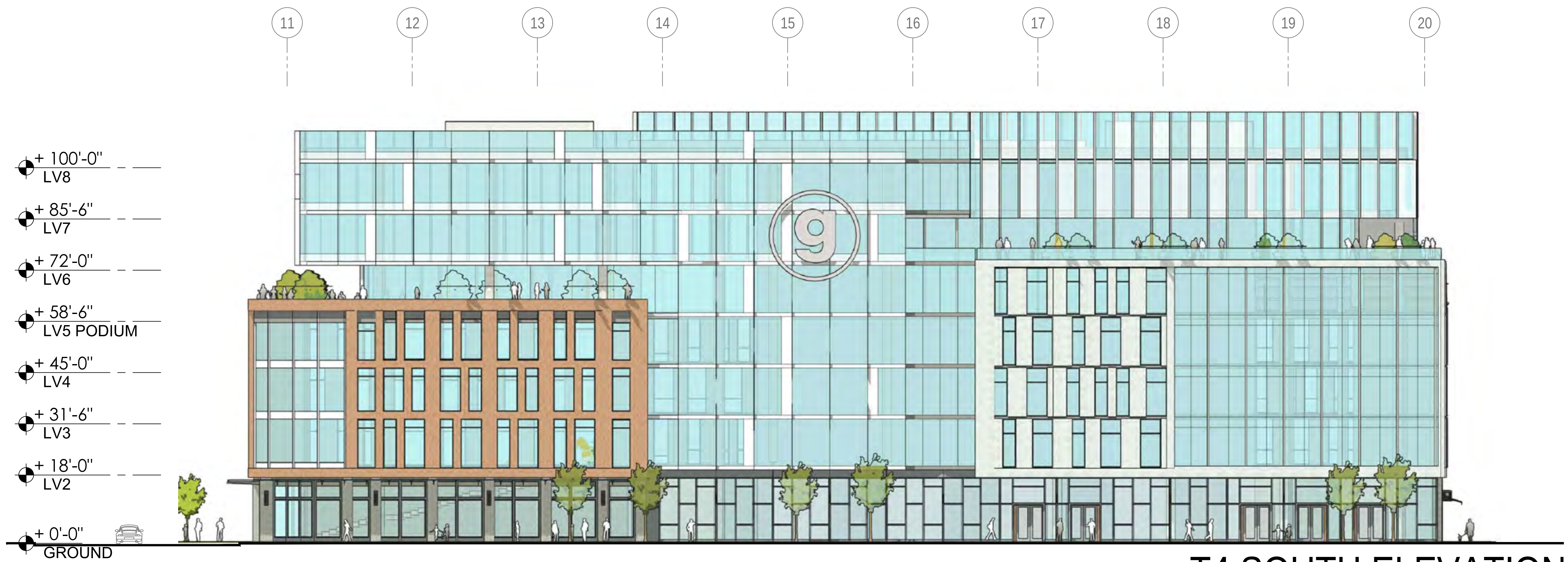
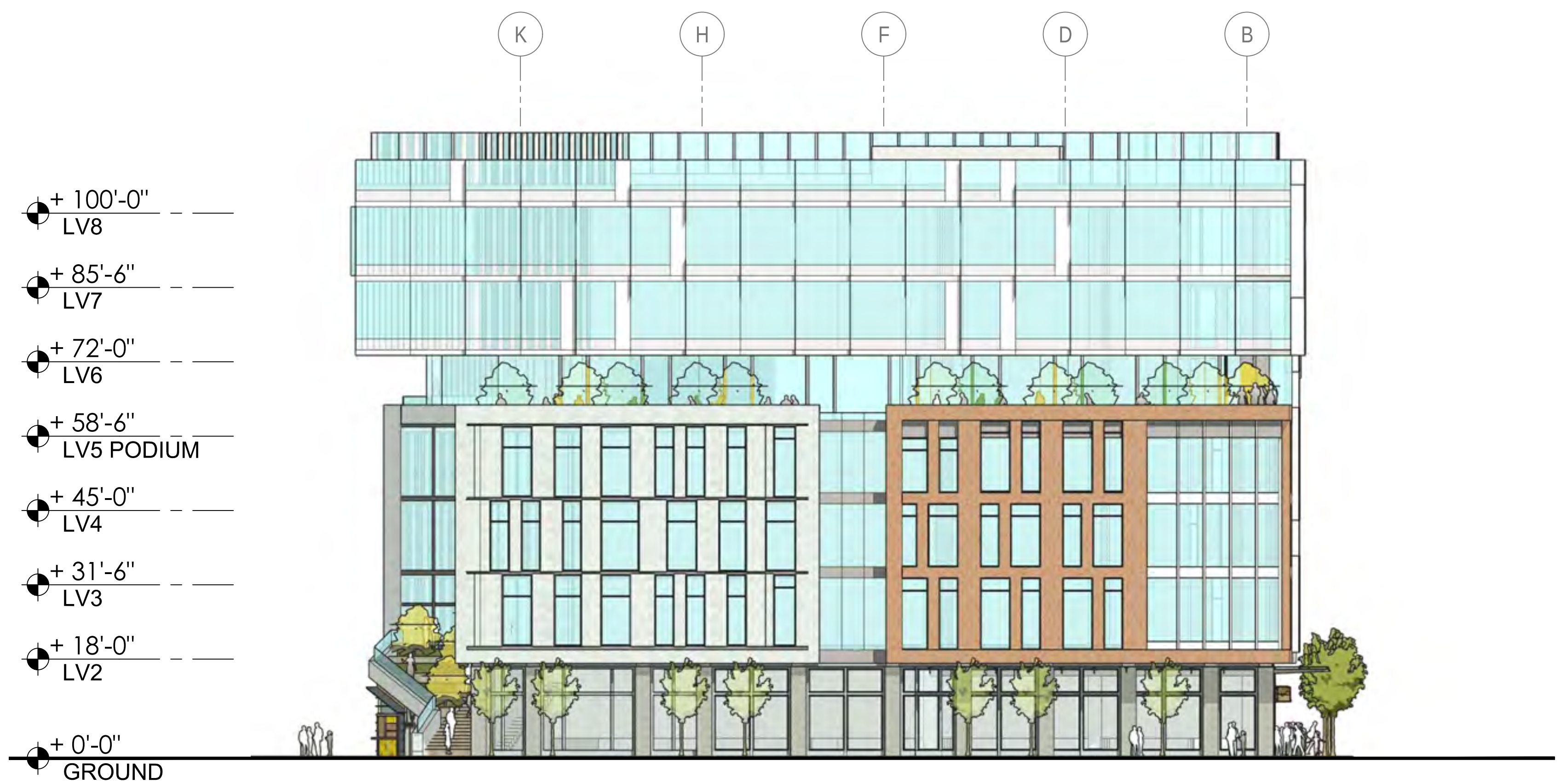
T4 NORTH & EAST ELEVATION

SHEET:
A-20.09



T4 SOUTH ELEVATION 1



T4 WEST ELEVATION 2

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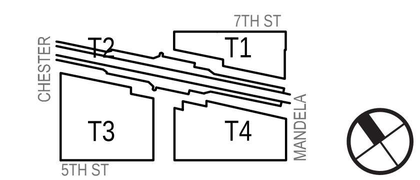

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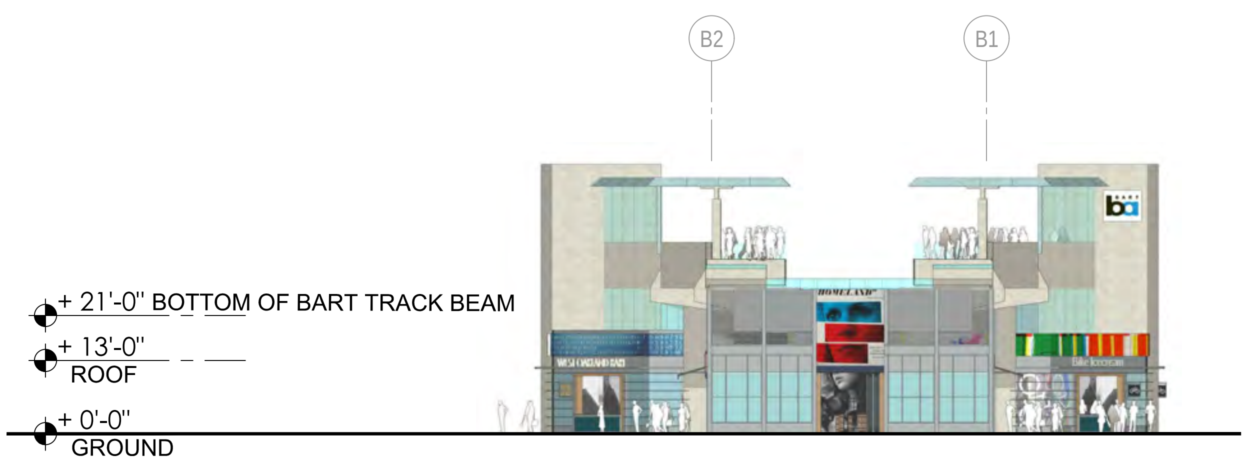
DATE: January 18, 2019

T4 SOUTH & WEST ELEVATION

SHEET: A-20.10

RETAIL UNDER BART NORTH ELEVATION 1

RETAIL UNDER BART SOUTH ELEVATION 2



RETAIL UNDER BART WEST ELEVATION 3

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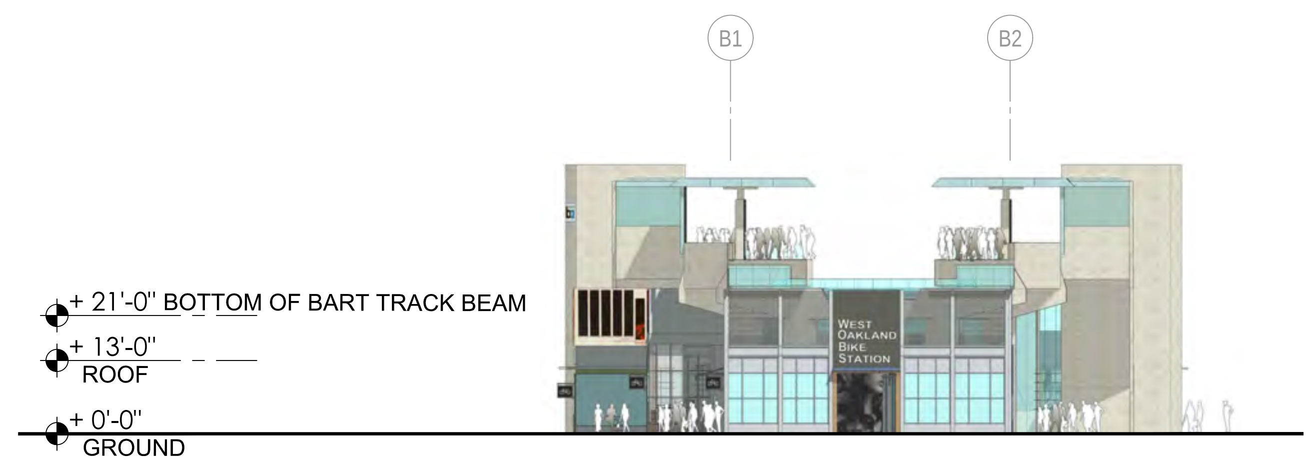

RETAIL UNDER BART EAST ELEVATION 4

0 25'

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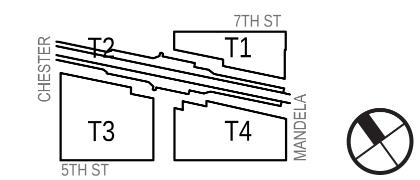

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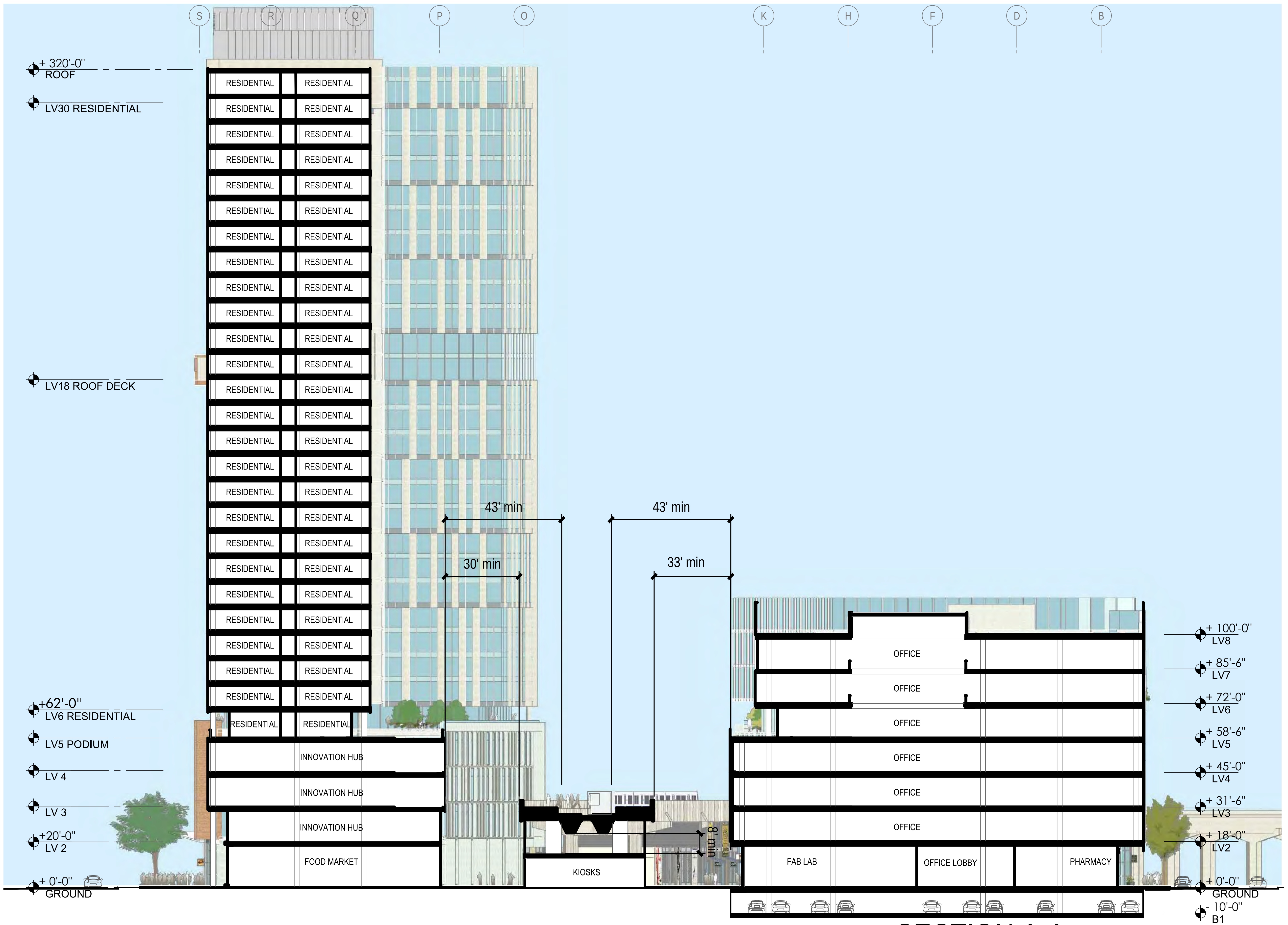
RETAIL UNDER BART ELEVATIONS

SHEET: A-20.11



SECTION A-A

1

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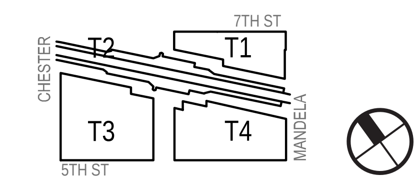

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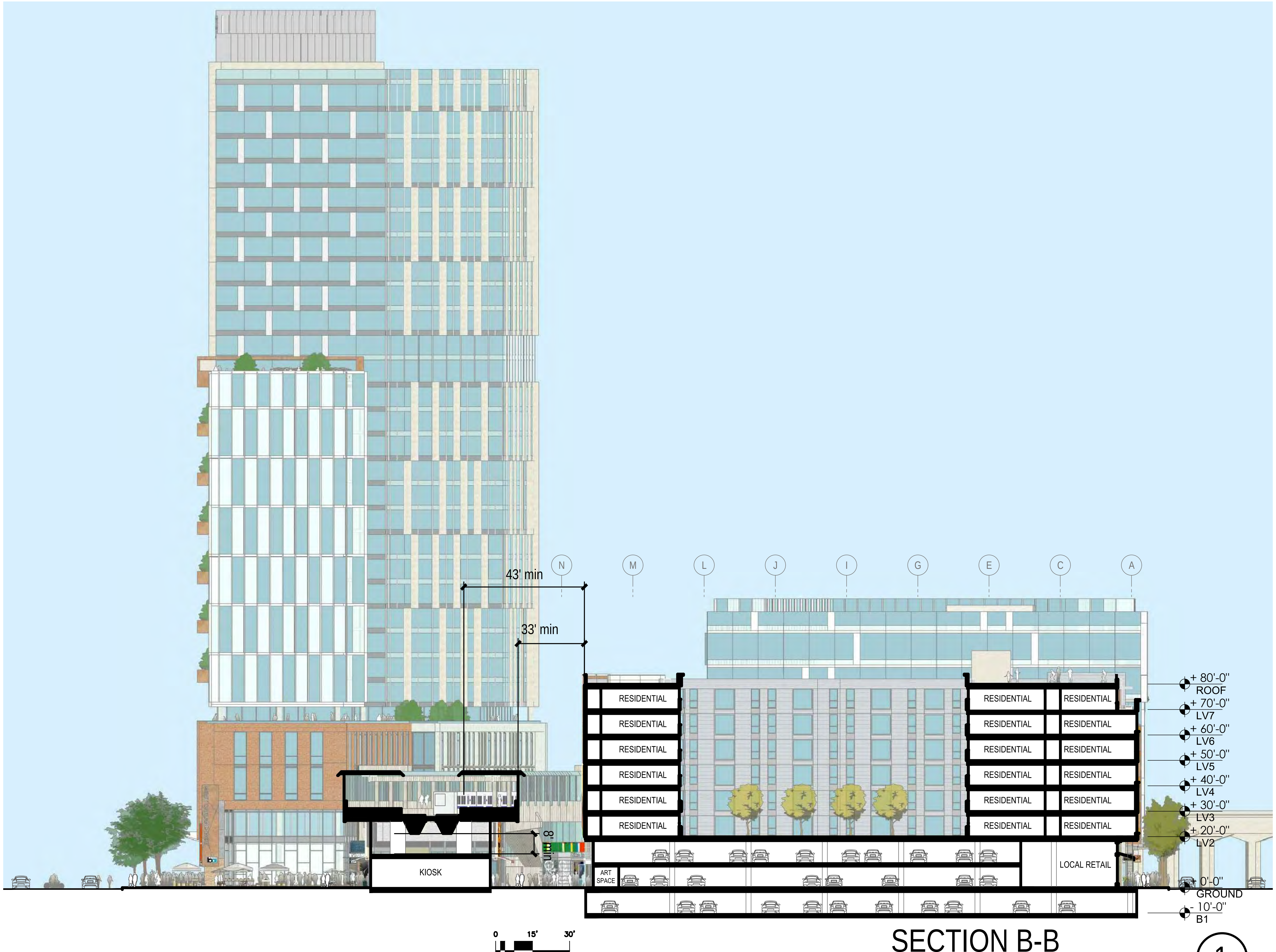
SECTION A-A

SHEET:

A-30.01



SECTION B-B

1

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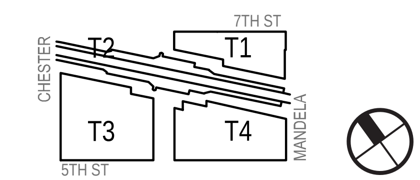

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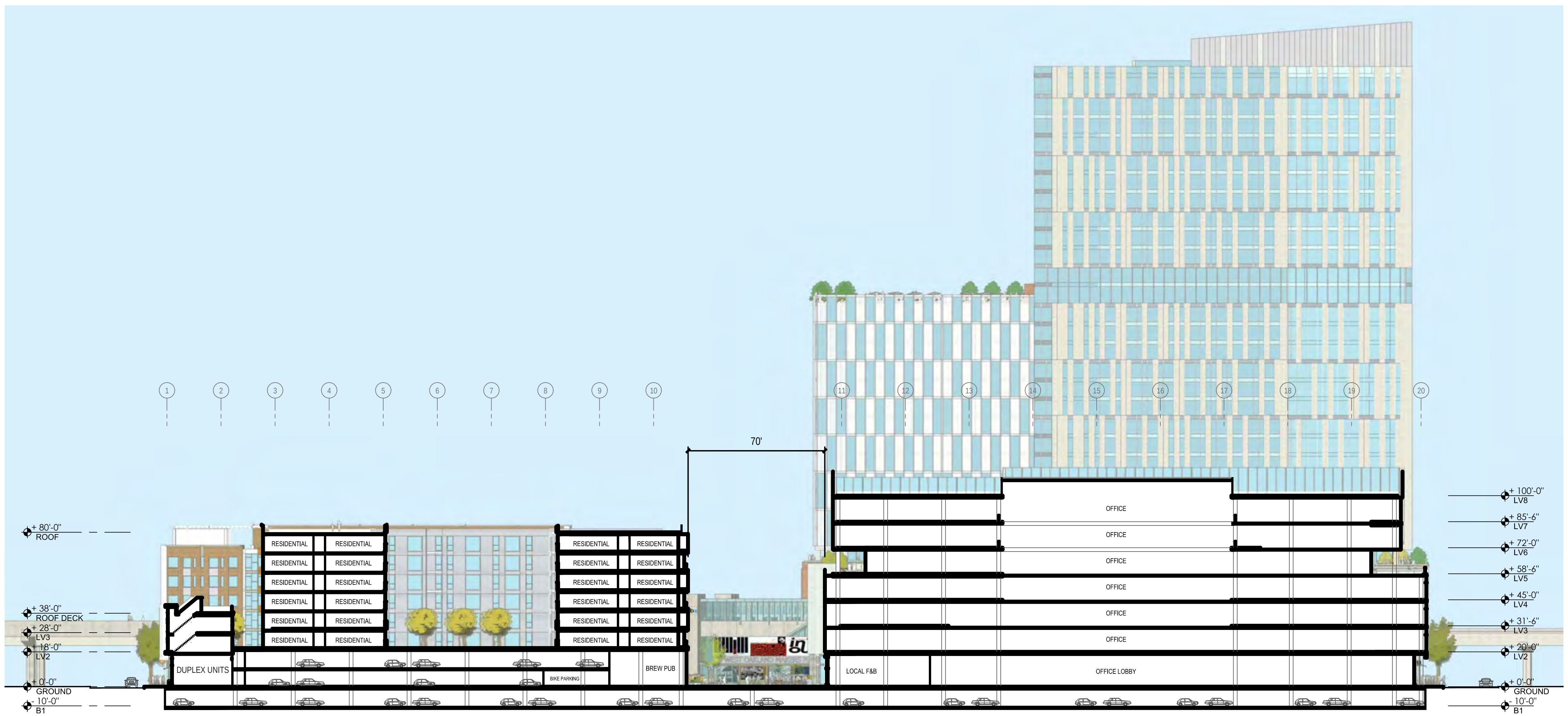
DATE: January 18, 2019

SECTION B-B

SHEET: A-30.02



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SECTION C-C

1

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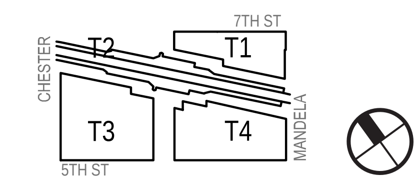

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DATE:	January 18, 2019

SECTION C-C

SHEET:

A-30.03

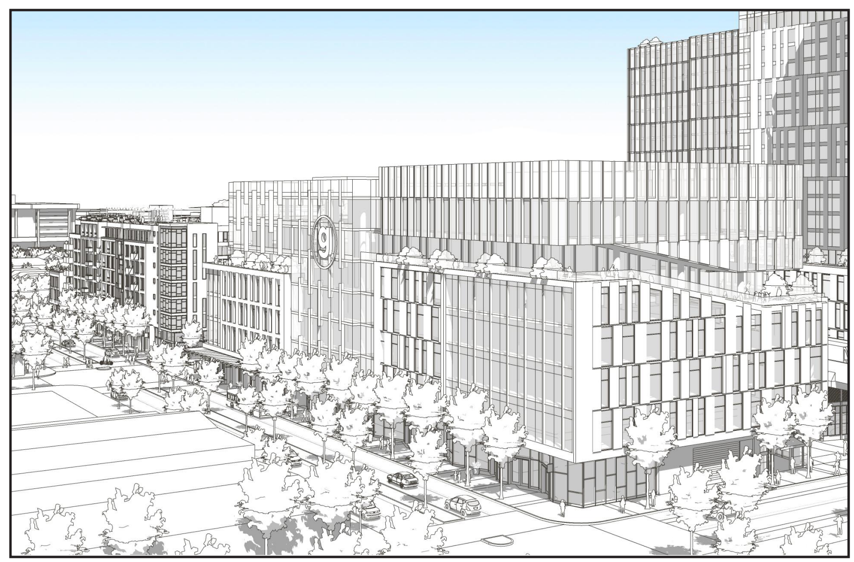
ATTACHMENT C:

West Oakland Station Design Guidelines

WEST OAKLAND STATION

JANUARY 25, 2019

DESIGN GUIDELINES



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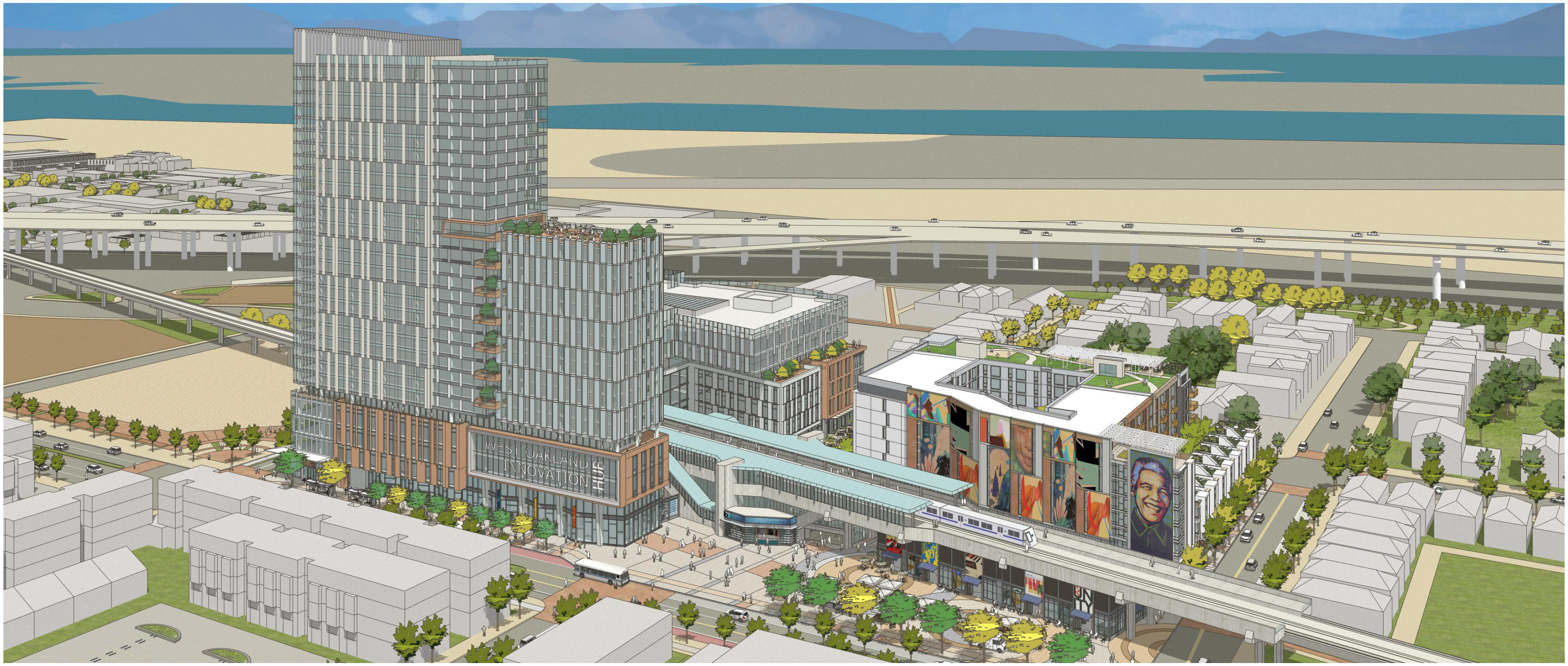
WEST OAKLAND STATION

DESIGN GUIDELINES

TABLE OF CONTENTS

VISION FOR WEST OAKLAND BART STATION



SITE AERIAL VIEW

The West Oakland Station master plan development will create a vibrant mixed-use neighborhood at this key transit site and central location for the West Oakland Neighborhood – creating a revitalized gateway to West Oakland and to the greater East Bay. This development will serve to revitalize the surrounding West Oakland neighborhoods by activating streets and public spaces with quality urban architecture, delightful public spaces, and activated retail and cultural programing. The development will improve the safety of the neighborhood by providing “eyes on the street” from the residential and commercial uses. Finally, this dense mixed-use development at a transit station will provide much-needed jobs and housing while reducing automobile trips to ease pollution and traffic congestion.

GUIDING PRINCIPLES

1. **Urban Design:** Revitalize the neighborhood by creating well designed urban architecture that supports activated public uses of this key neighborhood site. The massing and design of buildings should contribute to the overall form and structure of the community, to the spatial definition of public spaces and streets, and to the visual diversity and interest of the public realm of this important neighborhood site. The overall master plan will develop a composition of well-designed building masses that enhance the streetscapes and public spaces of adjacent neighborhoods. It will create buildings that engage the public realm, are well-articulated, and provide physical and visual access to the project site.

2. **Transit:** Support principles of transit oriented development by creating a dense and thriving community adjacent to BART station and AC transit stops. Include site design and public amenities that encourage bicycle use, carpooling, and car sharing to minimize automobile trips.

3. **Identity:** Introduce a new higher density urban architecture that is compatible with the character of neighborhood, with well-composed buildings that are built of quality materials, appropriately scaled details, and balanced proportions that improve the urban context. Use frontage along 7th and 5th Streets to improve the BART station identity and to create a design "statement" that conveys the unique character of the neighborhood to region at large.

4. **Community:** Provide a mixture jobs and housing that can act as a catalyst for the economic development of West Oakland. Bring a mix of market rate and affordable housing units that supports a diverse mix of residents and users on site. The master plan will integrate commercial and residential uses with streetscape design to allow for "eyes on the street" to promote an active and safe day and nighttime environment.

5. **Sustainability:** Incorporate design and building strategies that protect the environment and contribute to the well-being of the residents and community alike.

These design guidelines provide the specific strategies to implement the guiding concepts outlines in the previous section. The plan sheet annotations in these guidelines correspond to the Project Plan Set prepared by JRDV Urban International.

There are four primary parts to the design guidelines:

1. **Site Planning**
2. **Architectural Design**
3. **Public Space Improvements**
4. **Sustainable Design**

SITE PLANNING

Street Frontages: Set buildings along edge of sidewalks with appropriate setbacks to ensure adequate public use and circulation. Buildings should be located along street frontages to establish a clear urban street edge, and to ensure ease of pedestrian connections to retail and other public uses. Street frontages should be designed to encourage active retail uses and maintain a clear “street wall” defining the edge of the public realm.

Open Space: Provide enhanced and activated open space areas within the project to ensure good public access to the BART station and to create a public destination of the site for the larger West Oakland community.

BART Station and BART Trackway: Maintain good visual and physical access to the BART Station. Create an improved and safer transit rider experience. Improve the pedestrian experience and safety of the under-track areas and pedestrian walk-ways adjacent to the BART trackway, and incorporate these areas into active, safe and delightful urban places.

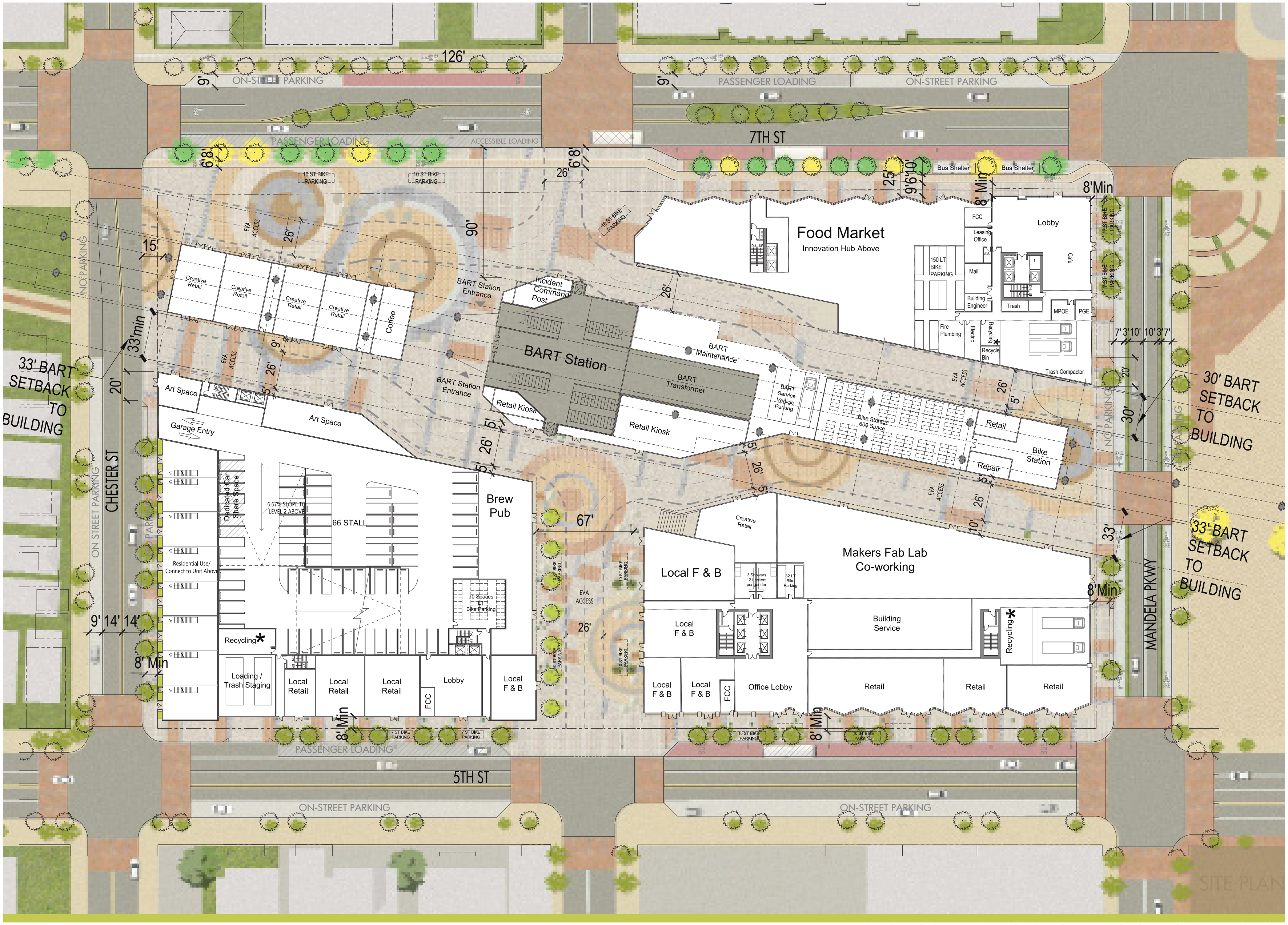
Parking: Locate parking structures away from street frontages to all retail and other public uses at public open spaces. Insure that parking is clearly marked and that vehicular access does not conflict with the pedestrian access and use of the site.

Pedestrian access / lobbies / retail: Locate building lobbies and retail uses at prominent locations along pedestrian routes including street corners and cross intersections to ensure that public spaces are activated and promote public use of the site. Site Design should ensure enhanced pedestrian access from the surrounding community, and ensure safe and accessible access to the BART station.

Bicycle Route Connections: Site design shall encourage bike access to the site and the BART station by establishing new east-west cycle tracks along 7th Street and north-south access along Mandela Parkway. Create a new Bike Station and storage that is located in a manner to allow easy connection to proposed bicycle routes, and is sized to accommodate the long-term demand for bike use on site.

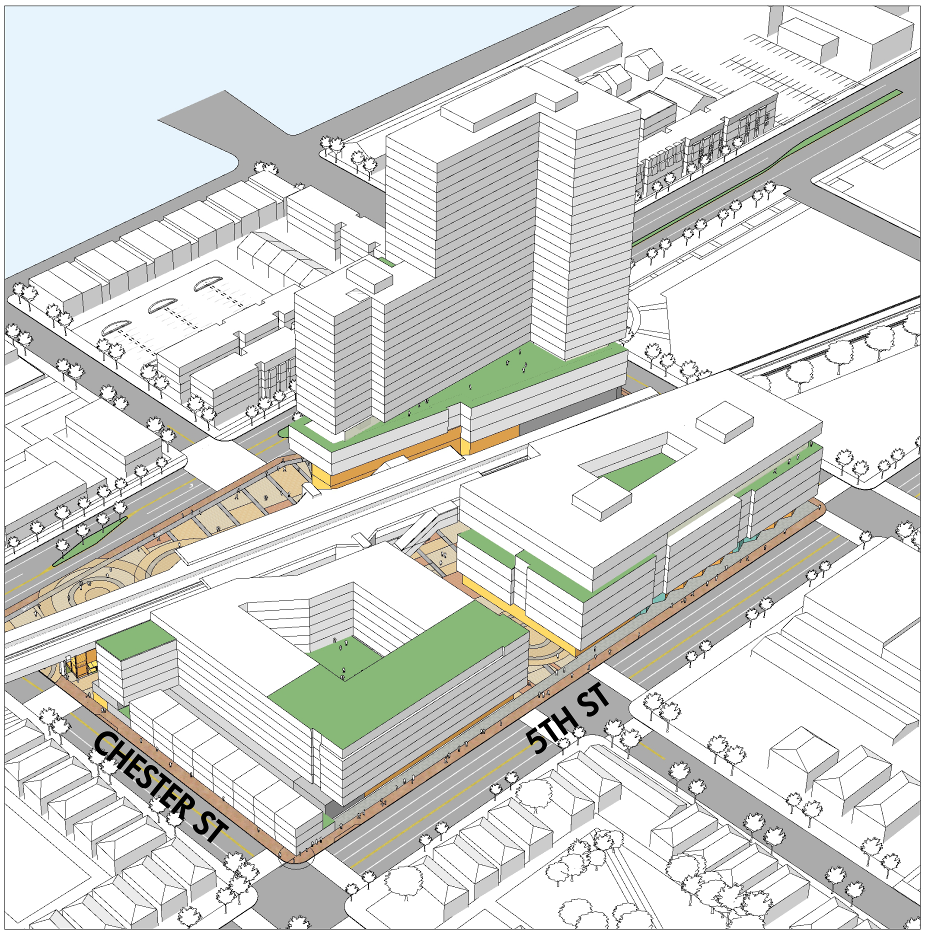
Activated Public Frontages: Provide entries for commercial, residential and retail uses along interior and exterior public frontages to ensure that there is a strong visual connection between the street and the building(s) and an active street presence.

SITE PLANNING

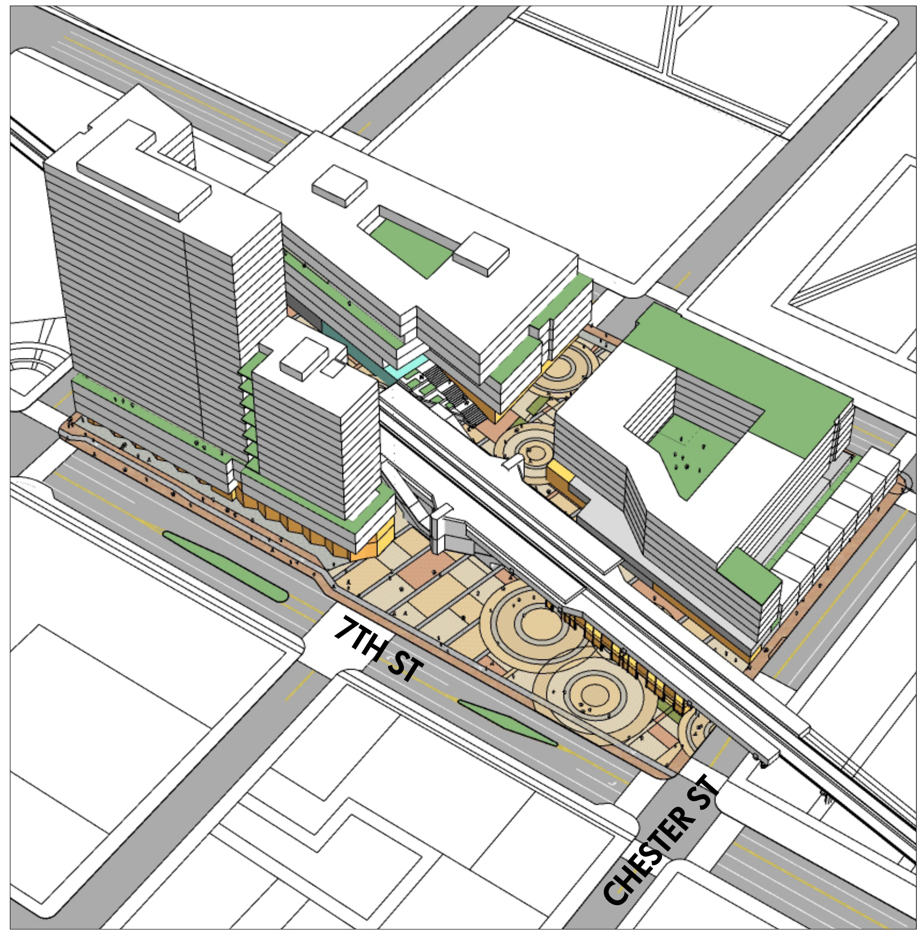


ARCHITECTURAL DESIGN

The architectural urban design is intended to respond to the specific scale and character along each public frontage; therefore, the guidelines of this section are arranged according to the four primary frontages: 7th Street, 5th Street, Mandela Parkway, Chester Street and Interior public circulation spaces.



AERIAL VIEW FROM 5TH ST



AERIAL VIEW FROM 7TH ST

ARCHITECTURAL DESIGN: 7TH STREET

The 7th Street frontage is one of the most important civic and commercial neighborhood streets in West Oakland. Larger buildings are located on 7th street at Mandela Parkway to emphasize the importance of this intersection in West Oakland.

A signature tower will be located at the intersection of Mandela and 7th Street to create a visual icon for the West Oakland community and to mark the importance of this key transit site as a gateway West Oakland and the greater City of Oakland. The signature tower will be designed to complement the public plaza in front of the BART station and Chester Street intersection.

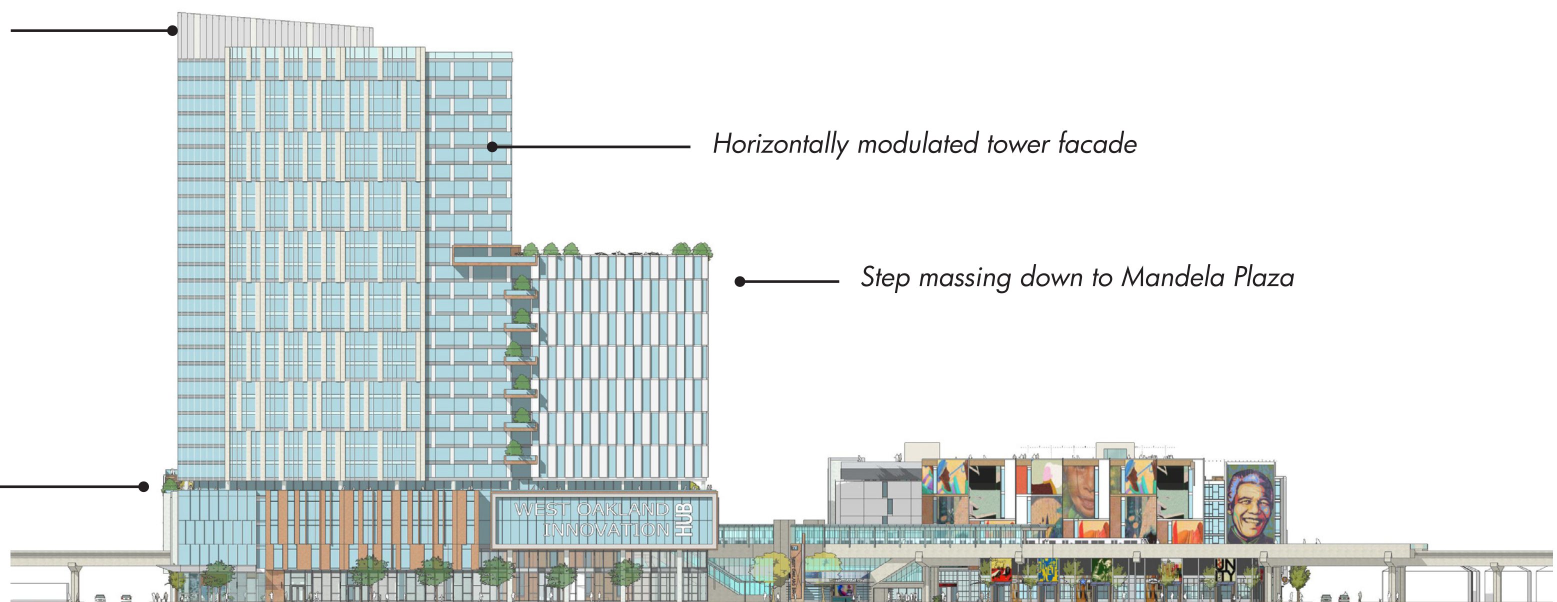
The buildings and street-scape are designed to enhance 7th street corridor and to create a high quality of pedestrian experience and civic prominence. The architecture will be designed to create a visually significant destination for the West Oakland community. Development heights will step down as buildings get closer to adjacent neighborhoods.

Maximum height at Mandela & 7th St corner

Horizontally modulated tower facade

Step massing down to Mandela Plaza

Clearly articulated base from Tower. Special articulation at the corner



MANDELA PARKWAY

CHESTER STREET

7TH STREET ELEVATION

ARCHITECTURAL DESIGN: 7TH STREET

Height, Bulk, and Scale: Proposed buildings along 7th Street should allow high-rise development that reflect the importance of this transit site. The site massing will locate the tallest massing at the intersection of 7th Street and Mandela, emphasizing this important intersection. Building heights will step down toward Chester Streets. A varied building silhouette along 7th Street is encouraged through significant changes in massing at rooflines, stepping down from Mandela to Chester Street.

Buildings that Provide Strong Spatial Definition: Buildings along 7th Street should shape and define the public street scape and other public spaces, and define a high quality of public experience of the 7th Street corridor and BART station in the community.

Building Massing Articulation: Building facades along 7th Street will be designed to become lively and delightful edges to streets and open spaces through the variation of building materials and facade typologies. Within these overall massing envelopes, additional variation and articulation should be provided in both the horizontal plane and the vertical profile of buildings to break down their perceived mass and bulk, and to promote a finer increment of urban architecture.

7th Street and Mandela Corner: The 7th and Mandela Corner should receive special visual emphasis and treatment to establish the importance of this key urban intersection

Building Base Articulation: The lower portion 4-5 floors of tall buildings should be clearly articulated with massing, changes of material and facade fenestration to establish an urban street base that is more in scale with the current and future surrounding blocks. Building massing should provide additional variation and architectural interest that promotes a cohesive community scale and an attractive pedestrian environment.

Sidewalk Setbacks: Buildings along 7th Street will be generally built to the property lines of streets to provide a clear "street wall" definition, but will be massed and articulated to avoid the creation of an undifferentiated and monolithic environment. Ground floor setbacks may be used to ensure adequate public circulation and access for transit riders.

BART Station Access and Identity: Building placement and design should promote BART transit rider access and the enhanced civic importance of this transit site. The architecture should create and enhance a new community civic plaza along 7th Street at the BART station to provide increased visibility and access to the BART station, and also to celebrate the civic importance of this site in the community. The plaza should be designed to enhance the 7th Street corridor activation and overall public experience.

ARCHITECTURAL DESIGN: 7TH STREET

Activated 7th Street Corridor

These building frontages should adhere to the following guidelines:

1. The ground floor-to-floor dimension should promote viable retail uses that are welcoming and transparent in nature, with a minimum floor-to-floor height of 20'.

2. The minimum depth of retail space from storefront to rear should be at least 40 feet to promote viable uses.

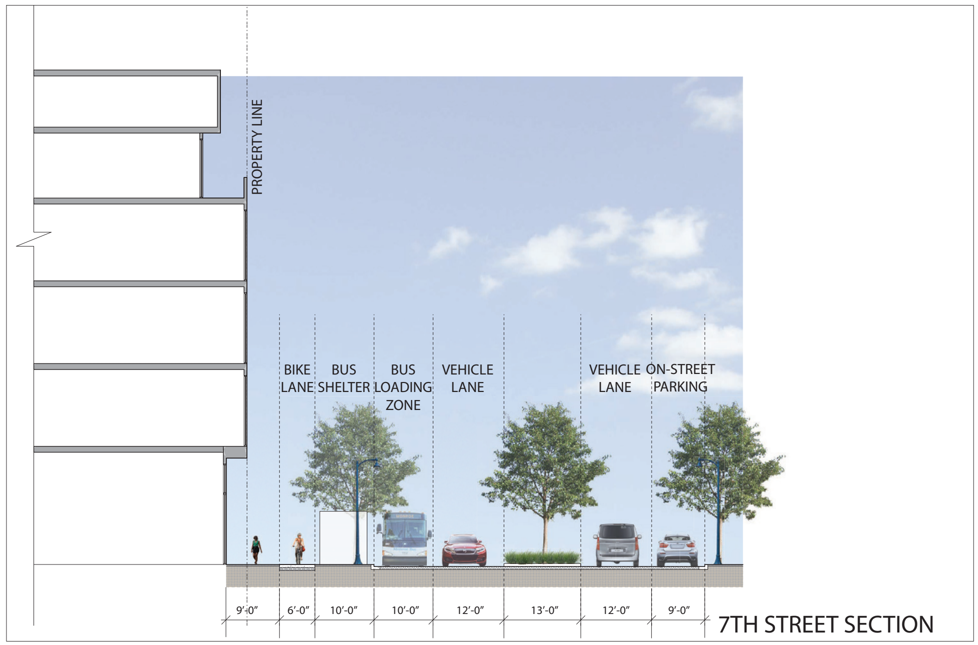
3. The retail frontage should be built with adequate set-back to the property line to provide public transit use of the sidewalk and possible café tables and other retail uses at the sidewalk edge.

4. The interior finished floor elevation should be generally flush with the street or promenade frontage.

5. Building entries should be oriented to the street or promenade with intervals that promote activate street experience, except for major anchor tenants such as grocery or drug stores, which could be a greater interval.

6. Shop fronts should be designed with a high level of transparency – at least 75% glass storefront along the 7th Street edge.

7. The use of canvas awnings, metal canopies and building overhangs are encouraged to provide shelter and shade to the pedestrian, and color and life to the building facade (see diagram views)

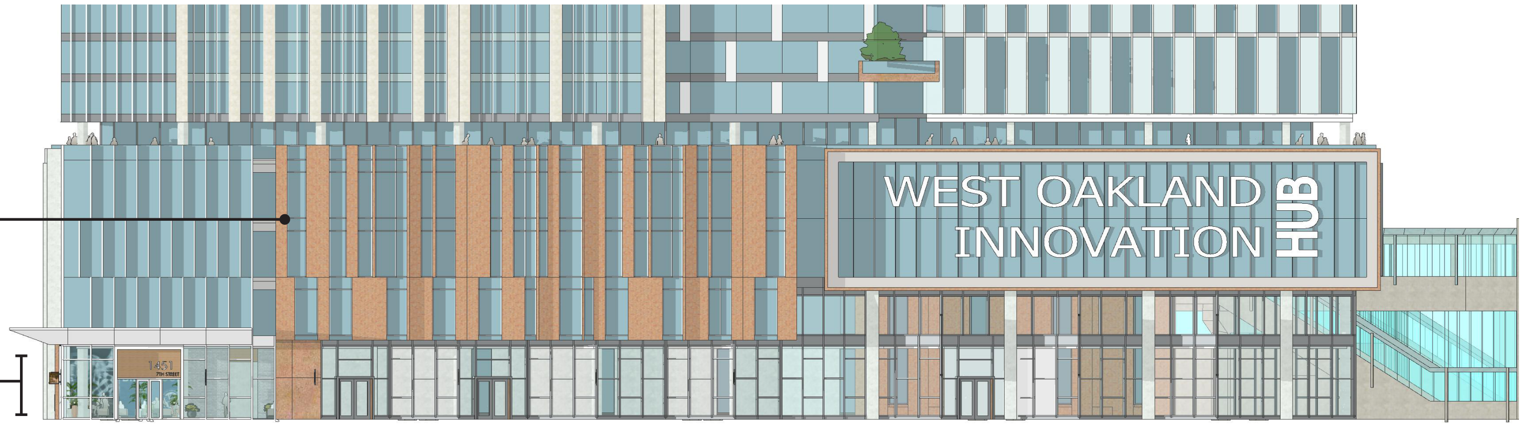


7TH STREET SECTION

ARCHITECTURAL DESIGN: 7TH STREET

Articulation should be provided in both the horizontal plane and the vertical profile

20' min height of ground floor



Horizontally vary facade fenestration to scale 7th Street facade

7TH STREET ELEVATION DETAIL

Special visual emphasis on 7th & Mandela corner

75% glass transparency at street facade at 7th street

7TH & MANDELA CORNER

ARCHITECTURAL DESIGN: 7TH STREET

Shop fronts should be designed with a high level of transparency – at least 75% glass storefront

7TH STREET STOREFRONT

Building entries should be oriented to the street or promenade with intervals that promote activate street experience

Ground floor setbacks may be used to ensure adequate public circulation and access for transit riders.

7TH STREET STREETSCAPE

ARCHITECTURAL DESIGN: 7TH STREET at CIVIC PLAZA

Building placement and design should promote BART transit rider access and the enhanced civic importance of this transit site.

MANDELA PLAZA WEST

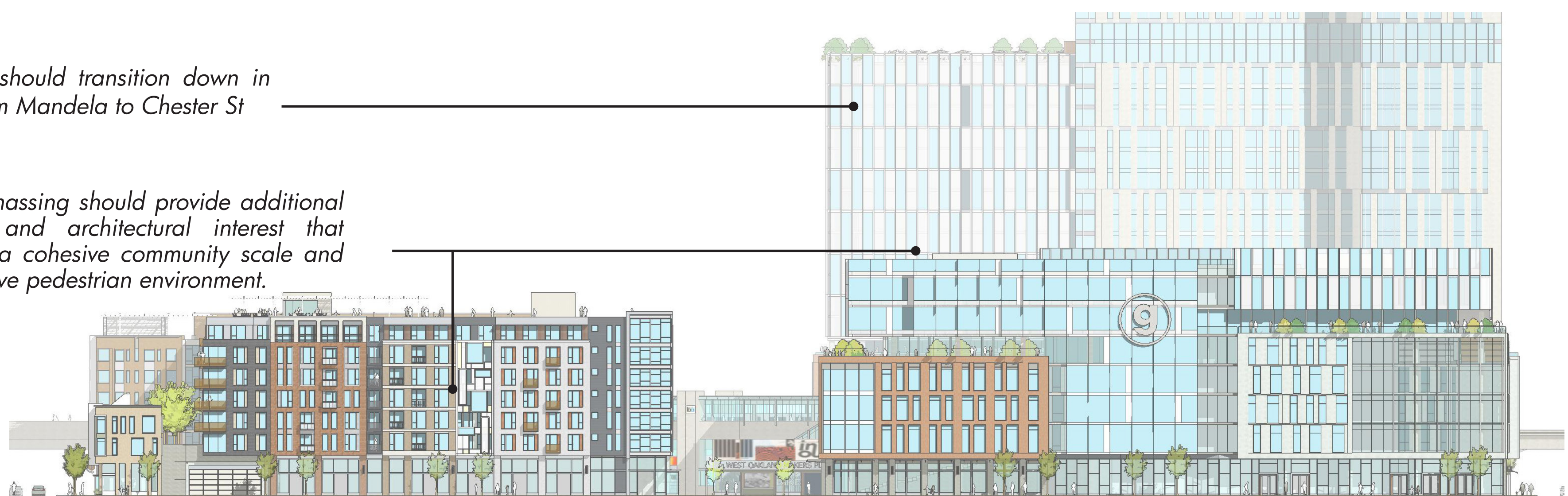
The architecture should create and enhance a new community civic plaza along 7th Street at the BART station to provide increased visibility and access to the BART station

MANDELA PLAZA EAST

ARCHITECTURAL DESIGN: 5TH STREET

The 5th Street frontage will create an important community frontage that connects the BART station to the surrounding neighborhoods to the south. The 5th Street frontage should be designed to appropriately transition the larger building heights along 7th Street to the lower scale of current and future buildings in the neighborhood. Although it is recognized that current building heights in the surrounding community are low; it is anticipated that higher and larger building will be built as this transit hub location develops. The design of the station site is intended to become a bridge between the current historic South Prescott neighborhood and the future higher density neighborhood to come.

5th Street is also an important commercial street for the community. It should provide both enhanced access to the BART station, as well as neighborhood retail shopping for the surrounding community. This street frontage should be activated with local retail and cultural uses that reinforce the 7 day-a-week activation to ensure the safety and desirability of the station location. The architecture of 5th Street should be designed to create a high quality of pedestrian experience and civic prominence, and reinforce the visual significance of the overall site for the West Oakland community.



5TH STREET ELEVATION

ARCHITECTURAL DESIGN: 5TH STREET

Height, Bulk, and Scale: Proposed buildings along 5th Street should build to the 100′ high-rise height allowed east of Chester Street to increase the visibility and importance of the Station site. Buildings should transition down in height west of Center Street to 80′. Building heights should transition to a lower 3 levels at Chester Street to reflect the lower urban scale of the historic buildings to the west of Center Street.

A varied building silhouette along 5th Street is encouraged through changes in massing or materials at rooflines, stepping down from Mandela to Chester Street.

Buildings that Provide Strong Spatial Definition: Buildings along 5th Street should be designed to create a visually active urban "street wall" that shapes and defines the important public experience of 5th Street corridor.

Building Massing Articulation: Building facades along 5th Street will be designed to become lively and delightful edges to streets and open spaces through the variation of building materials and facade typologies. Within these overall massing envelopes, additional variation and articulation should be provided in both the horizontal plane and the vertical profile of buildings to break down their perceived mass and bulk, and to promote a finer increment of development.

Building Massing and Articulation – East of Center Street: The lower portion 4-5 floors of high-rise buildings east of Center Street should be clearly articulated with massing, changes of material and facade fenestration to establish a street base that is more in scale with the current and future surrounding blocks. Building massing should provide additional variation and architectural interest that promotes a cohesive community scale and an attractive pedestrian environment.

Building Massing and Articulation – West of Center Street: Residential buildings west of Center Street shall have a clearly defined base-middle-top articulation. The building massing shall be designed to provide a variety of facade typologies to provide a visually active street scape, and to relate better to the varied architecture in the neighborhood context. Building massing and fenestration should provide variation and architectural interest that promotes a cohesive community scale and an attractive pedestrian environment.

Step Down to Chester Street: The street massing should step down to 3 levels at Chester Street to provide a better scale transition to the lower buildings in the South Prescott neighborhood.

Sidewalk Setbacks: Buildings along 5th Street will be generally built to the property lines of streets to provide a well-defined "street wall", but will be massed and articulated to avoid the creation of an undifferentiated and monolithic environment. Ground floor setbacks may be used to ensure adequate public circulation and access for transit riders.

Maker Square - Center Street Plaza: Buildings should be designed with an elevated (20′ min.) ground floor, an architecturally defined base, and activated retail or cultural program to create an activated and important public space for this key pedestrian plaza and gateway to the BART station. Buildings along Marker Square should be lined with retail, art and other cultural uses in order to create an active and safe 7 day-a-week public experience at this central public space.

ARCHITECTURAL DESIGN: 5TH STREET

Activated 5th Street Corridor

Along the 5th Street frontage, building frontages should adhere to the following guidelines:

1. The ground floor-to-floor dimension should promote viable retail uses that are welcoming and transparent in nature, with a minimum floor-to-floor height of 20’.

2. The minimum depth of retail space from storefront to rear should be at least 25-30 feet to promote viable uses.

3. The retail frontage should be built with adequate set-backs to the property line to provide adequate public transit-rider use of the sidewalk and possible café tables and other retail uses at the sidewalk edge.

4. The interior finished floor elevation should be generally flush with the street or promenade frontage.

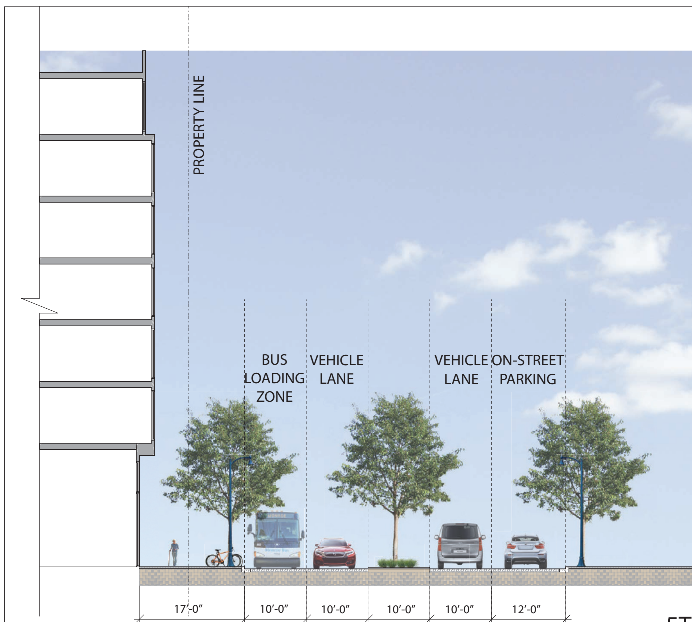
5. Building entries should be oriented to the street or promenade with intervals that promote activate street experience, except for major anchor tenants such as grocery or drug stores, which could be a greater interval.

6. Shop fronts should be designed with a high level of transparency – at least 60% glass storefront along the 5th Street edge.

7. Use architectural details on residential structures such as balconies, railings, lighting, canopies, and other elements that enliven the facade and reinforce the human scale of the development

8. Provide recessed windows on residential structures to ensure depth, shade, and shadow on the building facade.

9. The use of canvas awnings, metal canopies and building overhangs are encouraged to provide shelter and shade to the pedestrian, and color and life to the building facade (see diagram views)



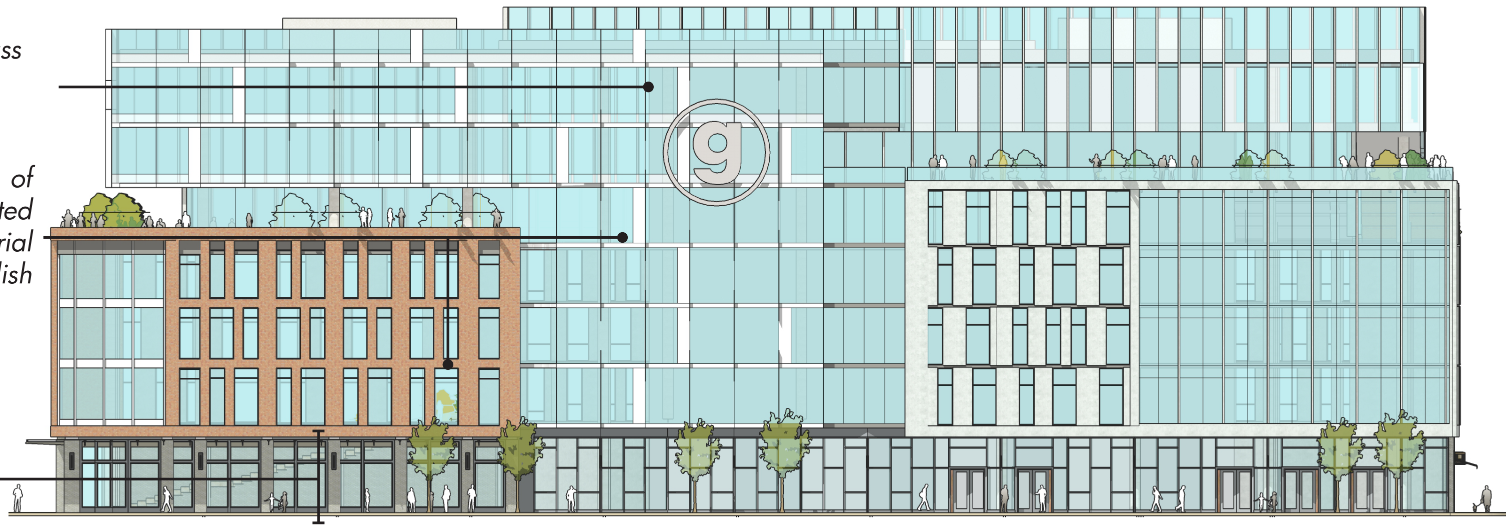
5TH STREET SECTION

ARCHITECTURAL DESIGN: 5TH STREET - East of Center Street

Distinguish Upper Floors with glass and varied fenestration

Base of high-rise buildings east of Center Street should be articulated with massing, changes of material and facade fenestration to establish an active base

20' min ground floor height



5TH STREET ELEVATION EAST OF CENTER

Base of high-rise buildings east of Center Street should be articulated with massing, changes of material and facade fenestration to establish an active base

5TH & MANDELA CORNER

ARCHITECTURAL DESIGN: 5TH STREET - West of Center Street

A varied building silhouette along 5th Street is encouraged through changes in massing or materials at rooflines, stepping down from Mandela to Chester Street

Building massing shall be designed to provide a variety of facade typologies to provide a visually active street scape

Visually transparent ground floor with pilasters to connect to upper floors

5TH STREET ELEVATION WEST OF CENTER

Visually identify the Center St/Maker Plaza entry corner

5TH STREET AT MAKER SQUARE

ARCHITECTURAL DESIGN: 5TH STREET - West of Center Street

Building entries should be oriented to the street or promenade with intervals that promote activate street experience, except for major anchor tenants such as grocery or drug stores, which could be a greater interval.

5TH STREET STREETSCAPE

Shop fronts should be designed with a high level of transparency – at least 60% glass storefront

Retail frontage should be built with adequate set-backs to the property line to provide adequate public transit-rider use of the sidewalk and possible café tables and other retail uses at the sidewalk edge

5TH STREET STOREFRONT

ARCHITECTURAL DESIGN: 5TH STREET - Maker Square

Buildings along Marker Square should be lined with retail, art and other cultural uses in order to create an active and safe 7 day-a-week public experience at this central public space.

VIEW OF BART FROM MAKER SQUARE

Buildings should be designed with an elevated (20' min.) ground floor, an architecturally defined base with min. 75% transparency.

MAKER SQUARE ENTRY FROM 5TH ST

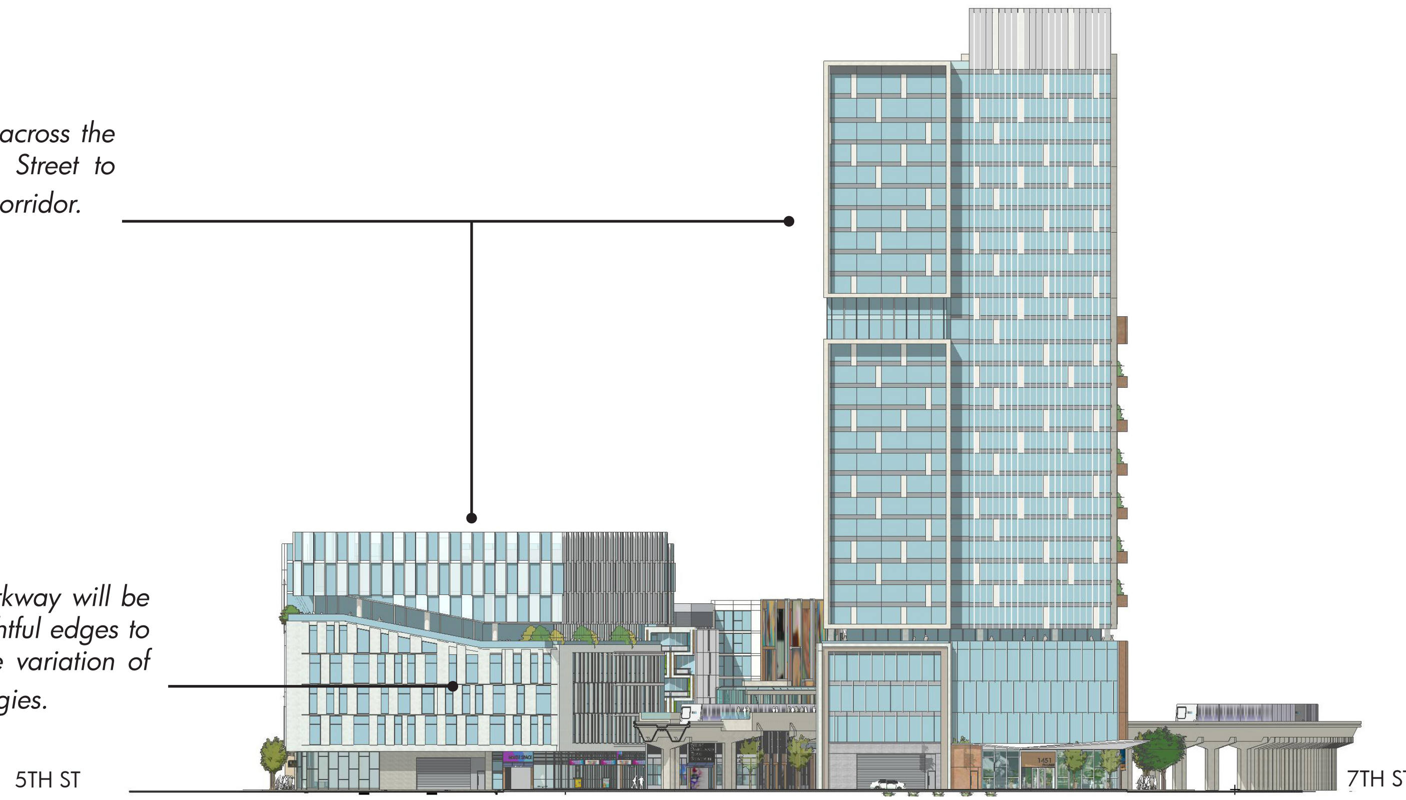
ARCHITECTURAL DESIGN: MANDELA PARKWAY

The Mandela Parkway frontage provides an important visual and physical north-south link to the site. This frontage should be designed to transition the larger building heights along 7th Street to the lower scale of 5th Street. However, it is also recognized that the future buildings along Mandela Parkway will be taller urban buildings that form a new higher-density context for the Station site development. The design of Mandela Parkway frontage is intended to set a high quality design standard for the future urban neighborhood to come.

Mandela Parkway should provide enhanced bike access to the BART station, with a north-south cycle-track that connects to a mid-block bike station. It is a less important retail shopping street, but should maintain a quality pedestrian walking experience with retail edges and a high level of architectural expression. Service and loading areas should be designed to minimize pedestrian disruption and to ensure pedestrian safety.

Development heights will step down across the site from taller buildings along 7th Street to lower buildings along the 5th Street corridor.

Building facades along Mandela Parkway will be designed to become lively and delightful edges to streets and open spaces through the variation of building materials and facade typologies.

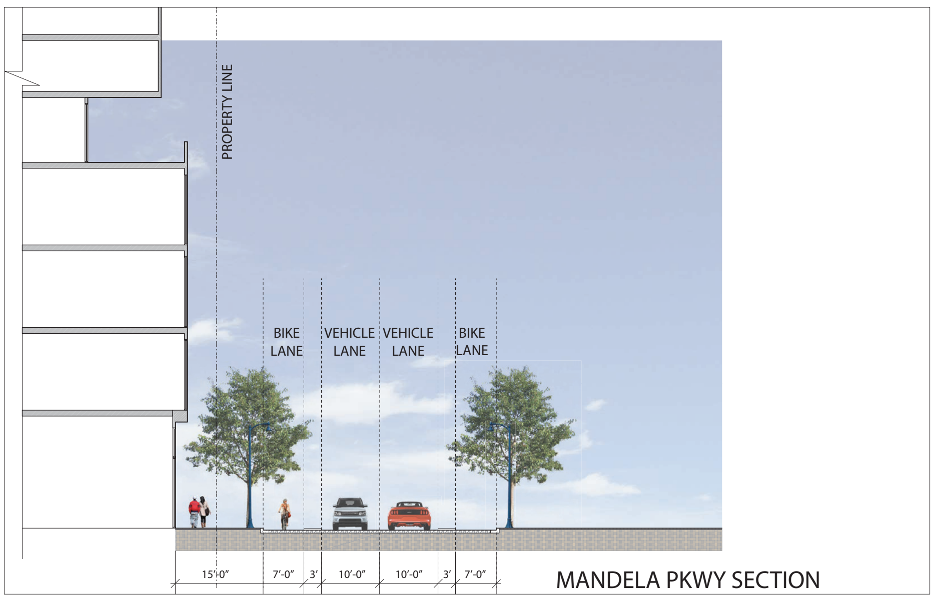


MANDELA PARKWAY ELEVATION

ARCHITECTURAL DESIGN: MANDELA PARKWAY

Building Massing and Articulation: Building facades along Mandela Parkway will be designed to become lively and delightful edges to streets and open spaces through the variation of building materials and facade typologies. The architecture along Mandela Parkway will be designed to be consistent with the high quality a design, materials and fenestration of the 7th and 5th Street facades. Development heights will step down across the site from taller buildings along 7th Street to lower buildings along the 5th Street corridor.

Sidewalk Setbacks: Buildings along Mandela Parkway will be generally built to the property lines of streets to provide a clear “street wall” definition, but will be massed and articulated to avoid the creation of an undifferentiated and monolithic environment. Ground floor setbacks may be used to ensure adequate public circulation and access for transit riders.



MANDELA PKWY SECTION

Activated Mandela Parkway Corridor:

Along the Mandela Parkway frontage, building frontages should adhere to the following guidelines:

1. The ground floor-to-floor dimension should promote viable retail uses that are welcoming and transparent in nature, with a minimum floor-to-floor height of 20’.
2. Service and Loading areas should be well designed and visually protected from pedestrian view. Service and loading areas should be designed to minimize pedestrian disruption and to ensure pedestrian safety.
3. The building frontage should be built with adequate set-back to the property line to provide pedestrian use of the sidewalk.
4. The interior finished floor elevation should be generally flush with the street or promenade frontage.
5. Retail and other pubic uses should be provided where possible. Shop fronts should be designed with a high level of transparency and visual interest.
6. Service and loading areas should be designed to minimize pedestrian disruption and to ensure pedestrian safety.

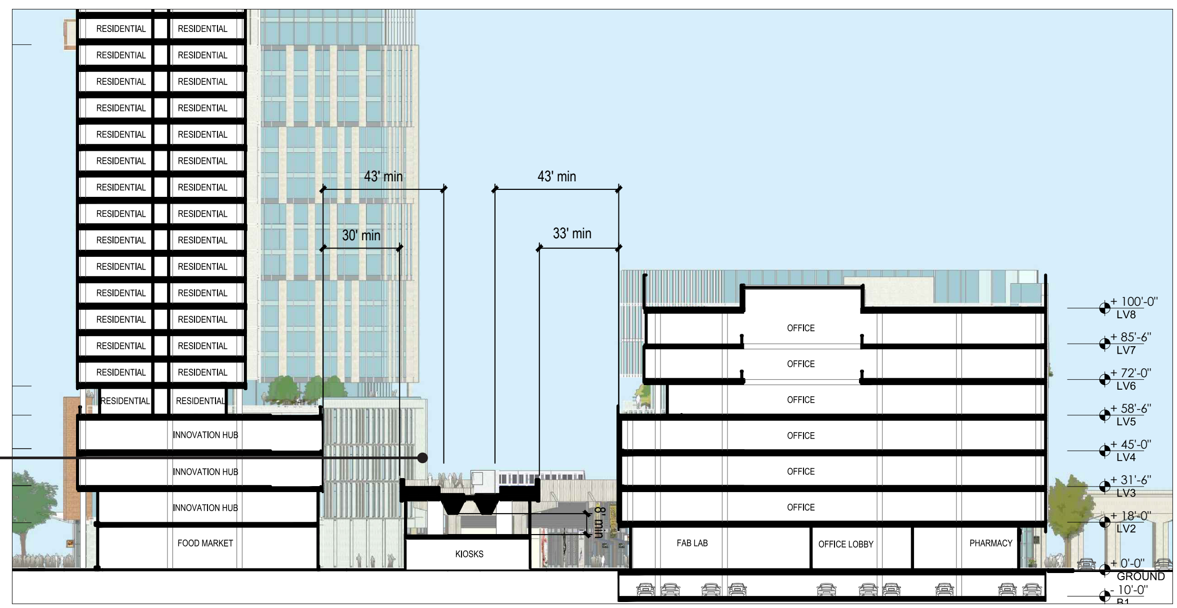
ARCHITECTURAL DESIGN: MANDELA PARKWAY

Building facades will be designed with a variation of building materials and facade typologies.

Ground floor-to-floor dimension should be welcoming with a minimum floor-to-floor height of 20'.

MANDELA ELEVATION DETAIL

Building Setbacks from the BART tracks.



T1, T4 & BART TRACK SECTION

ARCHITECTURAL DESIGN: MANDELA PARKWAY

Street barriers should be active and lively to ensure an interesting pedestrian experience

MANDELA STREETSCAPE

Street facade should be active and lively to ensure an interesting pedestrian experience

ART ALLEY EAST

ARCHITECTURAL DESIGN: CHESTER STREET

The Chester Street frontage should be designed as a transition from the larger building heights along 5th Street to the lower scale historic structures of the South Prescott neighborhood. Chester Street should be designed to become a modern bridge between the current historic community and the future higher density development at the Station site.

Building facades along Chester Street will be designed to a smaller residential scaled street, except as necessary to screen the BART trackway

CHESTER STREET RESIDENTIAL SREETSCAPE

ARCHITECTURAL DESIGN: CHESTER STREET

Building Massing and Articulation: Building facades along Chester Street will be designed to a smaller residential scaled street, except as necessary to screen the BART trackway. Chester Street should be designed with a lower 3 level height and a more individually articulated building massing. Although it may use a more modern architectural vocabulary, the buildings along Chester Street should be articulated with bay windows and a range of smaller window sizes and fenestration. Individual building entrances and “stoops” at the street will reinforce this more traditional community streetscape.

Street Activation: Although Chester Street is not a major retail location, this street frontage may be activated with local maker spaces that reinforce the 7 day-a-week activation to ensure the safety and desirability of the overall station location.

Sidewalk Setbacks: Buildings along Chester Street will be generally built to the property lines of streets to provide a clear “street wall” definition. Ground floor setbacks may be used to ensure adequate public circulation and access for good pedestrian circulation.

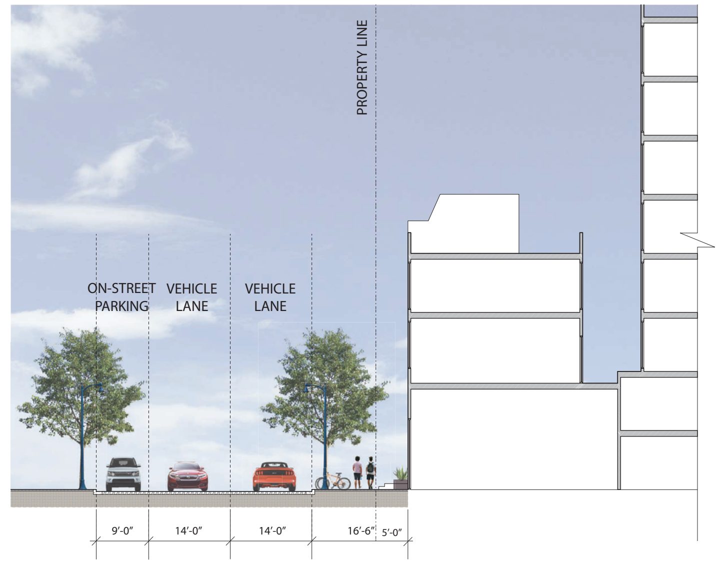
Mid-Block Pedestrian Access: An important mid-block pedestrian access will be established at the BART trackway. Buildings will set back to provide both adequate emergency vehicle access and to create a delightful and activated pedestrian passage through the site to the BART station. The architecture of the buildings should be designed to provide visual interest and identity at this key mid-block public passage.

ARCHITECTURAL DESIGN: CHESTER STREET

Activated Chester Street Corridor

Along the Chester Street frontage, building frontages should adhere to the following guidelines:

1. The ground floor-to-floor dimension should promote potential retail uses with a minimum floor-to-floor height of 16'.
2. Residential uses should have individual entries that activate the street and provide a more traditional neighborhood scale.
3. The interior finished floor elevation should be generally flush with the street or promenade frontage.
4. Building should promote activate street experience with ground floors that support public retail or maker spaces.
5. Use architectural details on residential structures such as balconies, railings, canopies, and other elements that enliven the facade and reinforce the human scale of the development
6. Provide recessed windows along building base elevations to ensure depth, shade, and shadow on the building facade.
7. Service and loading areas should be designed to minimize pedestrian disruption and to ensure pedestrian safety.



CHESTER STREET SECTION

ARCHITECTURAL DESIGN: CHESTER STREET

Building facades along Chester Street will be designed to a smaller residential scaled street, except as necessary to screen the BART trackway

CHESTER STREET ELEVATION DETAIL

Residential uses should have individual entries that activate the street and provide a more traditional neighborhood scale.

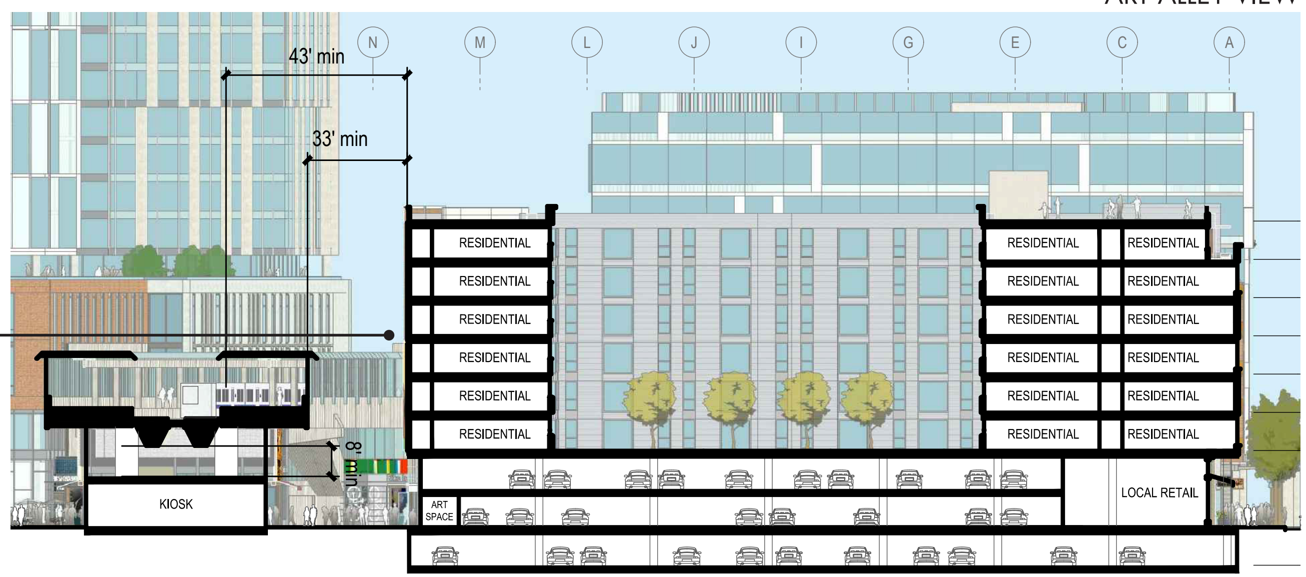
CHESTER STREET RESIDENTIAL SREETSCAPE

ARCHITECTURAL DESIGN: CHESTER STREET

An important mid-block pedestrian access will be established at the BART trackway. Buildings will set back to provide both adequate emergency vehicle access and to create a delightful and activated pedestrian passage through the site to the BART station.

ART ALLEY VIEW

Building Setback from BART trackway



T3 & BART TRACK SECTION

PUBLIC SPACE IMPROVEMENTS

The public spaces for the West Oakland Station site should be designed to reinforce the vibrant mixed-use development that furthers Oakland's efforts to promote urban living at key transit sites, and provides an active and delightful center for the West Oakland community. The site is designed with a series of important civic open spaces, including:

- **Mandela Plaza**, major community civic plaza at 7th Street fronting BART Station entrance;

- **Maker Square,** a pedestrian plaza replacing the vacated Center Street, and

- **Art Alley**, a pedestrian paseo along the BART trackway.

The perimeter of the site is designed to promote public access and to provide an enhanced pedestrian experience, with expanded sidewalks and retail frontages along 7th and 5th Streets. These pedestrian spaces are designed with the highest level of materials, planting, paving, seating and lighting to create a vital and dynamic center for the community, and to maximize access to BART and associated transit modes.

Public Space Goals: The following urban design principles are intended to support public space strategy:

1. Establish a continuous, diverse and active network of public open spaces, including plazas, activated streetscapes and pedestrian paseos that connect site and BART station to the surrounding community.

2. Configure and design the open space system to serve as center for the West Oakland community and a destination for Oakland and the East Bay.
3. Create walkable and lively public streets, open spaces and pedestrian ways that provide an delightful, safe and activated 7 day-a-week destination for the neighborhood, transit riders and East Bay.

4. Provide a range of cultural, recreational and commercial activities that reinforce the public destination appeal and civic role of the Station site as a whole.

PUBLIC SPACE IMPROVEMENTS: MANDELA PLAZA

Mandela Plaza - Community Civic Plaza: A larger civic plaza should be provided along 7th Street at the BART station to provide increased visibility and access to the BART station, and also to celebrate the civic importance of this site in the community. This plaza is located to be central to the overall site in order to increase its public importance, public access, and public use for community, arts and cultural events. The central plaza should be designed to enhance the 7th Street corridor activation and public experience.

PLAZA VIEW FROM CHESTER ST

PUBLIC SPACE IMPROVEMENTS: MAKER SQUARE

Maker Square: The vacated Center Street should be transformed into an active urban destination for the neighborhood. This space is both an important pedestrian connection to the BART station and a significant public plaza for the surrounding community. It should be lined with public uses, including: retail, food, cultural and maker spaces. The space should be an inviting place for the neighborhood to shop, dine, and relish a quality community experience.

MAKER SQUARE VIEW

PUBLIC SPACE IMPROVEMENTS: ART ALLEY

Art Alley: The mid-block passage south of the BART trackway should be designed as an active pedestrian paseo. Buildings will set back to provide both adequate emergency vehicle access and to create a delightful and activated pedestrian passage through the site to the BART station. The space should be lined with public uses that activate the space, including: retail kiosks, maker spaces, a bike station, and other cultural uses that provide day and night activation and safety for pedestrians using the space. Art and other cultural/historical installations should be introduced into this space to provide a meaningful and innovative public experience.

ART ALLEY VIEW

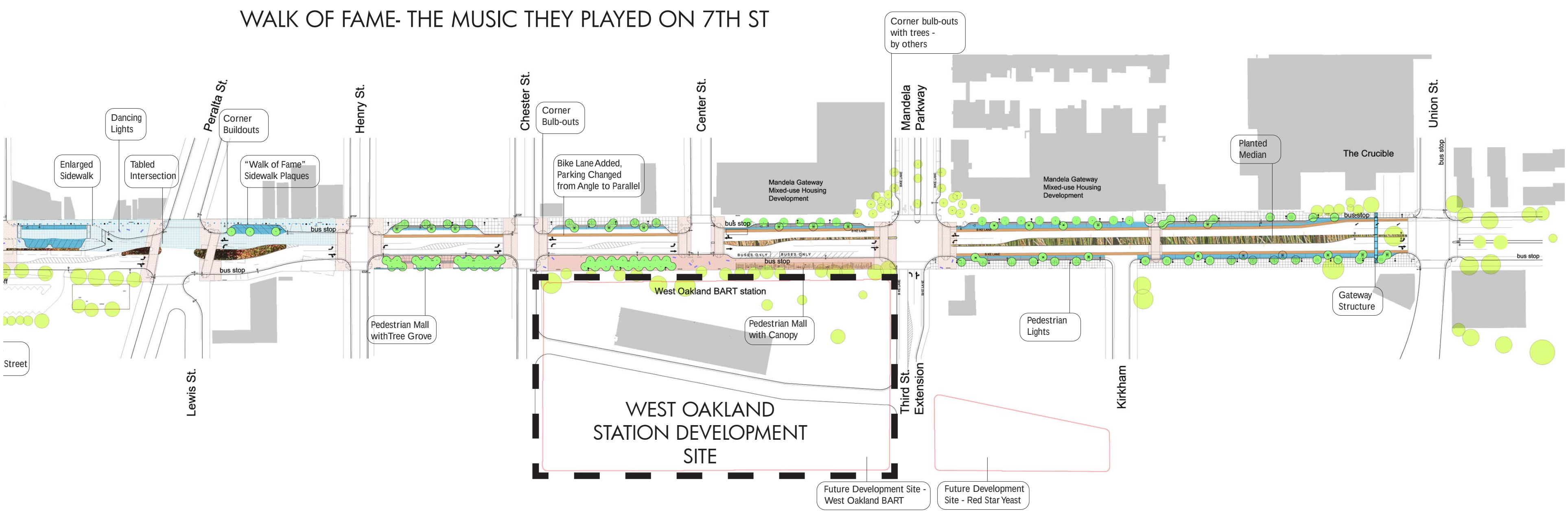
PUBLIC SPACE IMPROVEMENTS: ART & CULTURE

Integrated Art and Public Spaces: The public spaces should be designed to facilitate flexible community uses including: recreation, community events, farmers markets, makers markets, arts events, festivals and other events that promote this as a central destination for the local and regional community. Neighborhood amenities, such as seating, lighting, retail kiosks, cafes, maker spaces and other activated uses will be appropriately incorporated into the public edges of the development. This will ensure that the overall development becomes a year round activated urban community destination.

Arts and Cultural Programming: The site program will incorporate significant and innovative arts, education and cultural programing integrated into the public spaces and buildings on site. The open spaces will be programed with year round cultural, community and arts events that encourages use of the site, and encourages local arts and artists within the West Oakland community. This cultural, education and arts programming is incorporated into the overall design, leasing and operations to encourage and incubate the arts in West Oakland.

7th Street Walk of Fame

The public open space improvements should enhance development of the "The Music They Played on 7th Street Oakland Walk of Fame" plaques which were partially installed in 2012. Plaques immortalizing the blues, R&B and Jazz musicians including "Terrible Tom" Bowden, Sugar Pie DeSanto, B.B.King, Aretha Franklin among many others will be integrated into the site design and highly visible on the facades and within the open spaces of the development.



PUBLIC SPACE IMPROVEMENTS: ACCESS

Site Uses to Encourage Neighborhood Retail Shopping: It is anticipated food, grocery or other neighborhood serving retail will be incorporated into the tenant leasing of the ground floor retail. Planning incorporates large retail spaces with loading and transit access that are conducive to these neighborhood serving uses. The pedestrian environment is designed to encourage local shopping by planning safe, active pedestrian spaces and access and to promote community use and a quality shopping pedestrian experience

Vehicular and Service Access: The Site Circulation and Access plan is designed to coordinate the vehicle and pedestrian access and use of the site. The design minimizes these conflicts to ensure safety and enjoyment for all users. Vehicular traffic is minimized on site to ensure maximum pedestrian safety, access and use. Parking is restricted to non-pedestaling areas. Building loading areas are located on Mandela and 5th Street to minimize pedestrian conflicts, and to minimize conflicts with transit and other access modes to the site

Transit Access: The overall site Access Plan is designed to accommodate maximum flexibility of current and future transit modes. This includes planned curb space for AC buses and curb drop-off for transit riders. The site has been designed to maximize the pedestrian access from all surrounding blocks. Bike access is enhanced with dedicated cycle tracks on the 7th Street and Mandela Streets.

PUBLIC SPACE IMPROVEMENTS: LANDSCAPE

Hardscape and Green-scape Design: Landscape plan should be designed to enhance the pedestrian public spaces to create a high quality of pedestrian experience and civic prominence. The existing trees will be replaced because of conflicts with the access plan. The new tree planting will complement the overall landscape strategy of the 7th and 5th Street corridors to ensure a continuous, interesting and varied visual experience. Planting and paving materials shall be of high quality and will be aesthetically designed to differentiate unique spaces within the pedestrian plazas, promote visual access to the BART station entrance, and to create opportunities for cultural, community and arts events. The landscape plan shall be designed to create a visually significant destination and center for the West Oakland community and users of the transit hub.

The landscape materials are designed with high quality stone, brick, finished concrete and other materials to create a high quality public pedestrian experience and to maximize the types of uses that can occur on site. The landscape will be designed to relate to a larger vision for the 7th Street corridor. The new tree planting will complement the overall landscape strategy of the 7th Street corridor to ensure a continuous, interesting and varied visual experience. Planting and paving materials will be of high quality and will be aesthetically designed to differentiate unique spaces within the pedestrian plazas, promote visual access to the BART station entrance, and to create opportunities for cultural, community and arts events.

Site Lighting: The Lighting plan will be designed to create well lighted plazas and pedestrian pathways through the site. The visual security of all pedestrian spaces within the site is facilitated by locating retail and other public activities along all edges of the development. The landscape plan will provide adequate lighting to provide a safe environment while conforming to current best practices to mitigate light pollution.

Storm Water Management: Site should be designed to provide innovative strategies policy for achieving storm water management on site. The public spaces are designed to encourage the overall comfort and wellbeing of residents and visitors to the site while conserving water, energy, water and natural resources.

PUBLIC SPACE IMPROVEMENTS: LANDSCAPE

PERVIOUS PAVING

CONCRETE PAVERS

COLORED CONCRETE

HARDSCAPE

PUBLIC SPACE IMPROVEMENTS: LANDSCAPE


Helleborus argutifolius *3'x3'*


Abutilon megapotamicum 'Lemon' *3'x3'*


Berberis 'Orange Rocket'
4'Hx2'W


Robinia x ambigua 'Purple Robe'


Nandina domestica Alba
'Lemon-Lime' *4'Hx3'W*


Acer rubrum 'Armstrong'


Fraxinus americana ' Empire'


Acer saccharum nigrum


Quercus coccinea


Azara microphylla *15'x15'*


Mahonia 'Soft Caress' *4'x4'*

Agave attenuata 'Raea's Gold' *3'x3'*


Cordyline 'Design-a Line'
3'x3'


Pittosporum tobira 'Mojo'
3'x3'


Digiplexis Illumination 'Apricot
2'Hx18"W

GREENSCAPE

SUSTAINABLE DESIGN

By developing a transit urban infill site with a high density of residential and commercial use near a transit stop, this development is already inherently "green" in terms of land use. Further measures employed during the design and construction of the project can contribute additional environmental benefits. These measures, when taken as a whole, will promote occupant comfort and well-being while conserving energy, water, and natural resources. A few general measures are as follows:

<u>Site Design Measures:</u> The development shall employ architectural strategies that are respond to the local climate including solar orientation, prevailing winds, and precipitation.

- Orient units and / or provide architectural shading treatments to maximize winter solar exposure and minimize summer exposure.
- Provide on-site storm water treatment as appropriate to the scale of the buildings and available open space.
- Provide on-site secure bicycle parking
- Reduce parking capacity to reasonable minimum.
- Consider designated parking for carpool vans or car share vehicles.
- Use native and drought-tolerant landscaping to minimize irrigation required.

<u>Building Design Measures:</u>

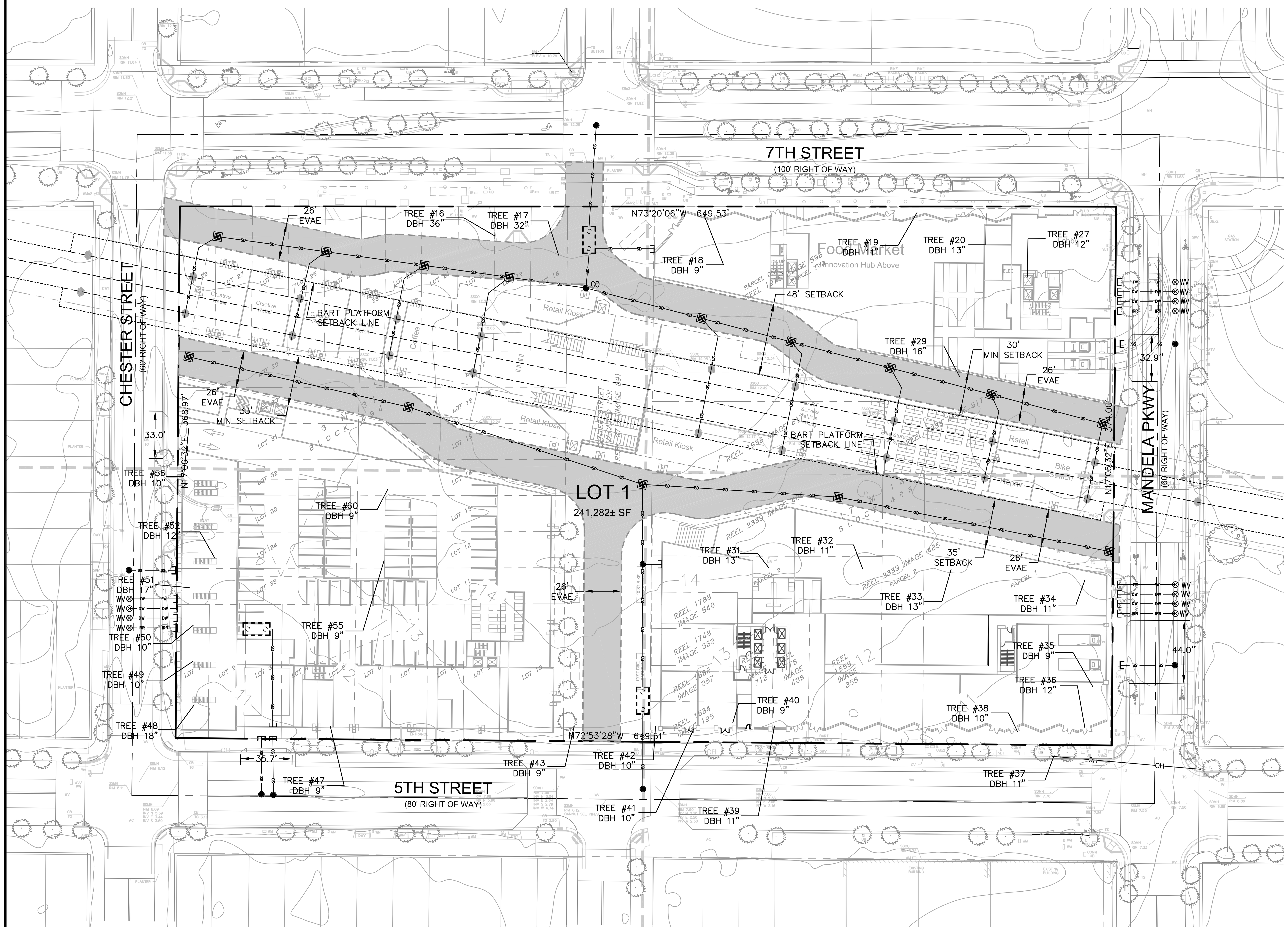
- Use reflective roofing to minimize heat island effect.
- Use water-conserving fixtures and irrigation systems.
- Design building envelope, HVAC systems, lighting, and other systems to maximize energy efficiency. Consider fundamental commissioning of development systems.
- Consider on-site electrical generation or purchase of off-site renewable energy.
- Provide adequate facilities to allow for recycling by residents.
- Where possible, use recycled, salvaged, sustainably harvested, or locally produced materials.
- Use low or no-VOC materials in interior spaces.
- Recommend that the development be designed and constructed in accordance with the recommendations of a recognized "green" rating system such as: GreenPoints Enterprise Green Communities, USGBC LEED rating.

ATTACHMENT D:

Vesting Tentative Parcel Map 10940

VESTING TENTATIVE PARCEL MAP NO. 10940

FOR A VOLUNTARY MERGE OF 41 PARCELS INTO 1 LOT



SYMBOLS & LEGEND

EXISTING

- FOUND CITY OF OAKLAND MONUMENT
- VALVE
- FIRE HYDRANT
- BACKFLOW PREVENTION DEVICE
- RISER
- SIGN
- STREET LIGHT (UNLESS NOTED OTHERWISE)
- LIGHT POLE (UNLESS NOTED OTHERWISE)
- GUY ANCHOR
- UTILITY POLE
- TELEPHONE MANHOLE
- MANHOLE
- SUBJECT PROPERTY
- ADJOINING LOT
- CENTERLINE
- SURVEY TIE
- STORM DRAIN
- SANITARY SEWER
- OVERHEAD UTILITY LINE
- CONCRETE
- DETECTABLE WARNING
- PROPOSED LOT LINE

ABBREVIATIONS

AC	ASPHALT CONCRETE
CA	CABLE
CB	CATCH BASIN
CO	CLEAN OUT
COMM	COMMUNICATION
CONC	CONCRETE
DI	DROP INLET
DWY	DRIVEWAY
E	ELECTRIC
EP	EDGE OF PAVEMENT
EVAE	EMERGENCY VEHICLE ACCESS EASEMENT
FL	SURFACE FLOWLINE
G	GAS
GYP	GUY POLE
INV	BOTTOM INSIDE OF PIPE
LG	LIP OF GUTTER
M	METER
MH	MANHOLE
OH	OVERHEAD UTILITY LINE
SD	STORM DRAIN
SL	STREETLIGHT
SS	SANITARY SEWER
TC	TOP FACE OF CURB
TEL	TELECOMMUNICATION LINE
TG	TOP OF GRATE
TS	TRAFFIC SIGNAL
TV	TELEVISION
UB	UTILITY BOX
V	VALVE
VLT	VAULT
W	WATER
WM	WATER METER

PROPERTY ADDRESS:

1451 7TH STREET
OAKLAND, CA 94607
510-465-2278

OWNER AND SUBDIVIDER:

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT
300 LAKESIDE DRIVE, 22ND FLOOR
OAKLAND, CA 94012
510-597-6300

BASIS OF BEARINGS

THE BEARING OF NORTH 72°53'28" WEST BETWEEN FOUND MONUMENTS ON 5TH AVENUE BETWEEN HENRY STREET AND KIRKHAM STREET AS SHOWN ON THAT RECORD OF SURVEY, R/S 1687, FILED AUGUST 7, 2000 IN BOOK 25 OF RECORDS OF SURVEY AT PAGES 58-69, INCLUSIVE, ALAMEDA COUNTY RECORDS, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS SURVEY.

BENCHMARK

THE ELEVATIONS SHOWN HEREON ARE BASED ON A FOUND CITY OF OAKLAND BENCHMARK, DESIGNATION 25/H, BEING A BRONZE DISK STAMPED, "SEC 25 STA H."
ELEVATION 10.784 FEET (DATUM = MEAN SEA LEVEL).

NOTES

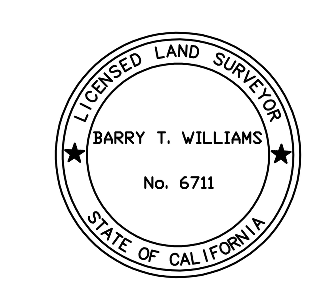
1. THE CONTROL SURVEY WAS CONDUCTED IN NOVEMBER OF 2018.
2. ALL UNITS ARE IN US SURVEY FEET AND DECIMALS THEREOF.
3. THE PROPERTY BOUNDARY SHOWN HEREON IS BASED ON AN ONGOING BOUNDARY RESOLUTION SURVEY. THIS RESOLVED BOUNDARY SURVEY WILL BE COMPLETED IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYORS' ACT PRIOR TO PARCEL MAP SUBMITTAL.
4. THE TOPOGRAPHIC MAPPING SHOWN HEREON IS A WORKING DOCUMENT. THE TOPOGRAPHIC SURVEY AND MAPPING IS IN PROGRESS AND HAS NOT BEEN COMPLETED OR FINALIZED.
5. ALL BUILDINGS TO THE NORTH OF THE BART STATION SHALL BE SET BACK A MINIMUM OF 30' FROM THE BART PLATFORM, AND ALL BUILDINGS TO THE SOUTH OF THE BART STATION SHALL BE SET BACK A MINIMUM OF 33' FROM THE BART PLATFORM.
6. ALL EMERGENCY VEHICLE ACCESS EASEMENTS SHALL BE A MINIMUM OF 26' WIDE.

SURVEYOR'S STATEMENT:

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYOR'S ACT.

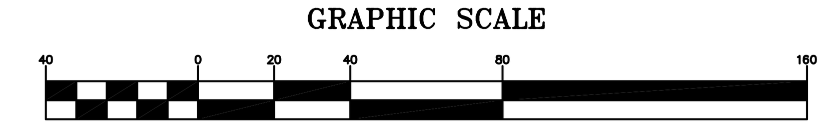
BARRY WILLIAMS, P.L.S. NO. 6711

DATE:



West Oakland Bart Proposed Trees		
Tree number	DBH (in)	Species Name
16	36	Pinus Pinea
17	32	Pinus Pinea
20	13	Liriodendron Tulipifera
27	12	Maytenus Boaria
29	16	Maytenus Boaria
31	13	Liriodendron Tulipifera
33	13	Liriodendron Tulipifera
36	12	Liriodendron Tulipifera
48	18	Platanus X Acerifolia
51	17	Platanus X Acerifolia
52	12	Liriodendron Tulipifera

1"=40'



DRAWING NAME: K:\2018\180384_West_Oakland_BART_TOD_Survey\ENG\TENTATIVE PARCEL MAP\WOBART_TMAP.dwg
PLOT DATE: 01-29-19 PLOTTED BY: chuc

BKF 100+ YEARS
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VESTING TENTATIVE PARCEL MAP NO. 10940

CITY OF OAKLAND COUNTY OF ALAMEDA CALIFORNIA

Revisions

No.

Date	01/22/2019
Scale	AS SHOWN
Design	CG
Drawn	CC
Approved	ES
Job No	20180384

Drawing Number:

1

1 OF 1

ATTACHMENT E:

Conditions of Approval

- Exhibit A: City of Oakland Department of Transportation, Engineering Services Conditions of Approval
- Exhibit B: City of Oakland Department of Transportation, Office of the City Surveyor Conditions of Approval

ATTACHMENT E

CONDITIONS OF APPROVAL
PROJECT: WEST OAKLAND BART TRANSIT-ORIENTED DEVELOPMENT
PROJECT SPONSORS: CHINA HARBOR ENGINEERING/ STRATEGIC URBAN DEVELOPMENT ALLIANCE

Part 1: Standard Conditions of Approval – General Administrative Conditions

1. Approved Use

The project shall be constructed and operated in accordance with the authorized use as described in the approved application materials dated February 6, 2019 and the approved plans , as amended by the following conditions of approval and mitigation measures, if applicable ("Conditions of Approval" or "Conditions").

This action by the Planning Commission includes the approvals set forth below. This Approval includes:

a. West Oakland BART TOD PUD permit, including West Oakland BART TOD Preliminary Development Plan (February 6, 2019) and West Oakland BART TOD Design Guidelines (February 6, 2019).
b. Transportation Demand Management (TDM) Plan
c. Greenhouse Gas Reduction Plan (GGRP)
d. Vesting Tentative Parcel Map (10940)

2. Effective Date, Expiration, Extensions and Extinguishment

Pursuant to the City's Subdivision Code, an approved Vesting Tentative Parcel Map expires two years after its approval, but may be extended for an additional year, for a maximum for a three-year period. The California Subdivision Map Act, however, specifies that an approved tentative map expires two years after its approval and that upon application of the subdivider prior to the expiration of the approved tentative map, the life of the tentative map may be extended for an additional six years. Case law indicates that these provisions in the California Subdivision Map Act preempt the City's Subdivision Code. This Approval shall become effective immediately, unless the Approval is appealable, in which case the Approval shall become effective in ten (10) calendar days unless an appeal is filed.

Upon written request and payment of appropriate fees submitted no later than the expiration date of this Approval, the Director of City Planning or designee may grant a one-year extension of this date, with additional extensions subject to approval by the approving body. Expiration of any necessary building permit or other construction-related permit for this project may invalidate this Approval if said Approval has also expired. If litigation is filed challenging this Approval, or its implementation, then the time period stated above for obtaining necessary permits for construction or alteration and/or commencement of authorized activities is automatically extended for the duration of the litigation.

3. Compliance with Other Requirements

The project applicant shall comply with all other applicable federal, state, regional, rapid transit districts (such as BART), and local laws/codes, requirements, regulations, and guidelines, including but not limited to those imposed by the City's Planning and Building Department, Fire Marshal, Department of Transportation, and Public Works Department. Compliance with other applicable requirements may require changes to the approved use and/or plans. These changes shall be processed in accordance with the procedures contained in Condition #4.

4. Minor and Major Changes

a. Minor changes to the approved project, plans, Conditions, facilities, or use may be approved administratively by the Director of City Planning. Major changes to the approved project, plans, Conditions, facilities, or use shall be reviewed by the Director of City Planning to determine whether such changes require submittal and approval of a revision to the Approval by the original approving body or a new independent permit/approval. Major revisions shall be reviewed in accordance with the procedures required for the original permit/approval. A new independent permit/approval shall be reviewed in accordance with the procedures required for the new permit/approval.

   Major changes include, but are not limited to, changes of any of the following: decrease in the amount of affordable housing units, increase in the number of units, substantial change in building footprint,

5. Compliance with Conditions of Approval

a. The project applicant and property owner, including successors, (collectively referred to hereafter as the "project applicant" or "applicant") shall be responsible for compliance with all the Conditions of Approval and any recommendations contained in any submitted and approved technical report at his/her sole cost and expense, subject to review and approval by the City of Oakland.
b. The City of Oakland reserves the right at any time during construction to require certification by a licensed professional at the project applicant's expense that the as-built project conforms to all applicable requirements, including but not limited to, approved maximum heights and minimum setbacks. Failure to construct the project in accordance with the Approval may result in remedial reconstruction, permit revocation, permit modification, stop work, permit suspension, or other corrective action.
c. Violation of any term, Condition, or project description relating to the Approval is unlawful, prohibited, and a violation of the Oakland Municipal Code. The City of Oakland reserves the right to initiate civil and/or criminal enforcement and/or abatement proceedings, or after notice and public hearing, to revoke the Approval or alter these Conditions if it is found that there is violation of any of the Conditions or the provisions of the Planning Code or Municipal Code, or the project operates as or causes a public nuisance. This provision is not intended to, nor does it, limit in any manner whatsoever the ability of the City to take appropriate enforcement actions. The project applicant shall be responsible for paying fees in

accordance with the City's Master Fee Schedule for inspections conducted by the City or a City-designated third-party to investigate alleged violations of the Approval or Conditions.

6. Signed Copy of the Approval/Conditions

A copy of the Approval letter and Conditions shall be signed by the project applicant, attached to each set of permit plans submitted to the appropriate City agency for the project, and made available for review at the project job site at all times.

7. Blight/Nuisances

The project site shall be kept in a blight/nuisance-free condition. Any existing blight or nuisance shall be abated within sixty (60) days of approval, unless an earlier date is specified elsewhere.

8. Indemnification

a. To the maximum extent permitted by law, the project applicant shall defend (with counsel acceptable to the City), indemnify, and hold harmless the City of Oakland, the Oakland City Council, the Oakland Redevelopment Successor Agency, the Oakland City Planning Commission, and their respective agents, officers, employees, and volunteers (hereafter collectively called "City") from any liability, damages, claim, judgment, loss (direct or indirect), action, causes of action, or proceeding (including legal costs, attorneys' fees, expert witness or consultant fees, City Attorney or staff time, expenses or costs) (collectively called "Action") against the City to attack, set aside, void or annul this Approval or implementation of this Approval. The City may elect, in its sole discretion, to participate in the defense of said Action and the project applicant shall reimburse the City for its reasonable legal costs and attorneys' fees.

b. Within ten (10) calendar days of the filing of any Action as specified in subsection (a) above, the project applicant shall execute a Joint Defense Letter of Agreement, or similarly termed document, with the City, acceptable to the Office of the City Attorney, which memorializes the above obligations. These obligations and the Joint Defense Letter of Agreement shall survive termination, extinguishment, or invalidation of the Approval. Failure to timely execute the Letter of Agreement does not relieve the project applicant of any of the obligations contained in this Condition or other requirements or Conditions of Approval that may be imposed by the City.

9. Severability

The Approval would not have been granted but for the applicability and validity of each and every one of the specified Conditions, and if one or more of such Conditions is found to be invalid by a court of competent jurisdiction this Approval would not have been granted without requiring other valid Conditions consistent with achieving the same purpose and intent of such Approval.

10. Special Inspector/Inspections, Independent Technical Review, Project Coordination and Monitoring

The project applicant may be required to cover the full costs of independent third-party technical review and City monitoring and inspection, including without limitation, special inspector(s)/inspection(s) during times of extensive or specialized plan-check review or construction, and inspections of potential violations of the Conditions of Approval. The project applicant shall establish a deposit with Engineering Services and/or the Bureau of Building, if directed by the Director of Public Works, Building Official, Director of City Planning, Director of Transportation, or designee, prior to the issuance of a construction-related permit and on an ongoing as-needed basis.

11. <u>Public Improvements</u>

The project applicant shall obtain all necessary permits/approvals, such as encroachment permits, obstruction permits, curb/gutter/sidewalk permits, and public improvement ("p-job") permits from the City for work in the public right-of-way, including but not limited to, streets, curbs, gutters, sidewalks, utilities, and fire hydrants. Prior to any work in the public right-of-way, the applicant shall submit plans for review and approval by the Bureau of Planning, the Bureau of Building, Engineering Services, Department of Transportation, and other City departments as required. Public improvements shall be designed and installed to the satisfaction of the City.

The public improvements included in the project that shall comply with this condition include, but are not limited to, the following:

Streetscape Improvements

- 7th Street Improvements
  - Raised Class IV one-way separated bikeways on both sides of 7th Street between Chester St and Mandela Pkwy
  - Minimum 8 ft pedestrian through zone on the sidewalk between Chester St and Mandela Pkwy. 7th St sidewalk to provide adequate width to accommodate high level of pedestrians with pedestrian amenities such as seating, real-time bus arrival information, trash receptacles, and pedestrian-lighting
  - Approximately 270-foot extended bus stop on eastbound 7th St at Mandela Pkwy
  - Approximately 130-foot bus stop on westbound 7th St just west of Center St
  - Approximately 250 feet of linear curb designated for passenger loading and unloading on eastbound 7th St between Chester St and Center St, with about 50 feet of curb on eastbound 7th St just west of Center St designated as blue accessible loading zone.
- Mandela Parkway Improvements
  - Class IV one-way separated bikeways on both sides of Mandela Pkwy between 7th St and 5th St
  - Minimum 8 ft pedestrian through zone on the sidewalk between 7th St and 5th St
  - Prohibit parking on the west side of Mandela Parkway between 5th St and 7th St
- 5th Street Improvements
  - Minimum 8 ft pedestrian through zone on the sidewalk between Chester Street and Mandela Parkway
  - Approximately 170-foot long bus stop and layover zone with a concrete bus pad on 5th Street just west of Mandela Pkwy.
  - Approximately 100 feet of linear curb designated for passenger loading and unloading east of Center St and about 200 feet west of Center St
- Chester Street Improvements
  - Minimum 8 ft pedestrian through zone on the sidewalk between 7th St and 5th St
  - Centerline redesigned to facilitate northbound bus turning movements.

  - Prohibit parking on the east side of Chester St between 5th St and 7th St and on the west side of Chester St for about 100 feet south of 7th St.

Intersection Improvements

- 5th St and Center St
  - High-visibility crosswalks and directional ramps
  - Curb extensions
- 5th St and Chester St
  - High-visibility crosswalks and directional ramps
- 5th St and Mandela Pkwy
  - High-visibility crosswalks and directional ramps
- Mandela Pkwy between 5th St and 7th St
  - High-visibility, mid-block pedestrian crossing

Other:

- Bike station on the east side of the existing BART station, accommodating at least 500 bicycles.

12. <u>Compliance Matrix</u>

The project applicant shall submit a Compliance Matrix, in both written and electronic form, for review and approval by the Bureau of Planning and the Bureau of Building that lists each Condition of Approval (including each mitigation measure if applicable) in a sortable spreadsheet. The Compliance Matrix shall contain, at a minimum, each required Condition of Approval, when compliance with the Condition is required, and the status of compliance with each Condition. For multi-phased projects, the Compliance Matrix shall indicate which Condition applies to each phase. The project applicant shall submit the initial Compliance Matrix prior to the issuance of the first construction-related permit and shall submit an updated matrix upon request by the City.

13. <u>Construction Management Plan</u>

Prior to the issuance of the first construction-related permit, the project applicant and his/her general contractor shall submit a Construction Management Plan (CMP) for review and approval by the Bureau of Planning, Bureau of Building, and other relevant City departments such as the Fire Department, Department of Transportation, and the Public Works Department as directed. The CMP shall contain measures to minimize potential construction impacts including measures to comply with all construction-related Conditions of Approval (and mitigation measures if applicable) such as dust control, construction emissions, hazardous materials, construction days/hours, construction traffic control, waste reduction and recycling, stormwater pollution prevention, noise control, complaint management, and cultural resource management (see applicable Conditions below). The CMP shall provide project-specific information including descriptive procedures, approval documentation, and drawings (such as a site logistics plan, fire safety plan, construction phasing plan, proposed truck routes, traffic control plan, complaint management plan, construction worker parking plan, and litter/debris clean-up plan) that specify how potential construction impacts will be minimized and how each construction-related requirement will be satisfied throughout construction of the project.

14. <u>Standard Conditions of Approval / Mitigation Monitoring and Reporting Program (SCAMMRP)</u>

a. All mitigation measures identified in the **Addendum #1 to the West Oakland Specific Plan (WOSP) Environmental Impact Report (EIR) (SCH #2012102047)** are included in the Standard Condition of Approval / Mitigation Monitoring and Reporting Program (SCAMMRP) which is included in these Conditions of Approval as Part 2 and are incorporated herein by reference, as Attachment A, as Conditions of Approval of the project. The Standard Conditions of Approval identified in the **Addendum #1 to the WOSP EIR (SCH #2012102047)** are also included in the SCAMMRP, and are, therefore, incorporated into these Conditions by reference but are not repeated in these Conditions. To the extent that there is any inconsistency between the SCAMMRP and these Conditions, the more restrictive Conditions, as determined by the City, shall govern. In the event a Standard Condition of Approval or mitigation measure recommended in the **Addendum #1 to the WOSP EIR (SCH #2012102047)** has been inadvertently omitted from the SCAMMRP, that Standard Condition of Approval or mitigation measure is adopted and incorporated from the **Addendum #1 to the WOSP EIR (SCH #2012102047)** into the SCAMMRP by reference, and adopted as a Condition of Approval. The project applicant and property owner shall be responsible for compliance with the requirements of any submitted and approved technical reports, all applicable mitigation measures adopted, and with all Conditions of Approval set forth herein at his/her sole cost and expense, unless otherwise expressly provided in a specific mitigation measure or Condition of Approval, and subject to the review and approval by the City of Oakland. The SCAMMRP identifies the timeframe and responsible party for implementation and monitoring for each Standard Condition of Approval and mitigation measure. Unless otherwise specified, monitoring of compliance with the Standard Conditions of Approval and mitigation measures will be the responsibility of the Bureau of Planning, with overall authority concerning compliance residing with the Environmental Review Officer. Adoption of the SCAMMRP will constitute fulfillment of the CEQA monitoring and/or reporting requirement set forth in section 21081.6 of CEQA.

b. Prior to the issuance of the first construction-related permit, the project applicant shall pay the applicable mitigation and monitoring fee to the City in accordance with the City's Master Fee Schedule.

Part 2: Standard Conditions of Approval – Environmental Protection Measures

AESTHETICS

15. <u>Trash and Blight Removal</u>

Requirement: 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 nonresidential 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.

<u>When Required</u>: Ongoing

<u>Initial Approval</u>: N/A

<u>Monitoring/Inspection</u>: Bureau of Building

16. <u>Graffiti Control</u>

<u>Requirement</u>:

a. During construction and operation of the project, the project applicant shall incorporate best management practices reasonably related to the control of graffiti and/or the mitigation of the impacts of graffiti. Such best management practices may include, without limitation:
   i. Installation and maintenance of landscaping to discourage defacement of and/or protect likely graffiti-attracting surfaces.
   ii. Installation and maintenance of lighting to protect likely graffiti-attracting surfaces.
   iii. Use of paint with anti-graffiti coating.
   iv. Incorporation of architectural or design elements or features to discourage graffiti defacement in accordance with the principles of Crime Prevention Through Environmental Design (CPTED).
   v. Other practices approved by the City to deter, protect, or reduce the potential for graffiti defacement.

b. The project applicant shall remove graffiti by appropriate means within seventy-two (72) hours. Appropriate means include the following:
   i. Removal through scrubbing, washing, sanding, and/or scraping (or similar method) without damaging the surface and without discharging wash water or cleaning detergents into the City storm drain system.
   ii. Covering with new paint to match the color of the surrounding surface.
   iii. Replacing with new surfacing (with City permits if required).

<u>When Required</u>: Ongoing

<u>Initial Approval</u>: N/A

Monitoring/Inspection: Bureau of Building

17. Landscape Plan

a. *Landscape Plan Required*

- Requirement: The project applicant shall submit a final Landscape Plan for City review and approval that is consistent with the approved Landscape Plan. The Landscape Plan shall be included with the set of drawings submitted for the construction-related permit and shall comply with the landscape requirements of chapter 17.124 of the Planning Code. 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.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: N/A

b. *Landscape Installation*

Requirement: The project applicant shall implement the approved Landscape Plan unless a bond, cash deposit, letter of credit, or other equivalent instrument acceptable to the Director of City Planning, is provided. The financial instrument shall equal the greater of $2,500 or the estimated cost of implementing the Landscape Plan based on a licensed contractor's bid.

When Required: Prior to building permit final

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

c. *Landscape Maintenance*

Requirement: All required planting shall be permanently maintained in good growing condition and, whenever necessary, replaced with new plant materials to ensure continued compliance with applicable landscaping requirements. The property owner shall be responsible for maintaining planting in adjacent public rights-of-way. All required fences, walls, and irrigation systems shall be permanently maintained in good condition and, whenever necessary, repaired or replaced.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

18. Lighting

Requirement: Proposed new exterior lighting fixtures shall be adequately shielded to a point below the light bulb and reflector to prevent unnecessary glare onto adjacent properties.

When Required: Prior to building permit final

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

19. Public Art for Private Development

Requirement: 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.

When Required: Payment of in-lieu fees and/or plans showing fulfillment of public art requirement – Prior to Issuance of Building permit

Installation of art/cultural space – Prior to Issuance of a Certificate of Occupancy.

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

AIR QUALITY

20. West Oakland Community Emissions Reduction Program

Requirement: Project shall comply with all air quality-related standard conditions the City adopts in support of the West Oakland Community Emissions Reduction Program (AB617).

When Required: After adoption of the West Oakland Community Emissions Reduction Program, according to requirements therein

Initial Approval: TBD

Monitoring/Inspection: According to the West Oakland Community Emissions Reduction Program

21. Dust Controls – Construction Related

Requirement: 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.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

22. Criteria Air Pollutant Controls - Construction Related

Requirement: 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.
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.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

Construction activities with average daily emissions exceeding the CEQA thresholds for construction activity, currently 54 pounds per day of ROG, NOx, or PM2.5 or 82 pounds per day of PM10. In most cases, criteria pollutants from construction will not require SCA measures, but analysis must be performed to determine applicability for projects that exceed 100,000 square feet of non-residential development or 200 residential dwelling units.

g) Criteria Air Pollutant Reduction Measures

Requirement: The project applicant shall retain a qualified air quality consultant to identify criteria air pollutant reduction measures to reduce the project's average daily emissions below 54 pounds per day of ROG, NOx, or PM2.5 or 82 pounds per day of PM10. Quantified emissions and identified reduction measures shall be submitted to the City (and the Air District if specifically requested) for review and approval prior to the issuance of building permits and the approved criteria air pollutant reduction measures shall be implemented during construction.

h) Construction Emissions Minimization Plan

Requirement: The project applicant shall prepare a Construction Emissions Minimization Plan (Emissions Plan) for all identified criteria air pollutant reduction measures. The Emissions Plan shall be submitted to the City (and the Air 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 Verified Diesel Emissions Control Strategies (VDECS), the 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.

When Required: Prior to issuance of a construction related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

23. Diesel Particulate Matter Controls-Construction Related

a.Diesel Particulate Matter Reduction Measures

Requirement: 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 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.

When Required: Prior to issuance of a construction related permit (i), during construction (ii)

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

b.Construction Emissions Minimization Plan (if required by a above)

Requirement: 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 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.

When Required: Prior to issuance of a construction related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

24. Exposure to Air Pollution (Toxic Air Contaminants)

a. Health Risk Reduction Measures

Requirement: The project applicant shall incorporate appropriate measures into the project design in order to reduce the potential health risk due to exposure to toxic air contaminants. The project applicant shall choose **one** of the following methods:

i. The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with California Air Resources Board (CARB) and Office of Environmental Health and Hazard Assessment requirements to determine the health risk of exposure of project residents/occupants/users to air pollutants. The HRA shall be submitted to the City for review and approval. If the HRA concludes that the health risk is at or below acceptable levels, then health risk reduction measures are not required. If the HRA concludes that the health risk exceeds acceptable levels, health risk reduction measures shall be identified to reduce the health risk to acceptable levels. Identified risk reduction measures shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City.

\- or -

ii. The project applicant shall incorporate the following health risk reduction measures into the project. These features shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City:

- Installation of air filtration to reduce cancer risks and Particulate Matter (PM) exposure for residents and other sensitive populations in the project that are in close proximity to sources of air pollution. Air filter devices shall be rated MERV-16 or higher. As part of implementing this measure, an ongoing maintenance plan for the building's HVAC air filtration system shall be required.
- Where appropriate, install passive electrostatic filtering systems, especially those with low air velocities (i.e., 1 mph).

- Phasing of residential developments when proposed within 500 feet of freeways such that homes nearest the freeway are built last, if feasible.
- The project shall be designed to locate sensitive receptors as far away as feasible from the source(s) of air pollution. Operable windows, balconies, and building air intakes shall be located as far away from these sources as feasible. If near a distribution center, residents shall be located as far away as feasible from a loading dock or where trucks concentrate to deliver goods.
- Sensitive receptors shall be located on the upper floors of buildings, if feasible.
- Planting trees and/or vegetation between sensitive receptors and pollution source, if feasible. Trees that are best suited to trapping PM shall be planted, including one or more of the following: Pine (*Pinus nigra* var. *maritima*), Cypress (*X Cupressocyparis leylandii*), Hybrid poplar (*Populus deltoids X trichocarpa*), and Redwood *(Sequoia sempervirens*).
- Sensitive receptors shall be located as far away from truck activity areas, such as loading docks and delivery areas, as feasible.
- Existing and new diesel generators shall meet CARB's Tier 4 emission standards, if feasible.
- Emissions from diesel trucks shall be reduced through implementing the following measures, if feasible:
  - Installing electrical hook-ups for diesel trucks at loading docks.
  - Requiring trucks to use Transportation Refrigeration Units (TRU) that meet Tier 4 emission standards.
  - Requiring truck-intensive projects to use advanced exhaust technology (e.g., hybrid) or alternative fuels.
  - Prohibiting trucks from idling for more than two minutes.
  - Establishing truck routes to avoid sensitive receptors in the project. A truck route program, along with truck calming, parking, and delivery restrictions, shall be implemented.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

b. Maintenance of Health Risk Reduction Measures

Requirement: The project applicant shall maintain, repair, and/or replace installed health risk reduction measures, including but not limited to the HVAC system (if applicable), on an ongoing and as-needed basis. Prior to occupancy, the project applicant shall prepare and then distribute to the building manager/operator an operation and maintenance manual for the HVAC system and filter including the maintenance and replacement schedule for the filter.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

25. Stationary Sources of Air Pollution (Toxic Air Contaminants)

Requirement: The project applicant shall incorporate appropriate measures into the project design in order to reduce the potential health risk due to on-site stationary sources of toxic air contaminants. The project applicant shall choose **one** of the following methods:

a. The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with California Air Resources Board (CARB) and Office of Environmental Health and Hazard Assessment requirements to determine the health risk associated with proposed stationary sources of pollution in the project. The HRA shall be submitted to the City for review and approval. If the HRA concludes that the health risk is at or below acceptable levels, then health risk reduction measures are not required. If the HRA concludes the health risk exceeds acceptable levels, health risk reduction measures shall be identified to reduce the health risk to acceptable levels. Identified risk reduction measures shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City.

\- or -

b. The project applicant shall incorporate the following health risk reduction measures into the project. These features shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City:
   i. Installation of non-diesel fueled generators, if feasible, or;
   ii. Installation of diesel generators with an EPA-certified Tier 4 engine or engines that are retrofitted with a CARB Level 3 Verified Diesel Emissions Control Strategy, if feasible.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

BIOLOGICAL RESOURCES

26. Tree Removal During Bird Breeding Season

Requirement: To the extent feasible, removal of any tree and/or other vegetation suitable for nesting of birds shall not occur during the bird breeding season of February 1 to August 15 (or during December 15 to August 15 for trees located in or near marsh, wetland, or aquatic habitats). If tree removal must occur during the bird breeding season, all trees to be removed shall be surveyed by a qualified biologist to verify the presence or absence of nesting raptors or other birds. Pre-removal surveys shall be conducted within 15 days prior to the start of work and shall be submitted to the City for review and approval. If the survey indicates the potential presence of nesting raptors or other birds, the biologist shall determine an appropriately sized buffer around the nest in which no work will be allowed until the young have successfully fledged. The size of the nest buffer will be determined by the biologist in consultation with the California Department of Fish and Wildlife, and will be based to a large extent on the nesting species and its sensitivity to disturbance. In general, buffer sizes of 200 feet for raptors and 50 feet for other birds should suffice to prevent disturbance to birds nesting in the urban environment, but these buffers may be increased or decreased, as appropriate, depending on the bird species and the level of disturbance anticipated near the nest.

When Required: Prior to removal of trees

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

27. Tree Permit

a. Tree Permit Required

Requirement: Pursuant to the City's Tree Protection Ordinance (OMC chapter 12.36), the project applicant shall obtain a tree permit and abide by the conditions of that permit.

When Required: Prior to approval of construction-related permit

Initial Approval: Permit approval by Public Works Department, Tree Division; evidence of approval submitted to Bureau of Building

Monitoring/Inspection: Bureau of Building

b. Tree Protection During Construction

Requirement: Adequate protection shall be provided during the construction period for any trees which are to remain standing, including the following, plus any recommendations of an arborist:

i. Before the start of any clearing, excavation, construction, or other work on the site, every protected tree deemed to be potentially endangered by said site work shall be securely fenced off at a distance from the base of the tree to be determined by the project's consulting arborist. Such fences shall remain in place for duration of all such work. All trees to be removed shall be clearly marked. A scheme shall be established for the removal and disposal of logs, brush, earth and other debris which will avoid injury to any protected tree.

ii. Where proposed development or other site work is to encroach upon the protected perimeter of any protected tree, special measures shall 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 stored within a distance from the base of any protected trees to be determined by the project's consulting arborist. Wires, ropes, or other devices shall not be attached to any protected tree, except as needed for support of the tree. No sign, other than a tag showing the botanical classification, shall be attached to any protected tree.

iv. Periodically during construction, the leaves of protected trees shall be thoroughly sprayed with water to prevent buildup of dust and other pollution that would inhibit leaf transpiration.

v. If any damage to a protected tree should occur during or as a result of work on the site, the project applicant shall immediately notify the Public Works Department and the project's consulting arborist shall make a recommendation to the City Tree Reviewer as to whether the damaged tree can be preserved. If, in the professional opinion of the Tree Reviewer, such tree cannot be preserved in a healthy state, the Tree Reviewer shall require replacement of any tree removed with another tree or trees on the same site deemed adequate by the Tree Reviewer to compensate for the loss of the tree that is removed.

vi. All debris created as a result of any tree removal work shall be removed by the project applicant from the property within two weeks of debris creation, and such debris shall be properly disposed of by the project applicant in accordance with all applicable laws, ordinances, and regulations.

When Required: During construction

Initial Approval: Public Works Department, Tree Division

Monitoring/Inspection: Bureau of Building

c. Tree Replacement Plantings

Requirement: Replacement plantings shall be required for tree removals for the purposes of erosion control, groundwater replenishment, visual screening, wildlife habitat, and preventing excessive loss of shade, in accordance with the following criteria:

i. No tree replacement shall be required for the removal of nonnative species, for the removal of trees which is required for the benefit of remaining trees, or where insufficient planting area exists for a mature tree of the species being considered.

ii. Replacement tree species shall consist of Sequoia sempervirens (Coast Redwood), Quercus agrifolia (Coast Live Oak), Arbutus menziesii (Madrone), Aesculus californica (California Buckeye), Umbellularia californica (California Bay Laurel), or other tree species acceptable to the Tree Division.

iii. Replacement trees shall be at least twenty-four (24) inch box size, unless a smaller size is recommended by the arborist, except that three fifteen (15) gallon size trees may be substituted for each twenty-four (24) inch box size tree where appropriate.

iv. Minimum planting areas must be available on site as follows:

- For Sequoia sempervirens, three hundred fifteen (315) square feet per tree;
- For other species listed, seven hundred (700) square feet per tree.

v. In the event that replacement trees are required but cannot be planted due to site constraints, an in lieu fee in accordance with the City's Master Fee Schedule may be substituted for required replacement plantings, with all such revenues applied toward tree planting in city parks, streets and medians.

vi. The project applicant shall install the plantings and maintain the plantings until established. The Tree Reviewer of the Tree Division of the Public Works Department may require a landscape plan showing the replacement plantings and the method of irrigation. Any replacement plantings which fail to become established within one year of planting shall be replanted at the project applicant's expense.

When Required: Prior to building permit final

Initial Approval: Public Works Department, Tree Division

Monitoring/Inspection: Bureau of Building

CULTURAL RESOURCES

28. Archaeological and Paleontological Resources – Discovery During Construction

Requirement: Pursuant to CEQA Guidelines section 15064.5(f), in the event that any historic or prehistoric subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources shall be halted and the project applicant shall notify the City and consult with a qualified archaeologist or paleontologist, as applicable, to assess the significance of the find. In the case of discovery of paleontological resources, the assessment shall be done in accordance with the Society of Vertebrate Paleontology standards. If any find is determined to be significant, appropriate avoidance measures recommended by the consultant and approved by the City must be followed unless avoidance is determined unnecessary or infeasible by the City. Feasibility of avoidance shall be determined with consideration of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery, excavation) shall be instituted. Work may proceed on other parts of the project site while measures for the cultural resources are implemented.

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

In the event of excavation of paleontological resources, the project applicant shall submit an excavation plan prepared by a qualified paleontologist to the City for review and approval. All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and/or a report prepared by a qualified paleontologist, as appropriate, according to current professional standards and at the expense of the project applicant.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

29. Archaeologically Sensitive Areas – Pre-Construction Measures

Requirement: The project applicant shall implement either Provision A (Intensive Pre-Construction Study) or Provision B (Construction ALERT Sheet) concerning archaeological resources.

Provision A: Intensive Pre-Construction Study.

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

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

b. A report disseminating the results of this research.

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

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

Provision B: Construction ALERT Sheet.

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

The ALERT sheet shall state, in addition to the basic archaeological resource protection measures contained in other standard conditions of approval, all work must stop and the City's Environmental Review Officer contacted in the event of discovery of the following cultural materials: concentrations of shellfish remains; evidence of fire (ashes, charcoal, burnt earth, fire-cracked rocks); concentrations of bones; recognizable Native American artifacts (arrowheads, shell beads, stone mortars [bowls], humanly shaped rock); building foundation remains; trash pits, privies (outhouse holes); floor remains; wells; concentrations of bottles, broken dishes, shoes, buttons, cut animal bones, hardware, household items, barrels, etc.; thick layers of burned building debris (charcoal, nails, fused glass, burned plaster, burned dishes); wood structural remains (building, ship, wharf); clay roof/floor tiles; stone walls or footings; or gravestones. Prior to any soil-disturbing activities, each contractor shall be responsible for ensuring that the ALERT sheet is circulated to all field personnel, including machine operators, field crew, pile drivers, and supervisory personnel. The ALERT sheet shall also be posted in a visible location at the project site.

When Required: Prior to approval of construction-related permit; during construction

Initial Approval: Bureau of Building; Bureau of Planning

Monitoring/Inspection: Bureau of Building

30. Human Remains – Discovery During Construction

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

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

GEOLOGY AND SOILS

31. Construction-Related Permit(s)

Requirement: The project applicant shall obtain all required construction-related permits/approvals from the City. The project shall comply with all standards, requirements and conditions contained in construction-related codes, including but not limited to the Oakland Building Code and the Oakland Grading Regulations, to ensure structural integrity and safe construction.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

32. <u>Soils Report</u>

<u>Requirement</u>: 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.

<u>When Required</u>: Prior to approval of construction-related permit

<u>Initial Approval</u>: Bureau of Building

<u>Monitoring/Inspection</u>: Bureau of Building

33. <u>Seismic Hazards Zone (Landslide/Liquefaction)</u>

<u>Requirement</u>: The project applicant shall submit a site-specific geotechnical report, consistent with California Geological Survey Special Publication 117 (as amended), prepared by a registered geotechnical engineer for City review and approval containing at a minimum a description of the geological and geotechnical conditions at the site, an evaluation of site-specific seismic hazards based on geological and geotechnical conditions, and recommended measures to reduce potential impacts related to liquefaction and/or slope stability hazards. The project applicant shall implement the recommendations contained in the approved report during project design and construction.

<u>When Required</u>: Prior to approval of construction-related permit

<u>Initial Approval</u>: Bureau of Building

<u>Monitoring/Inspection</u>: Bureau of Building

GREENHOUSE GAS EMISSIONS / GLOBAL CLIMATE CHANGE

34. <u>Greenhouse Gas (GHG) Reduction Plan</u>

a. Greenhouse Gas (GHG) Reduction Plan Required

<u>Requirement</u>: The project applicant shall retain a qualified air quality consultant to develop a Greenhouse Gas (GHG) Reduction Plan for City review and approval and shall implement the approved GHG Reduction Plan. The goal of the GHG Reduction Plan shall be to increase energy efficiency and reduce GHG emissions to below at least one of the Bay Area Quality Management District's (BAAQMD's) CEQA Thresholds of Significance (1,100 metric tons of CO2e per year or 4.6 metric tons of CO2e per year per service population) AND to reduce GHG emissions by 36 percent below the project's 2005 "business-as-usual" baseline GHG emissions(as explained below) to help implement the City's Energy and Climate Action Plan (adopted in 2012) which calls for reducing GHG emissions by 36 percent below 2005 levels.. The GHG Reduction Plan shall include, at a minimum, (a) a detailed GHG emissions inventory for the project under a "business-as-usual" scenario with no consideration of project design features, or other energy efficiencies, (b) an "adjusted" baseline GHG emissions inventory for the project, taking into consideration energy efficiencies included as part of the

project (including the City's Standard Conditions of Approval, proposed mitigation measures, project design features, and other City requirements), and additional GHG reduction measures available to further reduce GHG emissions, and (c) requirements for ongoing monitoring and reporting to demonstrate that the additional GHG reduction measures are being implemented. If the project is to be constructed in phases, the GHG Reduction Plan shall provide GHG emission scenarios by phase.

Potential GHG reduction measures to be considered include, but are not be limited to, measures recommended in BAAQMD's latest CEQA Air Quality Guidelines, the California Air Resources Board Scoping Plan (December 2008, as may be revised), the California Air Pollution Control Officers Association (CAPCOA) Quantifying Greenhouse Gas Mitigation Measures (August 2010, as may be revised), the California Attorney General's website, and Reference Guides on Leadership in Energy and Environmental Design (LEED) published by the U.S. Green Building Council.

The types of allowable GHG reduction measures include the following (listed in order of City preference): (1) physical design features; (2) operational features; and (3) the payment of fees to fund GHG-reducing programs (i.e., the purchase of "carbon credits") as explained below.

The allowable locations of the GHG reduction measures include the following (listed in order of City preference): (1) the project site; (2) off-site within the City of Oakland; (3) off-site within the San Francisco Bay Area Air Basin; (4) off-site within the State of California; then (5) elsewhere in the United States.

As with preferred locations for the implementation of all GHG reductions measures, the preference for carbon credit purchases include those that can be achieved as follows (listed in order of City preference): (1) within the City of Oakland; (2) within the San Francisco Bay Area Air Basin; (3) within the State of California; then (4) elsewhere in the United States. The cost of carbon credit purchases shall be based on current market value at the time purchased and shall be based on the project's operational emissions estimated in the GHG Reduction Plan or subsequent approved emissions inventory, which may result in emissions that are higher or lower than those estimated in the GHG Reduction Plan.

For physical GHG reduction measures to be incorporated into the design of the project, the measures shall be included on the drawings submitted for construction-related permits.

When Required: Prior to approval of construction-related permit.

Initial Approval: Bureau of Planning

Monitoring/Inspection: N/A

b. GHG Reduction Plan Implementation During Construction

Requirement: The project applicant shall implement the GHG Reduction Plan during construction of the project. For physical GHG reduction measures to be incorporated into the design of the project, the measures shall be implemented during construction. For physical GHG reduction measures to be incorporated into off-site projects, the project applicant shall obtain all necessary permits/approvals and the measures shall be included on drawings and submitted to the City Planning Director or his/her designee for review and approval. These off-site improvements shall be installed prior to completion of the subject project (or prior to completion of the project phase for phased projects). For GHG reduction measures involving the purchase of carbon credits, evidence of the payment/purchase shall be submitted to the City for review and approval prior to completion of the project (or prior to completion of the project phase, for phased projects).

When Required: During construction

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

c. ***GHG Reduction Plan Implementation After Construction***

Requirement: The project applicant shall implement the GHG Reduction Plan after construction of the project (or at the completion of the project phase for phased projects). For operational GHG reduction measures to be incorporated into the project or off-site projects, the measures shall be implemented on an indefinite and ongoing basis.

The project applicant shall satisfy the following requirements for ongoing monitoring and reporting to demonstrate that the additional GHG reduction measures are being implemented. The GHG Reduction Plan requires regular periodic evaluation over the life of the project (generally estimated to be at least 40 years) to determine how the Plan is achieving required GHG emissions reductions over time, as well as the efficacy of the specific additional GHG reduction measures identified in the Plan.

Annual Report. Implementation of the GHG reduction measures and related requirements shall be ensured through compliance with Conditions of Approval adopted for the project. Generally, starting two years after the City issues the first Certificate of Occupancy for the project, the project applicant shall prepare each year of the useful life of the project an Annual GHG Emissions Reduction Report ("Annual Report"), for review and approval by the City Planning Director or his/her designee. The Annual Report shall be submitted to an independent reviewer of the City's choosing, to be paid for by the project applicant.

The Annual Report shall summarize the project's implementation of GHG reduction measures over the preceding year, intended upcoming changes, compliance with the conditions of the Plan, and include a brief summary of the previous year's Annual Report results (starting the second year). The Annual Report shall include a comparison of annual project emissions to the baseline emissions reported in the GHG Plan.

The GHG Reduction Plan shall be considered fully attained when project emissions are less than either applicable numeric BAAQMD CEQA Thresholds AND GHG emissions are 36 percent below the project's 2005 "business-as-usual" baseline GHG emissions, as confirmed by the City through an established monitoring program. Monitoring and reporting activities will continue at the City's discretion, as discussed below.

Corrective Procedure. If the third Annual Report, or any report thereafter, indicates that, in spite of the implementation of the GHG Reduction Plan, the project is not achieving the GHG reduction goal, the project applicant shall prepare a report for City review and approval, which proposes additional or revised GHG measures to better achieve the GHG emissions reduction goals, including without limitation, a discussion on the feasibility and effectiveness of the menu of other additional measures ("Corrective GHG Action Plan"). The project applicant shall then implement the approved Corrective GHG Action Plan.

If, one year after the Corrective GHG Action Plan is implemented, the required GHG emissions reduction target is still not being achieved, or if the project applicant fails to submit a report at the times described above, or if the reports do not meet City requirements outlined above, the City may, in addition to its other remedies, (a) assess the project applicant a financial penalty based upon actual percentage reduction in GHG emissions as compared to the percent reduction in GHG emissions established in the GHG Reduction Plan; or (b) refer the matter to the City Planning Commission for scheduling of a compliance hearing to determine whether the project's approvals should be revoked, altered or additional conditions of approval imposed.

The penalty as described in (a) above shall be determined by the City Planning Director or his/her designee and be commensurate with the percentage GHG emissions reduction not achieved (compared to the applicable numeric significance thresholds) or required percentage reduction from the "adjusted" baseline.

In determining whether a financial penalty or other remedy is appropriate, the City shall not impose a penalty if the project applicant has made a good faith effort to comply with the GHG Reduction Plan.

The City would only have the ability to impose a monetary penalty after a reasonable cure period and in accordance with the enforcement process outlined in Planning Code Chapter 17.152. If a financial penalty is imposed, such penalty sums shall be used by the City solely toward the implementation of the GHG Reduction Plan.

Timeline Discretion and Summary. The City shall have the discretion to reasonably modify the timing of reporting, with reasonable notice and opportunity to comment by the applicant, to coincide with other related monitoring and reporting required for the project.

When Required: Ongoing

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Planning

HAZARDS AND HAZARDOUS MATERIALS

35. Hazardous Materials Related to Construction

Requirement: The project applicant shall ensure that Best Management Practices (BMPs) are implemented by the contractor during construction to minimize potential negative effects on groundwater, soils, and human health. These shall include, at a minimum, the following:

a. Follow manufacture's recommendations for use, storage, and disposal of chemical products used in construction;

b. Avoid overtopping construction equipment fuel gas tanks;

c. During routine maintenance of construction equipment, properly contain and remove grease and oils;

d. Properly dispose of discarded containers of fuels and other chemicals;

e. Implement lead-safe work practices and comply with all local, regional, state, and federal requirements concerning lead (for more information refer to the Alameda County Lead Poisoning Prevention Program); and

f. If soil, groundwater, or other environmental medium with suspected contamination is encountered unexpectedly during construction activities (e.g., identified by odor or visual staining, or if any underground storage tanks, abandoned drums or other hazardous materials or wastes are encountered), the project applicant shall cease work in the vicinity of the suspect material, the area shall be secured as necessary, and the applicant shall take all appropriate measures to protect human health and the environment. Appropriate measures shall include notifying the City and applicable regulatory agency(ies) and implementation of the actions described in the City's Standard Conditions of Approval, as necessary, to identify the nature and extent of contamination. Work shall not resume in the area(s) affected until the measures have been implemented under the oversight of the City or regulatory agency, as appropriate.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

36. Hazardous Building Materials and Site Contamination

a. Hazardous Building Materials Assessment

Requirement: The project applicant shall submit a comprehensive assessment report to the Bureau of Building, signed by a qualified environmental professional, documenting the presence or lack thereof of asbestos-containing materials (ACMs), lead-based paint, polychlorinated biphenyls (PCBs), and any other building materials or stored materials classified as hazardous materials by State or federal law. If lead-based paint, ACMs, PCBs, or any other building materials or stored materials classified as hazardous materials are present, the project applicant shall submit specifications prepared and signed by a qualified environmental professional, for the stabilization and/or removal of the identified hazardous materials in accordance with all applicable laws and regulations. The project applicant shall implement the approved recommendations and submit to the City evidence of approval for any proposed remedial action and required clearances by the applicable local, state, or federal regulatory agency.

When Required: Prior to approval of demolition, grading, or building permits

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

b. Environmental Site Assessment Required

Requirement: The project applicant shall submit a Phase I Environmental Site Assessment report, and Phase II Environmental Site Assessment report if warranted by the Phase I report, for the project site for review and approval by the City. The report(s) shall be prepared by a qualified environmental assessment professional and include recommendations for remedial action, as appropriate, for hazardous materials. The project applicant shall implement the approved recommendations and submit to the City evidence of approval for any proposed remedial action and required clearances by the applicable local, state, or federal regulatory agency.

When Required: Prior to approval of construction-related permit.

Initial Approval: Applicable regulatory agency with jurisdiction

Monitoring/Inspection: Applicable regulatory agency with jurisdiction

c. Health and Safety Plan Required

Requirement: The project applicant shall submit a Health and Safety Plan for the review and approval by the City in order to protect project construction workers from risks associated with hazardous materials. The project applicant shall implement the approved Plan.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

d. Best Management Practices (BMPs) Required for Contaminated Sites

Requirement: The project applicant shall ensure that 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.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

37. Fire Safety Phasing Plan

Requirement: The project applicant shall submit a Fire Safety Phasing Plan for City review and approval, and shall implement the approved Plan. The Fire Safety Phasing Plan shall include all of the fire safety features incorporated into each phase of the project and the schedule for implementation of the features.

When Required: Prior to approval of construction-related permit

Initial Approval: Oakland Fire Department

Monitoring/Inspection: Bureau of Building

HYDROLOGY AND WATER QUALITY

38. Erosion and Sedimentation Control Plan for Construction

a. Erosion and Sedimentation Control Plan Required

Requirement: The project applicant shall submit an Erosion and Sedimentation Control Plan to the City for review and approval. The Erosion and Sedimentation Control Plan shall include all necessary measures to be taken to prevent excessive stormwater runoff or carrying by stormwater runoff of solid materials 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 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.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Building

Monitoring/Inspection: N/A

b. Erosion and Sedimentation Control During Construction

Requirement: The project applicant shall implement the approved Erosion and Sedimentation Control Plan. No grading shall occur during the wet weather season (October 15 through April 15) unless specifically authorized in writing by the Bureau of Building.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

39. State Construction General Permit

Requirement: The project applicant shall comply with the requirements of the Construction General Permit issued by the State Water Resources Control Board (SWRCB). The project applicant shall submit a Notice of Intent (NOI), Stormwater Pollution Prevention Plan (SWPPP), and other required Permit Registration Documents to SWRCB. The project applicant shall submit evidence of compliance with Permit requirements to the City.

When Required: Prior to approval of construction-related permit

Initial Approval: State Water Resources Control Board; evidence of compliance submitted to Bureau of Building

Monitoring/Inspection: State Water Resources Control Board

40. Site Design Measures to Reduce Stormwater Runoff

Requirement: Pursuant to Provision C.3 of the Municipal Regional Stormwater Permit issued under the National Pollutant Discharge Elimination System (NPDES), the project applicant is encouraged to incorporate appropriate site design measures into the project to reduce the amount of stormwater runoff. These measures may include, but are not limited to, the following:

a. Minimize impervious surfaces, especially directly connected impervious surfaces and surface parking areas;

b. Utilize permeable paving in place of impervious paving where appropriate;

c. Cluster structures;

d. Direct roof runoff to vegetated areas;

e. Preserve quality open space; and

f. Establish vegetated buffer areas.

When Required: Ongoing
Initial Approval: N/A
Monitoring/Inspection: N/A

41. NPDES C.3 Stormwater Requirements for Regulated Projects

a. Post-Construction Stormwater Management Plan Required

Requirement: The project applicant shall comply with the requirements of Provision C.3 of the Municipal Regional Stormwater Permit issued under the 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 stormwater runoff flow and duration match pre-project runoff.

When Required: Prior to approval of construction-related permit
Initial Approval: Bureau of Planning; Bureau of Building
Monitoring/Inspection: Bureau of Building

b. Maintenance Agreement Required

Requirement: The project applicant shall enter into a maintenance agreement with the City, based on the Standard City of Oakland Stormwater Treatment Measures Maintenance Agreement, in accordance with Provision C.3, which provides, in part, for the following:

i. The project applicant accepting responsibility for the adequate installation/construction, operation, maintenance, inspection, and reporting of any on-site stormwater treatment measures being incorporated into the project until the responsibility is legally transferred to another entity; 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.

When Required: Prior to building permit final

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

NOISE

42. <u>Construction Days/Hours</u>

<u>Requirement</u>: The project applicant shall comply with the following restrictions concerning construction days and hours:

a. Construction activities are limited to between 7:00 a.m. and 7:00 p.m. Monday through Friday, except that pier drilling and/or other extreme noise generating activities greater than 90 dBA shall be limited to between 8:00 a.m. and 4:00 p.m.

b. Construction activities are limited to between 9:00 a.m. and 5:00 p.m. on Saturday. In residential zones and within 300 feet of a residential zone, construction activities are allowed from 9:00 a.m. to 5:00 p.m. only within the interior of the building with the doors and windows closed. No pier drilling or other extreme noise generating activities greater than 90 dBA are allowed on Saturday.

c. No construction is allowed on Sunday or federal holidays.

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.

<u>When Required</u>: During construction

<u>Initial Approval</u>: N/A

<u>Monitoring/Inspection</u>: Bureau of Building

43. <u>Construction Noise</u>

<u>Requirement</u>: The project applicant shall implement noise reduction measures to reduce noise impacts due to construction. Noise reduction measures include, but are not limited to, the following:

a. Equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds) wherever feasible.

b. Except as provided herein, impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used, if such jackets are commercially available, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures.

c. Applicant shall use temporary power poles instead of generators where feasible.
d. Stationary noise sources shall be located as far from adjacent properties as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or use other measures as determined by the City to provide equivalent noise reduction.
e. The noisiest phases of construction shall be limited to less than 10 days at a time. Exceptions may be allowed if the City determines an extension is necessary and all available noise reduction controls are implemented.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

44. Extreme Construction Noise

a. Construction Noise Management Plan Required

Requirement: Prior to any extreme noise generating construction activities (e.g., pier drilling, pile driving and other activities generating greater than 90dBA), the project applicant shall submit a Construction Noise Management Plan prepared by a qualified acoustical consultant for City review and approval that contains a set of site-specific noise attenuation measures to further reduce construction impacts associated with extreme noise generating activities. The project applicant shall implement the approved Plan during construction. Potential attenuation measures include, but are not limited to, the following:

i. Erect temporary plywood noise barriers around the construction site, particularly along on sites adjacent to residential buildings;
ii. Implement “quiet” pile driving technology (such as pre-drilling of piles, the use of more than one pile driver to shorten the total pile driving duration), where feasible, in consideration of geotechnical and structural requirements and conditions;
iii. Utilize noise control blankets on the building structure as the building is erected to reduce noise emission from the site;
iv. Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings by the use of sound blankets for example and implement such measure if such measures are feasible and would noticeably reduce noise impacts; and
v. Monitor the effectiveness of noise attenuation measures by taking noise measurements.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

b. Public Notification Required

Requirement: The project applicant shall notify property owners and occupants located within 300 feet of the construction activities at least 14 calendar days prior to commencing extreme noise generating activities. Prior to providing the notice, the project applicant shall submit to the City for review and approval the proposed type and duration of extreme noise generating activities and the proposed public notice. The public notice shall provide the estimated start and end dates of the extreme noise generating activities and describe noise attenuation measures to be implemented.

When Required: During construction

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

45. Construction Noise Complaints

Requirement: The project applicant shall submit to the City for review and approval a set of procedures for responding to and tracking complaints received pertaining to construction noise, and shall implement the procedures during construction. At a minimum, the procedures shall include**:**

a. Designation of an on-site construction complaint and enforcement manager for the project;
b. A large on-site sign near the public right-of-way containing permitted construction days/hours, complaint procedures, and phone numbers for the project complaint manager and City Code Enforcement unit;
c. Protocols for receiving, responding to, and tracking received complaints; and
d. Maintenance of a complaint log that records received complaints and how complaints were addressed, which shall be submitted to the City for review upon the City's request.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

46. Exposure to Community Noise

Requirement: The project applicant shall submit a Noise Reduction Plan prepared by a qualified acoustical engineer for City review and approval that contains noise reduction measures (e.g., sound-rated window, wall, and door assemblies) to achieve an acceptable interior noise level in accordance with the land use compatibility guidelines of the Noise Element of the Oakland General Plan. The applicant shall implement the approved Plan during construction. To the maximum extent practicable, interior noise levels shall not exceed the following:

a. 45 dBA: Residential activities, civic activities, hotels
b. 50 dBA: Administrative offices; group assembly activities
c. 55 dBA: Commercial activities
d. 65 dBA: Industrial activities

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

47. <u>Operational Noise</u>

<u>Requirement</u>: 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.

<u>When Required</u>: Ongoing

<u>Initial Approval</u>: N/A

<u>Monitoring/Inspection</u>: Bureau of Building

POPULATION AND HOUSING

48. <u>Jobs/Housing Impact Fee</u>

<u>Requirement</u>: The project applicant shall comply with the requirements of the City of Oakland Jobs/Housing Impact Fee Ordinance (chapter 15.68 of the Oakland Municipal Code).

<u>When Required</u>: Prior to issuance of building permit; subsequent milestones pursuant to ordinance

<u>Initial Approval</u>: Bureau of Building

<u>Monitoring/Inspection</u>: N/A

PUBLIC SERVICES

49. <u>Capital Improvements Impact Fee</u>

<u>Requirement</u>: The project applicant shall comply with the requirements of the City of Oakland Capital Improvements Fee Ordinance (chapter 15.74 of the Oakland Municipal Code).

<u>When Required</u>: Prior to issuance of building permit

<u>Initial Approval</u>: Bureau of Building

<u>Monitoring/Inspection</u>: N/A

TRANSPORTATION/TRAFFIC

50. <u>Construction Activity in the Public Right-of-Way</u>

c. Obstruction Permit Required

<u>Requirement</u>: 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, sidewalks, bicycle facilities, and bus stops.

When Required: Prior to approval of construction-related permit

Initial Approval: Department of Transportation

Monitoring/Inspection: Department of Transportation

d. ***Traffic Control Plan Required***
Requirement: 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.

Initial Approval: Department of Transportation

Monitoring/Inspection: Department of Transportation

e. ***Repair of City Streets***
Requirement: The project applicant shall repair any damage to the public right-of way, including streets and sidewalks, caused by project construction at his/her expense within one week of the occurrence of the damage (or excessive wear), unless further damage/excessive wear may continue; in such case, repair shall occur prior to approval of the final inspection of the construction-related permit. All damage that is a threat to public health or safety shall be repaired immediately.

When Required: Prior to building permit final

Initial Approval: N/A

Monitoring/Inspection: Department of Transportation

51. Bicycle Parking

Requirement: The project applicant shall comply with the City of Oakland Bicycle Parking Requirements (chapter 17.118 of the Oakland Planning Code). The project drawings submitted for construction-related permits shall demonstrate compliance with the requirements.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

52. Transportation Improvements

Requirement: 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), the California Public Utilities Commission (for improvements related to railroad crossings), BART, and AC Transit 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)
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)

The following improvements shall be submitted as part of the FDP for horizontal and public improvements and a p-job application for review and approval by the Department of Transportation (DOT). If approved they shall be implemented.

Requirement #1. Ensure that the garage driveway on Chester Street and the loading docks for each project building provide adequate sight distance between vehicles exiting the garage and pedestrians on the adjacent sidewalk.

Requirement #2. Implement the following at the 7th Street/Mandela Parkway intersection:

- o Convert the existing through/right-turn lane on the westbound 7th Street approach to a right-turn/bus only lane, and remove the merge lane on westbound 7th Street west of the intersection
- o Modify the signal timings at the intersection to provide a bus only phase for the westbound approach, and reduce the signal cycle length to 90 seconds

Requirement #3. After the completion of the first phase of the project, conduct a signal warrant analysis at the 7th Street/Chester Street intersection to determine if and when the intersection should be signalized. If signalization is warranted, the project shall signalize the intersection with protected left-turn phasing for the east/west 7th Street approaches. In addition, and as determined by the City of Oakland staff, the signal may be interconnected with existing adjacent signals along 7th Street. If signalization is not warranted, the project shall conduct an analysis to determine if other control devices, such as all-way stop controls, or rectangular rapid flash beacon (RRFB) should be installed at the intersection. The project shall implement the recommended improvement at the intersection as approved by the City of Oakland.

Requirement #4.Ensure that the Ford GoBike station currently located in-street on 7th Street just east of Center Street is relocated on the BART Station Plaza to provide close and convenient access to the West Oakland BART station and the bicycle facilities adjacent to the project site.

Requirement #5. Explore the feasibility of (and implement, if feasible) installing curb extensions (bulb-outs) and directional curb ramps with truncated domes at the following locations:

- o Southwest corner of the 7th Street/Chester Street intersection.
- o All four corners of the 5th Street/Mandela Parkway intersection and curb extensions (bulb-outs) across the 5th Street approaches of the southwest and northeast corners.

Requirement #6. Provide all-way stop control at the 5th Street/Center Street and 5th Street/Chester Street intersection.

Requirement #7. If reviewed and approved by BART and Oakland Fire Department, provide rolled curb instead of curb cuts for emergency vehicle access points on Chester Street and Mandela Parkway.

Requirement #8. Install a pedestrian scramble at the 7th Street/Center Street intersection.

Requirement #9. Coordinate with the City of Oakland and the appropriate property owners to determine the feasibility of and if deemed feasible, complete the sidewalk gap on the south side of 5th Street just east of Center Street.

Requirement #10. Work with the City to designate a bus stop for intercity coaches (e.g., Megabus and Bolt) and other shuttles on 7th Street between Henry and Chester Streets.

Requirement #11. Install improvement measures at the proposed mid-block crossing on Mandela Parkway, such as raised crosswalk, Rectangular Rapid Flash Beacon (RRFB), or other measures as approved by the City of Oakland.

When Required: Prior to building permit final or as otherwise specified
Initial Approval: Bureau of Building; Department of Transportation
Monitoring/Inspection: Bureau of Building

53. Transportation and Parking Demand Management

a. Transportation and Parking Demand Management (TDM) Plan Required

Requirement: 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):
  - Projects generating 50-99 net new a.m. or p.m. peak hour vehicle trips: 10 percent VTR
  - Projects generating 100 or more net new a.m. or p.m. peak hour vehicle trips: 20 percent VTR
- Increase pedestrian, bicycle, transit, and carpool/vanpool modes of travel. All four modes of travel shall be considered, as appropriate.
- Enhance the City's transportation system, consistent with City policies and programs.

ii. 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.
- 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.

Improvement	Required by code or when…
Bus boarding bulbs or islands	• 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
Bus shelter	• A stop with no shelter is located within the project frontage, or

Improvement	Required by code or when…
	• The project is located within 0.10 miles of a flag stop with 25 or more boardings per day
Concrete bus pad	• A bus stop is located along the project frontage and a concrete bus pad does not already exist
Curb extensions or bulb-outs	• Identified as an improvement within site analysis
Implementation of a corridor-level bikeway improvement	• 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 • 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.
Intersection improvements[1]	• Identified as an improvement within site analysis
New sidewalk, curb ramps, curb and gutter meeting	• Always required

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

Improvement	Required by code or when…
current City and ADA standards	
No monthly permits and establish minimum price floor for public parking[2]	• 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[3]	• Identified as an improvement within operations analysis
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[4]	• 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
Transit Operations	• The project applicant shall, if feasible, contribute its fair share to AC Transit service enhancements to meet

[2] May also provide a cash incentive or transit pass alternative to a free parking space in commercial properties.
[3] 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.
[4] Including typical traffic lights, pedestrian signals, bike actuated signals, transit-only signals

Improvement	Required by code or when…
	access goals outlined in the City of Oakland West Oakland Specific Plan and AC Transit's ACgo expanded service plan and improve connections to local goods and services. Alternatively, the project applicant may explore and propose other TDM measure(s), including those already set forth in the TDM plan, in lieu of this fair share contribution. The City may approve the substitute TDM measure(s) if the City, in its discretion, deems the measure(s) more feasible, reasonably related, and roughly proportional to the impacts of the development.
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
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, 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 hours involving individually determined work hours.

The TDM Plan shall indicate the estimated VTR for each strategy, based on published research or guidelines where feasible. For TDM Plans containing ongoing operational VTR strategies, the Plan shall include an ongoing monitoring and enforcement program to ensure the Plan is implemented on an ongoing basis during project operation. If an annual compliance report is required, as explained below, the TDM Plan shall also specify the topics to be addressed in the annual report.

When Required: Prior to approval of planning application.

Initial Approval: Bureau of Planning

Monitoring/Inspection: N/A

b. TDM Implementation – Physical Improvements

Requirement: For VTR strategies involving physical improvements, the project applicant shall obtain the necessary permits/approvals from the City and install the improvements prior to the completion of the project.

When Required: Prior to building permit final

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

c. TDM Implementation – Operational Strategies

Requirement: For projects that generate 100 or more net new 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.

When Required: Ongoing

Initial Approval: Department of Transportation

Monitoring/Inspection: Department of Transportation

54. Transportation Impact Fee

Requirement: 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).

When Required: Prior to issuance of building permit

Initial Approval: Bureau of Building

Monitoring/Inspection: N/A

55. Plug-In Electric Vehicle (PEV) Charging Infrastructure

a. PEV-Ready Parking Spaces

Requirement: 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.

When Required: Prior to Issuance of Building Permit

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

b. PEV-Capable Parking Spaces

Requirement: 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.

When Required: Prior to Issuance of Building Permit

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

c. ADA-Accessible Spaces

Requirement: 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).

When Required: Prior to Issuance of Building Permit

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

UTILITY AND SERVICE SYSTEMS

56. Construction and Demolition Waste Reduction and Recycling

Requirement: The project applicant shall comply with the City of Oakland Construction and Demolition Waste Reduction and Recycling Ordinance (chapter 15.34 of the Oakland Municipal Code) by submitting a Construction and Demolition Waste Reduction and Recycling Plan (WRRP) for City review and approval, and shall implement the approved WRRP. Projects subject to these requirements include all new construction, renovations/alterations/modifications with construction values of $50,000 or more (except R-3 type construction), and all demolition (including soft demolition) except demolition of type R-3 construction. The WRRP must specify the methods by which the project will divert construction and demolition debris waste from landfill disposal in accordance with current City requirements. The WRRP may be submitted electronically at www.greenhalosystems.com or manually at the City's Green Building Resource Center. Current standards, FAQs, and forms are available on the City's website and in the Green Building Resource Center.

When Required: Prior to approval of construction-related permit

Initial Approval: Public Works Department, Environmental Services Division

Monitoring/Inspection: Public Works Department, Environmental Services Division

57. Underground Utilities

Requirement: The project applicant shall place underground all new utilities serving the project and under the control of the project applicant and the City, including all new gas, electric, cable, and telephone facilities, fire alarm conduits, street light wiring, and other wiring, conduits, and similar facilities. The new facilities shall be placed underground along the project's street frontage and from the project structures to the point of service. Utilities under the control of other agencies, such as PG&E, shall be placed underground if feasible. All utilities shall be installed in accordance with standard specifications of the serving utilities.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

58. Recycling Collection and Storage Space

Requirement: The project applicant shall comply with the City of Oakland Recycling Space Allocation Ordinance (chapter 17.118 of the Oakland Planning Code). The project drawings submitted for construction-related permits shall contain recycling collection and storage areas in compliance with the Ordinance. For residential projects, at least two (2) cubic feet of storage and collection space per residential unit is required, with a minimum of ten (10) cubic feet. For nonresidential 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.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

59. Green Building Requirements

a. Compliance with Green Building Requirements During Plan-Check

Requirement: The project applicant shall comply with the requirements of the California Green Building Standards (CALGreen) mandatory measures and the applicable requirements of the City of Oakland Green Building Ordinance (chapter 18.02 of the Oakland Municipal Code).

i. The following information shall be submitted to the City for review and approval with the application for a building permit:
   - Documentation showing compliance with Title 24 of the current version of the California Building Energy Efficiency Standards.
   - Completed copy of the final green building checklist approved during the review of the Planning and Zoning permit.
   - Copy of the Unreasonable Hardship Exemption, if granted, during the review of the Planning and Zoning permit.
   - Permit plans that show, in general notes, detailed design drawings, and specifications as necessary, compliance with the items listed in subsection (ii) below.
   - Copy of the signed statement by the Green Building Certifier approved during the review of the Planning and Zoning permit that the project complied with the requirements of the Green Building Ordinance.

- Signed statement by the Green Building Certifier that the project still complies with the requirements of the Green Building Ordinance, unless an Unreasonable Hardship Exemption was granted during the review of the Planning and Zoning permit.
- Other documentation as deemed necessary by the City to demonstrate compliance with the Green Building Ordinance.

ii. The set of plans in subsection (i) shall demonstrate compliance with the following:
- CALGreen mandatory measures.
- Green building point level/certification requirement per the appropriate checklist approved during the Planning entitlement process.
- All green building points identified on the checklist approved during review of the Planning and Zoning permit, unless a Request for Revision Plan-check application is submitted and approved by the Bureau of Planning that shows the previously approved points that will be eliminated or substituted.
- The required green building point minimums in the appropriate credit categories.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Building

Monitoring/Inspection: N/A

b. Compliance with Green Building Requirements During Construction

Requirement: The project applicant shall comply with the applicable requirements of CALGreen and the Oakland Green Building Ordinance during construction of the project.

The following information shall be submitted to the City for review and approval:

i. Completed copies of the green building checklists approved during the review of the Planning and Zoning permit and during the review of the building permit.

ii. Signed statement(s) by the Green Building Certifier during all relevant phases of construction that the project complies with the requirements of the Green Building Ordinance.

iii. Other documentation as deemed necessary by the City to demonstrate compliance with the Green Building Ordinance.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

c. Compliance with Green Building Requirements After Construction

Requirement: Prior to the finaling the Building Permit, the Green Building Certifier shall submit the appropriate documentation to City staff and attain the minimum required point level.

When Required: Prior to Final Approval

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

60. Sanitary Sewer System

Requirement: The project applicant shall prepare and submit a Sanitary Sewer Impact Analysis to the City for review and approval in accordance with the City of Oakland Sanitary Sewer Design Guidelines. The Impact Analysis shall include an estimate of pre-project and post-project wastewater flow from the project site. In the event that the Impact Analysis indicates that the net increase in project wastewater flow exceeds City-projected increases in wastewater flow in the sanitary sewer system, the project applicant shall pay the Sanitary Sewer Impact Fee in accordance with the City's Master Fee Schedule for funding improvements to the sanitary sewer system.

When Required: Prior to approval of construction-related permit

Initial Approval: Public Works Department, Department of Engineering and Construction

Monitoring/Inspection: N/A

61. Storm Drain System

Requirement: The project storm drainage system shall be designed in accordance with the City of Oakland's Storm Drainage Design Guidelines. To the maximum extent practicable, peak stormwater runoff from the project site shall be reduced by at least 25 percent compared to the pre-project condition.

When Required: Prior to approval of construction-related permit

Initial Approval: Bureau of Building

Monitoring/Inspection: Bureau of Building

62. Water Efficient Landscape Ordinance (WELO)

Requirement: 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
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

<u>When Required</u>: Prior to approval of construction-related permit

<u>Initial Approval</u>: Bureau of Planning

<u>Monitoring/Inspection</u>: Bureau of Building

Part 3: Standard Conditions of Approval – Other Standard Conditions

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63. Employee Rights

Requirement: 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).

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: N/A

64. Neighborhood Retail Survey

Requirement: 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 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).

When Required: Prior to commercial operations

Initial Approval: N/A

Monitoring/Inspection: N/A

65. High-Quality Design of Ground-Floor Public Plazas and Walkways.

Requirement: In order to ensure a safe and lively pedestrian realm around the BART station and the proposed project, the ground floor public plazas and walkways shall be high-quality, well-designed spaces that include excellent pedestrian-scaled lighting, extensive furnishings, and interactive art or other amenities for children.

When Required: FDP for horizontal improvements and PX/PZ Permit.

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

66. Programming of Ground-Floor Public Plazas.

Requirement: Provide regular programming of the plaza on 7th St, including concerts, farmer's markets, local vendor pop-ups, etc. These events shall be regularly scheduled events with a calendar that can be used to advertise at BART stations and throughout the community. Applicant shall provide Bureau of Planning staff with an event program and evidence of program manager retention on an annual basis. The event program shall include a minimum of twenty-four (24) events per year, each event to last a minimum of three hours. The event program should state the name and contact information for the program manager, the date, time, name and nature of each event.

When Required: Completion of public plaza construction-related permits

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

67. **High-Quality and High-Amenity Residential Group Open Space.**

Requirement: The project applicant is only providing 50% of the required useable open space for residential development, so the open space that is provided shall be high-quality and high-amenity. Group open space shall include amenities that are attractive to families with children as well as single residents such as high quality fire pits, bbq areas, pools, or hot tubs, and ample high quality play equipment for various age groups.

When Required: Prior to approval of FDP for each vertical phase of development.

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

68. Retail on 7th Street.

Requirement: The project applicant shall provide approximately 7,610 square feet of retail under the BART tracks between Chester Street and the BART Station, consistent with the approved PDP. If retail uses under the BART tracks are deemed infeasible by the City of Oakland, then an equivalent amount of retail shall be provided along 7th St between Chester Street and Center Street. Retail can be provided in kiosks, containers, or other small-scale retail buildings. At the same time, if retail cannot be provided under the BART tracks on Development Area T2, then the applicant shall design the space under the tracks as an attractive, delightful space for residents, community members, and BART riders to spend time with adequate provisions for safety such as security and lighting improvements.

When Required: Prior to approval of FDP that includes retail on Development Area T2.

Initial Approval: Bureau of Planning

Monitoring/Inspection: Bureau of Building

69. Provide noise buffering of BART tracks.

Requirement: Consistent with the requirements of the WOSP, the proposed buildings adjacent to the BART tracks shall be designed to buffer and attenuate noise from BART to the surrounding neighborhood. New buildings shall not aggravate noise conditions for the surrounding community, and where feasible shall mitigate BART noise in compliance with the WOSP.

When Required: Prior to approval of building permit.

Initial Approval: Bureau of Building, Bureau of Planning

Monitoring/Inspection: Bureau of Building

70. Project Phasing

The project phasing is as follows:

Phase I (submitted within 1 year of approved PDP)

a) FDP for all horizontal and off-site improvements and infrastructure (within one year after the approval of PDP), including but not limited to the following improvements:
   i. Final design for all public plazas and walkways
   ii. Final design for streetscape improvements
   iii. Detailed phasing plan for implementation of all horizontal improvements, ensuring continuous AC Transit service, access to the BART station, and adequate emergency access throughout all phases, to the satisfaction of the City of Oakland, BART, and AC Transit.
b) PX/PZ Permit for horizontal improvements and infrastructure, with phasing (to be approved prior to issuance of any building permit)
c) FDP for Residential/Retail (Development Area T2 and T3):
   i. 240 multifamily housing units and 22 duplex residential units (Development Area T3);
   ii. 15,200 square feet of retail along 5th St (Development Area T3);
   iii. 7,670 square feet of retail under the BART tracks (Development Area T2)
   iv. 272 parking spaces (Development Area T3); and
   v. 60,221 square feet of open space (in private and group configurations).
d) Building Permits for Development Areas T2 and T3, including grading permit
   i. Building permits for Development Areas T2 and T3 will not be granted until the PX/PZ Permit is approved

Any other improvements or changes there to that the City deems necessary to conform to project approvals and plans.

Phase II (submitted and application deemed complete within two years of Phase I FDP approval)

a) FDP for residential Tower with office and retail (Development Area T1):
   i. 500 dwelling units;
   ii. 82,460 square feet of office
   iii. 17,185 square feet of retail;
   iv. 18,002 square feet of group open space (in private and group configurations), and
   v. 600 space bike station with retail under the tracks (between Development Areas T1 and T4)
b) Building Permits for Development Area T1.

Any other improvements or changes there to that the City deems necessary to conform to project approvals and plans.

Phase III (submitted and application deemed complete within two years of Phase II FDP)

a) FDP for office and retail (Development Area T4):
   i. 300,000 square feet of office;
   ii. 30,800 square feet of retail; and
   iii. 128 parking spaces.
b) Building Permits for Development Area T4

Any other improvements or changes thereto that the City deems necessary to conform to project approvals and plans.

When Required: Each FDP.

Initial Approval: Bureau of Planning

Monitoring/Inspection: N/A

71. Submittal and Approval of FDP for Horizontal Improvements.

Multiple FDPs may be submitted as a part of the project, but the FDP for Horizontal Improvements shall be submitted before, or in conjunction with, any other FDP.

Requirement: The project applicant shall apply for the Final Development Permit (FDP) for all horizontal improvements before any other FDPs shall be considered. The FDP for horizontal improvements shall be approved before, or in conjunction with, any other FDP approval. In any event, the horizontal improvements required in Phase I should be developed prior to any other improvements in any other Phase. The FDP for horizontal improvements shall include a phasing plan for implementation of all horizontal improvements, ensuring uninterrupted AC Transit service and provision of adequate emergency vehicle access, to the satisfaction of AC Transit, the City of Oakland, and BART. Horizontal improvements include, but are not limited to: public plazas, public walkways, sidewalks improvements, bikeways, crosswalks, curb extensions, bus stops, intersection improvements, etc.

When Required: Prior to submittal or approval of any other FDP.

Initial Approval: Bureau of Planning

Monitoring/Inspection: N/A

72. Submittal and Approval of PX/PZ permit for horizontal improvements.

Requirement: The project applicant shall apply for the PX/PZ permit for all horizontal improvements and receive approval from all relevant departments and agencies before any building permits will be approved. Horizontal improvements include, but are not limited to: public plazas, public walkways, sidewalks improvements, bikeways, crosswalks, curb extensions, bus stops, intersection improvements, etc.

When Required: Prior to approval of any building permit.

Initial Approval: Bureau of Building/DOT

Monitoring/Inspection: N/A

73. Compliance with all relevant Conditions of Approval.

Requirements: In addition to the conditions above, project applicant shall comply with the conditions in the attached exhibits, including:

- Exhibit A: City of Oakland Department of Transportation, Engineering Services Conditions of Approval
- Exhibit B: City of Oakland Department of Transportation, Office of the City Surveyor Conditions of Approval
- Exhibit C: City of Oakland Fire Department, Conditions of Approval

When Required: As specified in the specific conditions of approval

Initial Approval: As specified in the specific conditions of approval

Monitoring/Inspection: As specified in the specific conditions of approval

Applicant Statement

I have read and accept responsibility for the Conditions of Approval. I agree to abide by and conform to the Conditions of Approval, as well as to all provisions of the Oakland Planning Code and Oakland Municipal Code pertaining to the project.

____
Name of Project Applicant

____
Signature of Project Applicant

____
Date

Exhibit A:

Conditions of Approval

- City of Oakland Department of Transportation, Engineering Services Conditions of Approval

City of Oakland Department of Transportation

Transportation and Right-of-Way Management Division, Engineering Services

If Project is approved by the Advisory Agency, attach the Engineering Services "Conditions of Approval" provided below.

Planning/Zoning Number(s) PLN18521	**Engineering Staff Contact** Chong Hong
Project Address 1451 7th Street	**Project Description** 41-parcel merger, West Oakland Bart project
Tentative Map No. VTPM10940 / No. of New Lots: 1	No. Condominiums: / ☐ Mixed Use
☐ **No Map** ☐ **Parcel Map Waiver** ☑ Merger	☐ Lot Line Adjustment LLA / No. Existing Lots LLA: / No. New Lots LLA:

GENERAL REQUIREMENTS	SPECIFIC PROJECT CONDITIONS OF APPROVAL
SIDEWALKS, CURB AND GUTTERS 1. Existing sidewalks fronting subject property must be compliant with ADA standards. 2. Uplifted, uneven, damaged sidewalks shall be repaired with no more than ¼ inch lift and no more than 2% cross slope. 3. Sidewalk clear width of 5.5 feet minimum is required and must not be less than 50-inches between obstacles, poles, trees, hydrants, pinch points for ADA access. 4. Existing sidewalks, curbs/gutter/driveway approaches damaged, broken or if non-standard shall be repaired. 5. A Curb, Gutter and Sidewalk (CGS) permit is required to repair or construct sidewalk. 6. Infrastructure and improvements to be privately maintained within the right of way and any non-standard features MAY be accepted with an Encroachment Permit. 7. City may revoke encroachment permit at its sole discretion and may charge property owner(s) for use of the right-of-way.	Prior to issuance of a building permit for the project, applicant shall obtain a PX permit and enter into a P-Job Agreement for construction of improvements within the City's right-of-way. Improvement plans shall be prepared by a registered civil engineer and submitted to Department of Transportation, Engineering Services for review and approval prior to issuance of a PX permit. Applicants shall obtain permit from Department of Transportation prior to beginning construction within the right-of-way.
STREET PAVING AND STRIPING 8. Street and roadway area(s) fronting the development must be resurfaced up to one traffic lane in width 13 ft. or to the centerline of the street, after completion of construction and as required by the Inspector. 9. Evaluation of the street's Pavement Condition Index at time plans are submitted for permit review shall determine any restoration requirements. 10. Existing striping fronting the property and up to 1 block length shall be restored to the satisfaction of the Inspector. Thermoplastic shall be required unless specified otherwise in the plans approved for construction. 11. "Moratorium Streets" are resurfaced or newly constructed streets within the past 5-year period. No trenching or excavation is permitted on any Moratorium Street without the written authorization of the Public Works Director.	Conditions 8, 9, 10 and 11 apply. Actual limit of pavement restorations will be determined based on the project affected street Pavement Condition Index. Engineering Services will determine if any of the improvements shown on the plans submitted for the PX permit require the review and approval of the City's Traffic Engineer prior to issuance of the PX permit.
DRIVEWAYS 12. Driveway approach, length, width, driveway separation, clearances from poles and utilities, type of curb, driveway angle, shall be approved by Bureau of Planning in advance of any review by Engineering Services. 13. Any existing driveway that will no longer be required to serve the property shall be replaced with new sidewalk curb and gutter, with curb striping as required by Inspector.	Driveway approaches shall be identified on the improvement plans for the PX permit and proposed locations must be approved by Engineering Services and Planning Department.
CURB RAMPS 14. New curb ramps shall meet the latest State of California standards when plans are submitted for review.	See comments on Page 2.

15. Curb ramps shall be directional unless approved otherwise in writing by the City Engineer. 16. New curb ramps are required at intersections fronting the project site and when the use or occupancy necessitates installation or replacement of curb ramps. Additional curb ramps required by the City Engineer shall be installed by the project sponsor. 17. Where a new curb ramp is required for the project the curb ramp located on the opposite side of the roadway, across a marked or un-marked crosswalk, shall also be installed or upgraded to be ADA compliant by the project sponsor.	New directional handicap ramps shall be installed at the intersection(s) fronting the property and directly across each intersection to the satisfaction of the City Engineer. The improvement plans submitted for the PX permit shall identify all handicap ramps to be installed.
STREET GEOMETRY AND STRIPING DESIGN 18. New striping, curb painting, bulb-outs, changes to existing dimensions, impact to traffic resulting from development, traffic pattern, circulation, signals, traffic count, street/lane change shall be reviewed and approved by the City's Traffic Engineer. 19. Any alteration to geometry of roadway/sidewalk, markings, traffic control signs and devices shall be reviewed and approved by the City's Traffic Engineer. 20. Traffic and parking sign posts shall be coated with anti-graffiti coating. 21. Traffic Control Plans (TCP) for temporary traffic control measures shall be submitted separately for review and approval by City's Traffic Engineer prior to permit issuance and when the TCP is adjusted and updated during construction.	Engineering Services will determine if any of the improvements shown on the plans submitted for the PX permit require the review and approval of the City's Traffic Engineer prior to issuance of the PX permit.
SANITARY SEWER 22. Sanitary sewer impact analysis is required when new development results in a net increase of volume of wastewater flow to the City's sanitary sewer system. Sewer flow calculations prepared by developer's engineer must include existing and proposed flows. Developer shall submit analysis with completed application for review. Mitigation fees shall be paid prior to issuance of a Building or PX permit whichever occurs first. 23. A "PSL" certificate, Sewer Lateral Permit, and EBMUD Inspection are required for all projects where construction costs are one-hundred thousand dollars ($100K +) or more. 24. A Sewer Lateral permit (SL) is required for any new sewer lateral or rehabilitation of existing lateral. Abandonment of a sewer lateral requires a separate permit. 25. Sewer profiles shall be included on the plans approved for construction. If existing utilities are within twelve inches (12") of proposed sewer, engineer shall have existing utility potholed and resolve conflict before approval of plans.	Condition 22, 23, 24, and 25 apply. Applicant shall submit sewer calculations and design for review and approval at the time of submitting improvement plans for PX permit. Applicant shall obtain PSL certificate, a SL permit and lateral abandonment permit(s) as applicable to the proposed development.
STORM DRAINS 26. Connection of storm drain to sewer line is prohibited. Any unauthorized connection shall be separated from the sanitary sewer. 27. Drainage plans shall be submitted for review and approval. Plans shall follow City standard details and design standards. Blind connections or tap connections are prohibited for storm drains.	Applicant shall submit the storm drainage calculations for review and approval at the time of submitting the improvement plans for PX permit. No runoff shall cross private property lines without first recording a storm drainage easement for this purpose. New storm drainage easements on private property shall be privately maintained and will not be accepted by the City.

28. Hydrology and Hydraulic Calculations, shall meet City's Storm Drainage Design Standards. 29. Reduction in Peak Flow by 25% or to the extent possible is required.	
STORM WATER TREATMENT 30. Requirements for permanent and temporary storm water pollution prevention, Alameda County Clean Water Program (C.3), shall be included in the Building improvement plans for on-site work. Any approved storm drain from on-site development shall be tied to an inlet structure at the back of curb designating public and private ownership. 31. Permanent storm water treatment (BMP's) to service the development shall be privately maintained and included in the O&M Agreement for the project. 32. Roof runoff must be directed through an approved treatment device prior to entering the City's storm drainage system. 33. Right-of-way shall not be used for storm water treatment features.	Applicant shall submit the storm drainage calculations for review and approval at the time of submitting the improvement plans for PX permit.
STREET TREES AND LANDSCAPING (PRIVATE) 34. Trees and irrigation for the proposed development shall be owned and maintained by the property owner(s). 35. Landscape and irrigation plans shall be submitted with the civil plans for work (PX permit) for review and approval by the City's Arborist. 36. Landscape, irrigation plans and tree species shall meet City standards for Street Tree Planting. 37. Tree shall be spaced twenty feet (20') on center and shall not obstruct street lights. Tree wells shall be 3 ft. x 3ft. or 4 ft. x 4 ft. (minimum) for mature tree height of 25 to 40 feet. 38. Tree Grates, Root Barrier and Staking Details for new trees shall be included in the approved plans. Tree Grates must be ADA compliant.	The improvement plans submitted for the PX permit shall include landscape and irrigation plans for any landscaping proposed with the City's right-of-way. Any street trees, tree grates and root barriers shall be reviewed and approved by the City's Arborist as determined by Engineering Services.
EASEMENTS AND ENCROACHMENTS 39. All property lines, existing and proposed easements, shall be clearly shown on the plans for construction (PX permit). 40. Easement dedication or vacation requires separate application and permit (PPE permit) if not included on a Final Tract Map or Parcel Map. 41. Major Encroachment permits require City Council resolution and Indenture Agreement with County Recorder's Number shown on the Final or Parcel Map. 42. Permanent building elements encroaching into the right-of-way normally require a Major Encroachment (ENMJ permit) Other approved encroachments may be part of Minor Encroachment (ENMI permit). 43. City may revoke encroachment permit at its sole discretion and may charge property owner(s) for use of the right-of-way.	All emergency access and utility easements for the proposed development shall be clearly identified on the improvement plans submitted for the PX permit. The applicant shall apply for and obtain any necessary encroachment permits prior to issuance of a PX permit. If a major encroachment permit for the proposed building is required, the applicant shall submit to Engineering Services for review and approval all necessary plans and exhibits for the City Council resolution and the recorded major encroachment permit.
SITE PLAN 44. A Site Plan shall be provided with permit plan set and include: north arrow, scale, property boundaries, topography, vegetation, proposed/existing structures,	A site plan shall be submitted with the improvement plans for the PX permit.

utilities, easements, roadways, monuments, wells, and any important key elements.	
STREET LIGHTS AND UTILITIES (PW ELECTRICAL) 45. A photometric plan and analysis of existing and proposed street lights is required for all projects requiring a PX permit and as determined by the City Engineer. Design shall meet City Outdoor Lighting Standards. http://www2.oaklandnet.com/oakca1/groups/pwa/documents/policy/oak026007.pdf. 46. Upon review and approval of the photometrics analysis, the project sponsor shall design and include additional streetlights as required by the City and shall also provide 10% spare streetlight fixtures for City's Electrical Maintenance Operations. 47. Pedestrian signal and push buttons for intersection crossings shall be included in the plans for construction when required by the Traffic Engineer. 48. Utility undergrounding shall be clearly identified on all construction permitted plans as approved by the Project Planner, Oakland Fire Department, Public Works Department and Dept. of Transportation. 49. Pull boxes shall be locking. 50. Existing, reinstalled and new Streetlights, Parking Meters and Kiosks shall be included on the plans approved for construction. Separate fees and approvals by Public Works Maintenance is required to remove or install Streetlights, Parking Meters and Kiosk.	The improvement plans shall identify the location and details for all existing and proposed street lights along the street frontage of the proposed project. A photometric analysis shall be submitted as part of the PX permit application.
SPECIAL ZONES: CDMG Designation (LS/LQ), A-P Zone, Flood Zone, Creek/water course, GAAD, etc. 51. Design, approvals, outside agency permits, and construction methods shall meet all applicable Federal, State, and City's Municipal Code requirements for properties located in hazard zone and flood zone. 52. Peer Review of Soils, Geotechnical, Hydrology, Hydraulic, and Structural Reports, engineering plans, grading, remediation, final map may be required. 53. CDMG Designation and potential for liquefaction(LQ) and/or landslide(LS) shall be clearly identified on individual lots of the Tentative Map, Parcel Map of final Tract Map.	The improvement plans shall identify on the cover sheet the flood zone designation and FIRM rate map for the property. The Geotechnical Engineer and reference to soils reports shall also be included on the cover sheet of the improvement plans submitted for review and approval. The project side is within Liquefaction Severity 4 Hazard Zone.
TENTATIVE MAP, PARCEL MAP, TRACT MAP 54. Fire Access, Emergency Vehicle Access, Shared Access (Agreement or CC&R's), Utility Easements shall be clearly shown and identified on Maps. 55. Setbacks from the property lines, buffer areas, easements, buildings and separation required between structures and buildings shall be identified on Tentative Map. 56. After approval by Planning and Zoning of a Tentative Map a separate application to Engineering Services is required for review and approval of the Parcel or Tract Map by the City Surveyor and City Engineer. 57. Tract Map and Subdivision Improvement Agreement (SIA) requires City Council Approval. 58. Survey Monuments Protection, Surety/Bond may be required prior to approval of Parcel or Final Map.	After approval by Planning and Zoning of a Tentative Parcel Map, a separate application to Engineering Service is required for review and approval of the Parcel Map by City Surveyor and City Engineer.

CONSTRUCTION 59. All work within the City's right-of-way or easement requires a valid permit. 60. Shoring Plans, Retaining Walls, Streetlight and Traffic Signal Pole Foundations and other structures require a separate Building Permit from the Building Department. 61. An Obstruction Permit (OB) may be required prior to issuance of a Grading, Building, PX, CGS or another related permit. OB permits are required for temporary or permanent removal of metered and non-metered parking spaces, sidewalk closure(s), staging of materials, construction dewatering equipment, blocking, placement of storage units, equipment within the right-of-way. 62. An approved Traffic Control Plan (TCP) may be required prior to issuance of an OB permit, PX permit or any work requiring Traffic Control Measures within the City's right-of-way.	PX permit is required for offsite improvements. OB permit is required if there is any impacted parking space on street. Traffic Control Plan may be required prior to issuance to OB and PX permit. SL Permit is required for any new or abandoned sewer lateral.
OTHER 63. Projects with *"Special"* considerations, for example; may require utility undergrounding of overhead utilities, improvements off-site (i.e. new traffic signal), ownership of land/project sponsor TCSE Economics & Workforce Development, a City Capital Project, or may be part of a larger "Master Planned Development" with Development Agreement and/or phased Final Maps.	Conditions may apply at the time of a Building Permit application.

PER CITY RECORDS AND INFORMATION RECEIVED FOR REVIEW ITEMS NOTED BELOW MAY AFFECT THE DESIGN, REVIEW AND APPROVAL, PERMITTING, MAP APPROVAL PROCESSES. *(The City assumes No Responsibility for the Accuracy and/or Completeness thereof.)*

Preliminary Title Report		Vacation / Dedication	
Flood Zone		Easement	Fire approval on EVAE width is required
Creek Permit / Water Course		Existing Utilities / Overhead	
Land / Boundary Survey		BART	
Lot Dimension(s)		CALTRANS	
Sidewalk Clearance (i.e. 5.5 ft.)		EBMUD	
Sidewalk Curb Ramps		PG&E	
Encroachment		UPRR	
CDMG Designation		City of Oakland Ownership	
Land Stability	In Liquefaction Severity 4 zone	City of Berkley	
Street Lighting		City of Emeryville	
Traffic Circulation / Bicycle Lane		City of Piedmont	
Traffic Signal		Other	

*Additional information is provided below:

Emergency Vehicle Access Easements (EVAE) width on VTPM10940 dated on 1/29/19 must be approved by the Fire Department.

Planning/Zoning Number	Map Number *(if applicable)*	DATE
PLN18521	VTPM10940	1/29/2019

Exhibit B:

Conditions of Approval

- City of Oakland Department of Transportation, Office of the City Surveyor Conditions of Approval

Oakland Department of Transportation
Office of the City Surveyor

Memorandum

Comments on Review of Vesting Tentative Parcel Map 10940 PLN 18521: 1451 7th Street

January 29, 2019

I have reviewed the submitted Tentative Parcel Map dated January 29, 2019 and have the following requirements to be added to the **Conditions of Approval.**

1. The final parcel map shall clearly show the process and development of the location of the boundary lines from adjoining streets and boundaries. This includes how the depth of the lot was confirmed.
2. Depending upon this process, and at discretion of the City Surveyor, a standard city monument(s) or a private monument meeting City specifications may be required to be installed at an approved location.
3. Tentative maps must comply with the Planning Departments checklist for Parcel Maps and Tentative maps
4. **All** of the property lines of the parcels (new and perimeter) should be shown and dimensioned on the map.
5. Elevations: Are based upon the City of Oakland Datum and must cite the City Benchmark used to establish the elevations.
6. If the tentative map does not cite a specific Benchmark as the basis for the City of Oakland Datum, then as a Condition of Approval, a Standard City Benchmark shall be installed at the nearest intersection, or as directed by the City Surveyor, and the appropriate paperwork submitted to this office for approval.
7. The applicant must investigate and confirm, in writing, that no portion of the project lies with a Seismic Hazard area as shown upon the State Geologist maps (**reference is made to PRC Division 2, Chapter 7.8 section 2696**). If the project does lie within such an area, the appropriate certificate shall be added to the final map. A copy of this certificate is available from the City.

~~8.~~ No portion of any new structure shall extend beyond the boundary lines without the appropriate easement. Portions which will extend beyond the ROW line must be approved by the Right of Way Engineer.

9. Monument all existing parcel lines.
10. There is a portion of the EVAE that is only 20'. Please verify with the Fire Department if this is an acceptable width.
11. Change the title of the map to adhere to the following format:

250 Frank Ogawa Plaza, Suite 4344; Oakland, California 94612; 510.283.3697

PARCEL MAP 10940
BEING A MERGER OF LOTS 1-35, BLOCKS 494, 495, AND 496
BOOK 3 OF MAPS PAGE 31;
ALL OF BLOCK 493 “MAP OF OAKLAND AND VICINITY”
BOOK 17 OF MAPS PAGE 14;
AND ALL PORTION OF CENTER STREET VACATED BY ORDINANCE 8225
REEL 2715, IMAGE 89, OFFICE OF THE COUNTY RECORDER
ALAMEDA COUNTY, CALIFORNIA

Respectfully Submitted,

Negine Malboubi, Survey Technician
Raymond D. Hébert, PLS City Surveyor

250 Frank Ogawa Plaza, Suite 4344; Oakland, California 94612; 510.283.3697