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SAMUEL MERRITT UNIVERSITY PROJECT ADDENDUM

CEQA Analysis

Prepared for
City of Oakland

May 2022

ESA

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May 2022

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SAMUEL MERRITT UNIVERSITY PROJECT ADDENDUM

CEQA Analysis

1. General Project Information

1.1 Project Title

City Center T5/T6 Site B SMU Project

1.2 Lead Agency Name and Address

City of Oakland
Bureau of Planning
250 Frank H. Ogawa Plaza, Suite 2114
Oakland, CA 94612

1.3 Project Case File Number

PUD99-ER15003

1.4 Contact Person and Phone Number

Catherine Payne, Development Planning Manager
Bureau of Planning
cpayne@oaklandca.gov
(510) 238-6168

1.5 Project Location

Lot 2, as shown on attached Vesting Tentative Parcel Map of the mid-block bounded by 12th Street to the north, Clay St to the west, 11th Street to the south, and open space improvements associated with 1111 Broadway to the east.

Assessor's Parcel Nos. 2-97-39, 2-97-40

Proposed Address: 525 12th Street

1.6 Project Applicant's Name and Address

Strada T5, LLC, c/o Strada Investment Group
101 Mission Street, Suite 420
San Francisco, CA 94105

1.7 Existing General Plan Designations

Central Business District (CBD)

1.8 Existing Zoning

CBD-C (Central Business District General Commercial Zone)

1.9 Requested Permits

The Project would require a number of discretionary actions and approvals, including without limitation:

1.9.1 Actions by the City of Oakland

- **Bureau of Planning** – Approval of a Conditional Use Permit (CUP) for the proposed College and University land use; Final Development Plan (FDP) for approval of site plans, massing, and concept design of the proposed uses; Regular Design Review; variances for the above base tower length and diagonal length, and CEQA determination.

- **Bureau of Building** – Approval or issuance of grading permits, building permits, and Post-Construction Stormwater Control Plan demonstrating compliance with Provision C.3 of the National Pollutant Discharge Elimination System (NPDES) Municipal Regional Permit (MRP).

- **Department of Transportation** – Approval or issuance of other related off-site work permits (e.g., public right-of-way improvements and tie backs) and encroachment permits.

1.9.2 Actions by Other Agencies

- **Bay Area Air Quality Management District (BAAQMD)** – Issuance of permits for operation of emergency generator.

- **Regional Water Quality Control Board (RWQCB)** – Acceptance of a Notice of Intent to obtain coverage under the General Construction Activity Storm Water Permit and a Notice of Termination after construction is complete; granting of required clearances to confirm that all applicable standards, regulations, and conditions for all previous contamination at the site have been met.

- **East Bay Municipal Utility District (EBMUD)** – Granting a Special Discharge Permit to discharge construction dewatering, if any, to the sanitary sewer and/or approval of new service requests and new water meter installations.

2. Executive Summary

The Project Applicant, Strada T5, LLC, proposes the Samuel Merritt University Project (SMU Project or Project) involving development of a university building on one of four development blocks that make up the Oakland City Center Project in Downtown Oakland. The Project site is Site B of Block T5/6 of the City Center Project, an approximately 0.56-acre parcel located at 1100 Clay Street. The site is 0.56 acres comprised of two parcels (Assessor's Parcel Numbers 02-97-39 and 02-97-40). The project site is midblock bounded by 12th Street to the north, the residential tower at 1150 Clay Street to the west, 11th Street to the south, and open space plaza of the 1111 Broadway office tower to the east.

The City certified an Environmental Impact Report (EIR) for the Oakland City Center Project Preliminary Planned Unit Development (PUD) in April 2000, pursuant to the California Environmental Quality Act (CEQA).[1] The "Original Project" analyzed in the 2000 EIR considered the development 2,184,000 square feet of office, 200 residential units, and 23,000 square feet of commercial use in four buildings up to 390 feet tall with ground floor retail space and associated parking on four City Blocks. Six addenda to the 2000 EIR were completed to consider modifications to the Original Project and each of the addenda determined that no further review was required. The approved modified project through Addendum #6 is referred to throughout this document as the "Approved Project."

The Project Applicant now seeks approval of the SMU Project, which would be developed as a new academic and administrative office building on Site B. The Project would include approximately 238,550 gross square foot, 10-story, approximately 201-foot-tall building (206 feet to the top of the penthouse) over a single below grade level. The building would be designed to accommodate SMU's anticipated average weekday on-site population of approximately 934 people with a mix of small and large classrooms, teaching labs, research labs, simulation space, and student clinic space.[2] In addition, the building would include administrative workspaces to accommodate faculty and staff, a library, and common areas. No parking would be provided.

The 2000 EIR, and six subsequent addenda to that EIR, analyzed the environmental impacts of adoption and implementation of the City Center Project. The analysis in the 2000 City Center EIR and its six addenda directly apply to the SMU Project, providing the basis for use of an Addendum. Therefore, the 2000 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 Broadway Valdez District Specific Plan Documents webpage at: https://www.oaklandca.gov/topics/broadway-valdez-district-specific-plan-environmentalimpact-report.

This California Environmental Quality Act (CEQA) Analysis evaluates the Project and compares the impact of the Project relative to the impact conclusions in the 2000 EIR and its six addenda.

1 Oakland City Center Project Final EIR, Certified April 26, 2000. SCH No. 99081119. Oakland Case No. ER99-15.

2 The SMU Project would offer some programs online, some faculty would teach multiple classes a day or teach remotely, and some faulty would only teach off campus at various clinical sites. Therefore, the expected average weekday on-site population includes approximately 934 people comprised of 564 students, 110 staff, and 260 faculty (see Section 6.12, *Population and Housing*).

Based on the information and conclusions set forth in this CEQA Analysis, the Project is eligible for CEQA streamlining and/or tiering provisions under CEQA Guidelines Section 15183, which provides for streamlined review when a project is consistent with a Community or General Plan and its development density, and the impacts of a project have been analyzed in a certified EIR. Therefore, this analysis uses CEQA streamlining and/or tiering provisions under CEQA Guidelines Section 15183 to tier from the analysis in the 2000 EIR, which analyzed environmental impacts associated with the City Center Project.[3]

The Project is consistent with the Approved Project, providing the basis for concluding that the Project is within the scope of the 2000 EIR such that no new environmental document would be required per State CEQA Guidelines Section 15162. As such, this Project is eligible for CEQA streamlining provisions under CEQA Guidelines Section 15164 for preparation of an Addendum to the 2000 EIR and under CEQA Guidelines Section 15168 for tiering from the program-level analyses completed in the certified 2000 EIR.

The analysis provided in the 2000 EIR previously analyzed the potential environmental effects associated with this Project and none of the criteria under CEQA Guidelines Section 15162 that would require a subsequent or supplemental EIR are present. Therefore, this CEQA Analysis is the appropriate document to demonstrate compliance with CEQA and no additional environmental documentation or analysis is required.

[3] Throughout this document, except where necessary for clarity, "2000 EIR" encompasses the Draft EIR and Final EIR for the Original Project along with its six addenda.

3. Background

3.1 2000 EIR and "Original Project"

In April 2000, the Oakland Planning Commission certified the EIR and approved a preliminary PUD for the Oakland City Center Project. The Original Project analyzed in the 2000 EIR consisted of approximately 2.2 million square feet of office space, 200 residential units, 23,000 square feet of ground-floor commercial space, and 836 off-street parking spaces in high-rise buildings on the four city blocks: Blocks T5/6, T9, T10 and T12. Building heights would range between 20 stories (about 300 feet) and 31 stories (about 440 feet). Although the Original Project would be phased and some blocks would be constructed at a later date, because the overall development program included four structures, the 2000 EIR analyze the physical effects related to the entire program. The Original Project location and development blocks are shown in **Figure 1** and **Figure 2**, respectively. **Table 1** shows the development program of the Original Project.

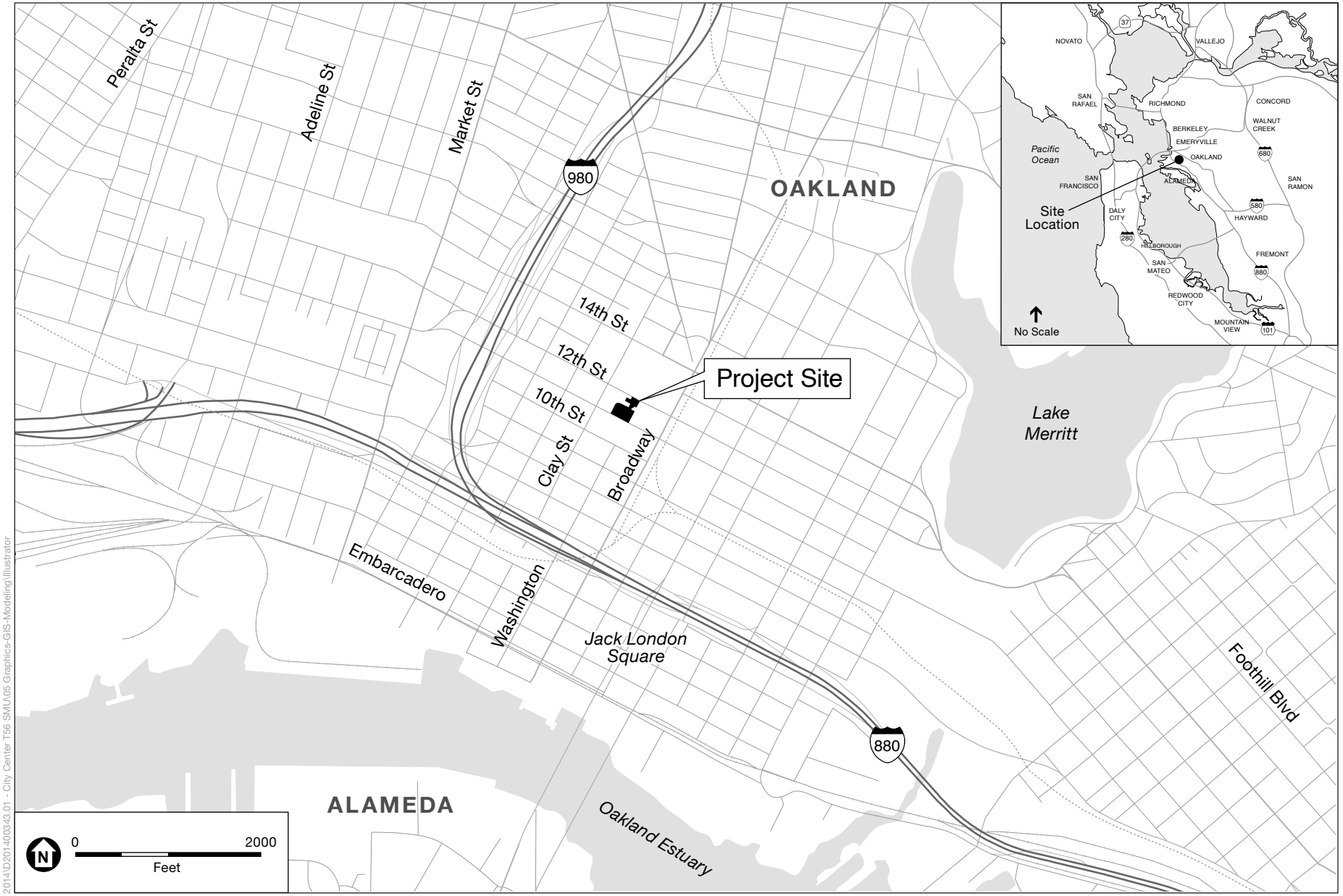
TABLE 1
DEVELOPMENT CHARACTERISTICS OF ORIGINAL PROJECT, 2000 EIR

	Block T5/6	Block T9	Block T10	Block T12	Original Project (2000 EIR)
Office	580,000 sf	470,000 sf	550,000 sf	584,000 sf	**2,184,000 sf**
Residential	0	0	200 units	0	**200 units**
Commercial	7,500 sf	7,500 sf	8,000 sf	0	**23,000 sf**
Parking	150 spaces	236 spaces	230 spaces	220 spaces	**836 spaces**
Parking access	11th Street	11th Street	Jefferson St.	11th Street	**N/A**
Loading Spaces	3	3	3	3	**12 spaces**
Loading access	11th Street	11th Street	MLK Jr. Way	11th Street	**N/A**
Hgt. (stories)	26 stories	21 stories	31 stories	26 stories	**Max. 31 stories**
Height (feet)[a]	390 feet	306 feet	440 feet	390 feet	**Max. 440 feet**

NOTE:
a. In the 2000 EIR, all Blocks were modeled at 440 feet tall shadow and scenic resources, and at 425 feet for the wind analyses in the 2000 EIR.

The 2000 EIR (including its Initial Study Checklist) determined that the Oakland City Center Project's impacts to the following resources would be reduced to **a less-than-significant level with the implementation of mitigation measures**: circulation and parking, air quality, and noise (in the EIR); geology and soils, hydrology and water quality, cultural resources, and hazards and hazardous materials (in the Initial Study). **Less-than-significant impacts** were identified for the following resources: aesthetics; biology; land use, plans, and policies; population and housing; public services, recreation, and utilities and service systems.

The 2000 EIR determined that the Oakland City Center Project would have **significant unavoidable effects** on the following environmental resources: traffic delays; air quality (cumulative); noise (cumulative); and wind hazards. Due to the potential for significant unavoidable impacts, a Statement of Overriding Considerations was adopted as part of the City's approvals.



SOURCE: ESA, 2022

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Figure 1
Project Location

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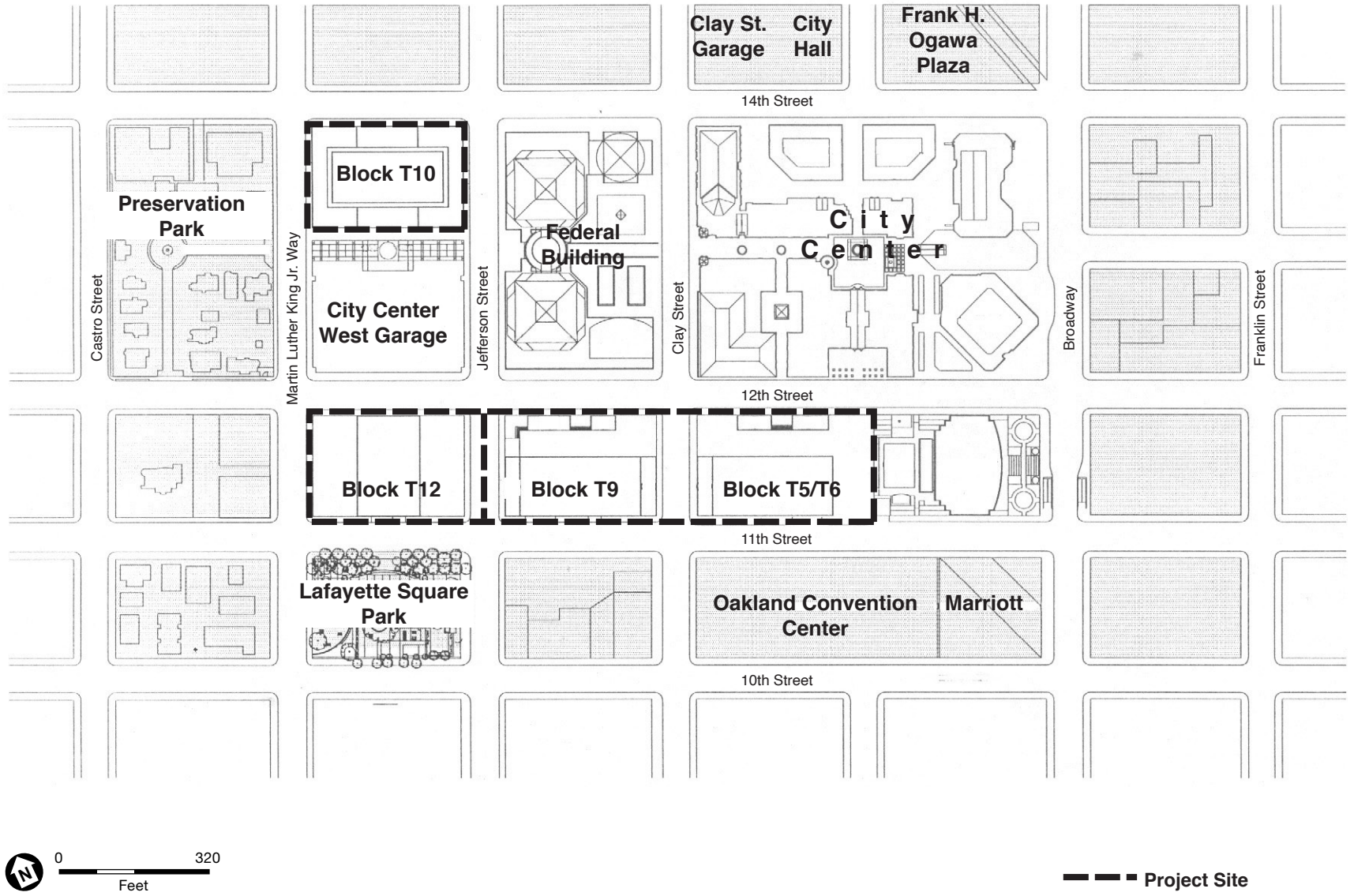

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SOURCE: Oakland City Center Project DEIR, 2000

Samuel Merritt University Project Addendum

Figure 2
Original Project Development Blocks

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3.2 Previous Addenda and "Approved Project"

Six addenda to the 2000 EIR were completed to consider modifications to the Original Project: Addendum #1 for Block T10 (2003); Addenda #2 through #4 for Block T12 (2005, 2007 and 2010), Addendum #5 for Blocks T5/6 (2015), and Addendum #6 for Block T12 (2016). The development programs for each addendum are summarized in **Table 2**. As described below, each of the addenda determined that no further review was required, in terms of a subsequent or supplemental EIR, pursuant to CEQA Guidelines Sections 15162 and 15164 (Subsequent EIRs, Supplements and Addenda to an EIR or Negative Declaration).

The 2003 Addendum #1 found that a Modified Block T10 project, which increased the residential units and decreased office square footage on Block T10, would have no new or substantially more severe significant impacts compared to what was identified and disclosed in the 2000 EIR. The 2005 Addendum #2, which considered an increased number of residential units for Block T12, confirmed that increased traffic anticipated from other new development that had occurred near Block T12 would not cause the Modified Block T12 project to adversely affect intersections and found the Modified Block T12 would have no new or substantially severe impacts compared to what was identified in the 2000 EIR. The 2007 Addendum #3 and 2010 Addendum #4 were completed to address the reversion of the Modified Block T12 project of Addendum #2 to office use. Both addenda found that the four significant and unavoidable impacts of the City Center Project in the 2000 EIR, which are primarily due to the office component of the City Center Project, would remain the same and no new or severe impacts were found. The 2016 Addendum #6 considered a revised office project for Block T12 and found that three of the four significant and unavoidable impacts of the City Center Project in the 2000 EIR would remain the same. The addendum concluded that the previously identified significant and unavoidable impact related to cumulative increases in traffic noise would no longer result, and no new or substantially severe impacts were found.

The 2015 Addendum #5 evaluated the impacts of a modified development proposal for Block T5/6 comprised of Phase 1 on Site A and three options for Phase 2 on Site B. The three development options evaluated for Site B included a 300-room hotel (Option 1), a 262-unit residential building (Option 2), and a 205,800 square-foot office building (Option 3). The 2015 Addendum found that a Modified Block T5/6 project would have no new or substantially more severe significant impacts compared to what was identified and disclosed in the 2000 EIR.

The approved modified project through Addendum #6, referred to throughout this document as the Approved Project, is summarized in Table 2.

Development on all blocks except Site B of Block T5/6 (addressed in this CEQA Analysis document) are fully constructed and operational. Development characteristics of the current Approved Project as constructed are shown below in **Table 3**.

Throughout this document, except where necessary for clarity, "2000 EIR" encompasses the 2000 Initial Study, Draft EIR, Final EIR, and each of the six subsequent addenda for the City Center Project, as shown previously in Table 2. Consistent with prior addenda, the project under consideration in this CEQA Analysis will be evaluated for consistency with the conclusions of the

2000 EIR *and* its addenda. Therefore, each of the three options for Site B analyzed in the 2015 Addendum and approved by the City are included as a part of the "Approved Project."

3.2.1 SCA Application in General

The City established its *Standard Conditions of Approval and Uniformly Applied Development Standards* (SCAs) in 2008, and the SCAs have since been amended and revised several times.[4] The City's SCAs are incorporated into new and changed projects as enforceable 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. When a project is approved by the City, all applicable SCAs are adopted as enforceable conditions of approval and required, as applicable, to be implemented during project construction and operation. The SCAs are therefore not listed as mitigation measures.

3.2.2 Previous Mitigation Measures and Current Standard Conditions of Approval (SCAs)

The CEQA Checklist provided in Section 6 of this document evaluates the potential project-specific environmental effects of the Project, and evaluates whether such impacts were adequately covered by the 2000 EIR to allow the provisions afforded by Guidelines Sections 15183, 15162, 15164, and 15168 to apply. The analysis conducted incorporates by reference the information contained in the 2000 EIR and its addenda.

Certain mitigation measures identified in the 2000 EIR have since been adopted by the City as SCAs for all projects. Therefore, some of the previously identified mitigation measures have been modified, and in some cases wholly replaced, to reflect the City's current standard language and requirements of its SCAs. All mitigation measures identified in the 2000 EIR that would apply to the SMU Project, and all applicable SCAs for the SMU Project are listed in Attachment A to this document, which is incorporated by reference into this CEQA Analysis.

The Project is required to incorporate and/or comply with the applicable requirements of the mitigation measures identified in the 2000 EIR. Similarly, the SCAs are mandatory City requirements. Therefore, the impact analysis for the Project assumes that mitigation measures and SCAs, as applicable, will be imposed and implemented, which the Project Applicant has agreed to do or ensure as part of the Project. If this CEQA Analysis or its attachments inaccurately identifies or fails to list a mitigation measure or SCA, the applicability of that mitigation measure or SCA to the Project is not affected as each independently applies to the Project.

[4] A revised set of SCAs was recently published by the City of Oakland on December 16, 2020.

TABLE 2
DEVELOPMENT CHARACTERISTICS OF APPROVED PROJECT, THROUGH ADDENDUM #5, 2015

	Block T5/6 (approved, Addendum #5 Project[a])		Block T9 (as constructed, approved in Original Project)	Block T10 (as constructed, reduced from Original Project[b])	Block T12 (approved, Addendum #6 Project[c])	Approved Project, through Addendum #6 (2015)[d]	Original Project (2000 EIR)
	Site A (Phase 1)	*Site B (Phase 2)*					
Office	0	Option 1: 0 sf Option 2: 0 sf Option 3: 205,800 sf	470,000 sf	0	588,000 sf	**1,263,800 sf**	**2,184,000 sf**
Hotel	0	Option 1: 300 rooms Option 2: 0 rooms Option 3: 0 rooms	0	0	0	**300 rooms**	**0 rooms**
Residential	262 units	Option 1: 0 units Option 2: 262 units Option 3: 0 units	0 units	251 units	0 units	**775 units**	**200 units**
Commercial	4,850 sf	5,000 to 8000 sf	7,500 sf	2,600 sf	9,500	**32,450 sf**	**23,000 sf**
Parking	150 to 200 spaces	Option 1: 138 spaces Option 2: 137 spaces Option 3: 0 spaces	236 spaces	252 spaces	205 spaces	**1,031 spaces**	**836 spaces**
Parking access	11th Street	11th Street	11th Street	Jefferson St.	MLK Jr Way	**N/A**	**N/A**
Loading Spaces	2	Option 1: 3 Option 2: 2 Option 3: 3	3	1	3	**12 spaces**	**12 spaces**
Loading access	11th Street	11th Street	11th Street	14th Street	12th Street	**N/A**	**N/A**
Height (max stories)[e]	14 stories	Option 1: 13 stories Option 2: 13 stories Option 3: 10 stories	21 stories	8 stories	24 stories	**Max. 26 stories**	**Max. 31 stories**
Height (feet)	150 feet	136 feet	306 feet	80 feet	367 feet	**Max. 390 feet**	**Max. 440 feet**

NOTE:

a. The Modified Block T5/6 Project was evaluated in and approved with the 2015 Addendum #5. The analysis in the 2015 Addendum largely addressed the Site A Residential and Site B Office (Option 3) scenario for traffic-based topics and most other environmental topics because it would generate more peak hour vehicle trips than the other Site B options. However, to ensure a conservative analysis, the analysis specified and addressed when an environmental topic is more impacted by Site B Option 1 or 2.

b. Block T10 was evaluated in and approved with Addendum #1 with 400 units, 3,000 to 10,000 square feet of commercial, 400 parking spaces, and a maximum height of 240 feet.

c. Block T12 was also previously modified from the Original Project in Addendum #2, Addendum #3, and Addendum #4.

d. This column shows the maximum approved *within* each category considering three options for Site B.

e. In the 2000 EIR, all Blocks were modeled at 440 feet tall shadow and scenic resources and at 425 feet for the wind analyses in the 2000 EIR.

TABLE 3
DEVELOPMENT CHARACTERISTICS OF APPROVED PROJECT AS CONSTRUCTED, 2022

	Block T5/6 (Site A)	Block T9	Block T10	Block T12	Original Project (2000 EIR)
Office	0	470,000 sf	0	564,745 sf	**2,184,000 sf**
Residential	288	0	251 units	0	**200 units**
Commercial	2,414 sf	7,500 sf	2,600sf	0	**23,000 sf**
Parking	0	236 spaces	252 spaces	258 spaces	**836 spaces**
Parking access	N/A	11th Street	Jefferson St.	11th Street	**N/A**
Loading Spaces	1	3	1	3	**12 spaces**
Loading access	11th Street	11th Street	14th Street	11th Street	**N/A**
Hgt. (max stories)	16 stories	21 stories	8 stories	24 stories	**Max. 31 stories**
Height (feet)	172 feet	306 feet	80 feet	360 feet	**Max. 440 feet**

4. Project Description

4.1 Block T5/6 Project Site

4.1.1 Project Location

The Block T5/6 ("project site") is located at 1100 Clay Street. It is 0.56 acres comprised of two assessor parcels (Assessor's Parcel Numbers 02-97-39 and 02-97-40) (see **Figure 3**). The project site is midblock bounded by 12th Street to the north, the residential tower at 1150 Clay Street to the west, 11th Street to the south, and open space plaza of the 1111 Broadway office tower to the east.

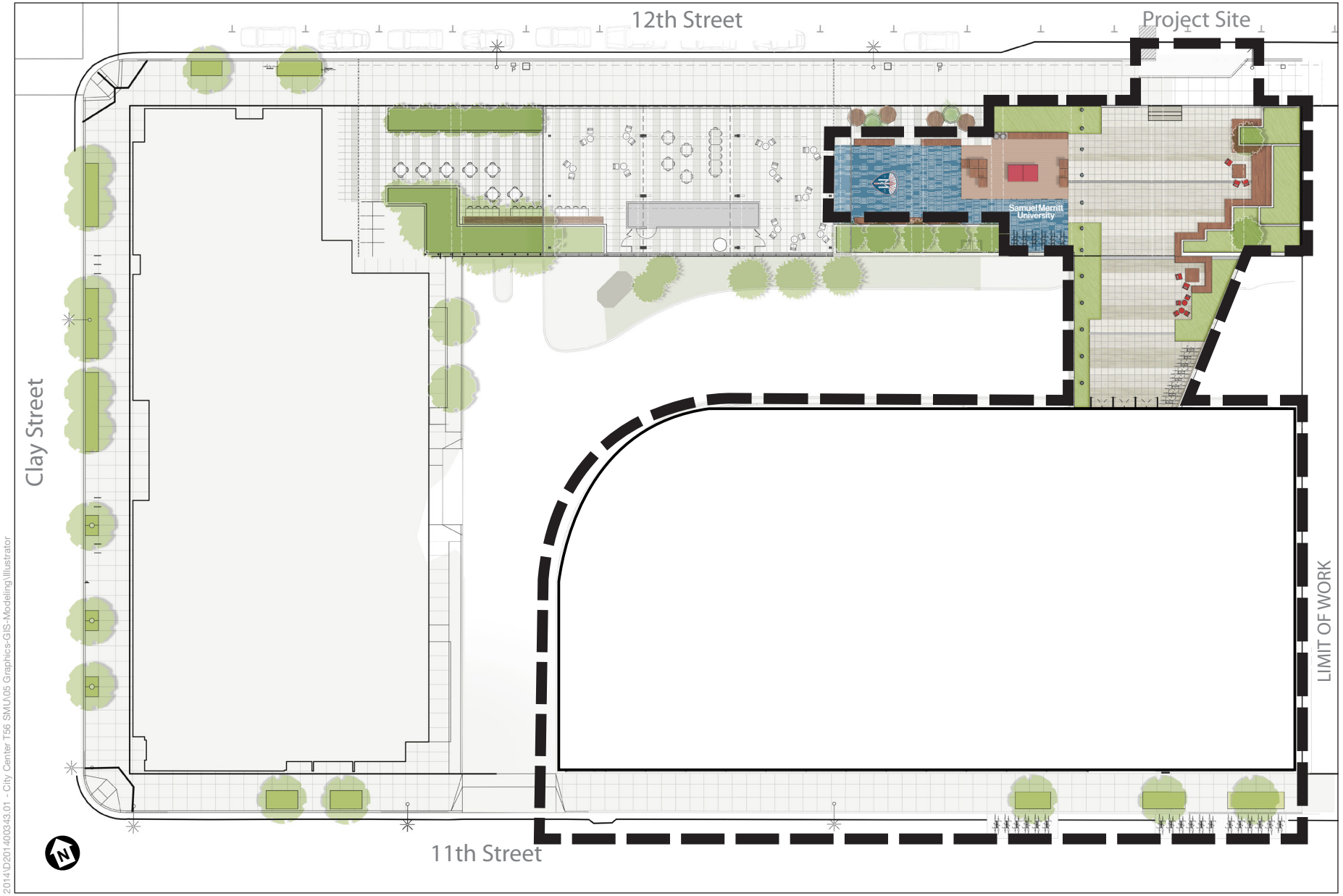
4.1.2 Existing Site Conditions and Surrounding Context

With the exception of the new residential building on Block T5/6 Site A, existing conditions for Block T5/6 Site B are mostly unchanged from those described in the 2015 Addendum. The project site is bowl-like and slopes downward from the Clay Street and 11th Street sides. The site generally has no building development and has two fairly distinct areas created by an L-shaped driveway lane from 11th Street. The 11th Street area of the site is covered with short grass and 10 mature trees considered Protected Trees under the Oakland City Tree Ordinance. All of these trees are considered to be in poor condition. The small portion of the project site that extends toward 12th Street incorporates part of the underground City Center Garage including portions of the paved roof and garage entrance/exit ramp.

The property is bounded to the north primarily by the ramp to the City Center Garage, which currently services the existing parking City Center parking garage as well as the 1111 Broadway loading dock. Further north, across the ramp, a public plaza designed to host limited retail, seating, and public amenities, is currently under construction. The plaza will be located on top of the roof of the City Center Garage. The area surrounding Block T5/6 is primarily commercial land uses as part of the City Center development.

- To the west of Block T5/6, across Clay Street, is 555 12th Street or Block T9 which contains an approximately 20-story high-rise office tower with some ground-floor commercial retail/restaurant space.
- To the east of Block T5/6 is 1111 Broadway, a 24-story high-rise office tower with some ground-floor commercial retail/restaurant space.
- To the north of the project site, across 12th Street, is the three-story Oakland City Center - a series of mixed-use buildings with commercial office and retail uses.
- To the south of Block T5/6, across 11th Street, is the three-story Oakland Convention Center West Garage.

An entrance to the Bay Area Rapid Transit District (BART) 12th Street City Center station entrance (11th and Broadway) is approximately 400 feet from the midpoint of Block T5/6. Multiple transit routes serve the project site, including Alameda-Contra Costa County Transit District (AC Transit) that provides lines and major transfer points along Broadway within one to three blocks of the project site. Access to and from ramps to I-980 is approximately three blocks



SOURCE: Perkins & Will, 2022

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Figure 3
Illustrative Site Plan

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west (via 11th and 12th Streets) of the project site; access to I-880 South is approximately seven blocks south (at 5th Street and Broadway); access to I-880 North is approximately nine blocks southwest (at 6th and Brush Streets).

4.2 Project Characteristics

4.2.1 Project Components

The Project Applicant, Strada T5, LLC, seeks approval of the Samuel Merritt University Project as described below and shown in **Figures 3 through 9**. The Project Applicant, in connection with Samuel Merritt University (SMU), proposes modifications to the Approved Project to instead develop a new academic and administrative office building on Site B. The SMU Project would develop an approximately 238,550 gross square foot, 10-story, approximately 201-foot-tall building (206-feet to the top of the penthouse) over a single below grade level (see **Table 4**). The building would be designed to accommodate SMU's anticipated average weekday on-site population of approximately 934 people with a mix of small and large classrooms, teaching labs, research labs, simulation space, and student clinic space.[5] In addition, the building would include administrative workspaces to accommodate faculty and staff, a library, and common areas.

TABLE 4
PROJECT CHARACTERISTICS

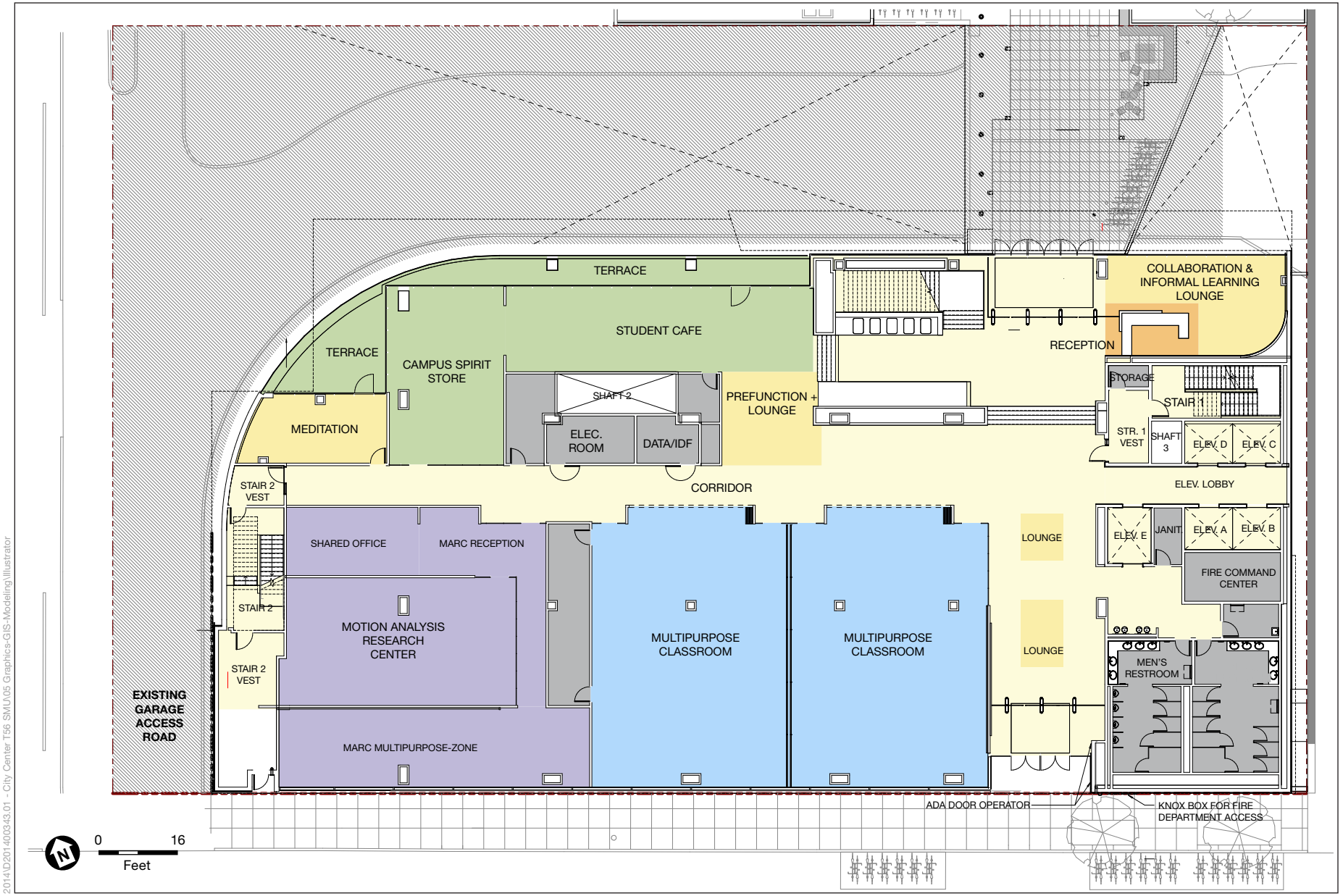
Lot	**Dimensions**
Size	24,538 square feet (0.56 acres)
Proposed Uses	**Area (gsf)**
Academic Classroom / Lab	94,867
Administrative Office / Workspace	29,857
Open Space / Amenities / Common Areas	28,929
Total Uses[a]	**Approximately 153,653**
Proposed Parking	**Number of Spaces**
Vehicle Parking Spaces	0
Loading Spaces	2
Bicycle Parking Spaces	162
Open Space	**Area (sf)**
Ground Floor Plaza and Bridge	8,224
Terrace (1st floor)	746
Terrace (6th floor)	734
Terrace (10th floor)	2,872
Total Open Space	**12,576**

NOTE:

a. Total Uses excludes roughly 90,000 square feet of circulation, back-of-house, and mechanical, electrical, and plumbing space.

SOURCE: Perkins and Will, 2022.

5 The SMU Project would offer some programs online, some faculty would teach multiple classes a day or teach remotely, and some faulty would only teach off campus at various clinical sites. Therefore, the expected average weekday on-site population includes approximately 934 people comprised of 564 students, 110 staff, and 260 faculty (see Section 6.12, *Population and Housing*).



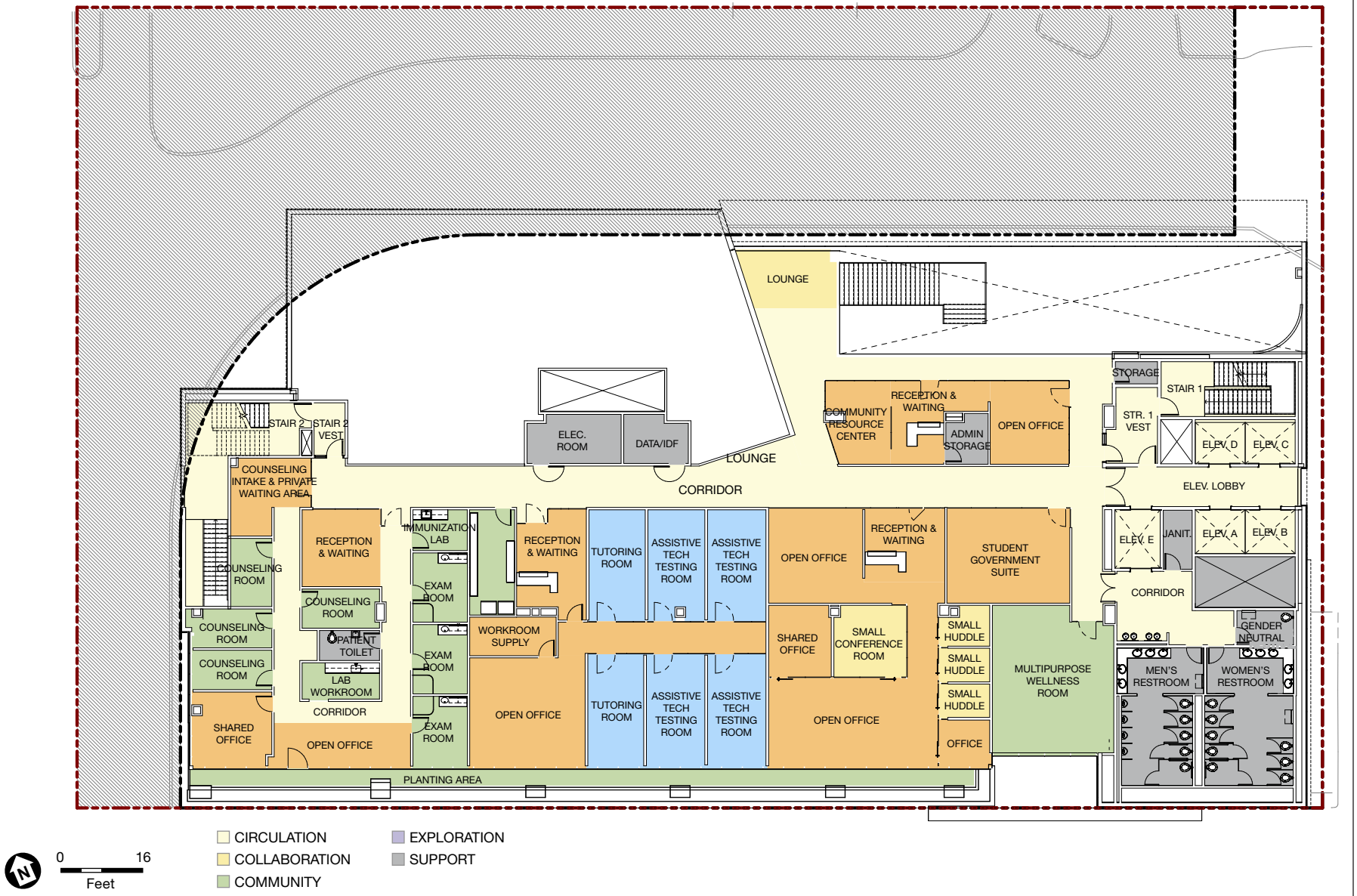
2014\D2014003343.01 - City Center T56 SMU\05 Graphics-GIS-Modeling\Illustrator

SOURCE: Perkins & Will, 2022

Samuel Merritt University Project Addendum

Figure 4
First Floor Plan

ESA



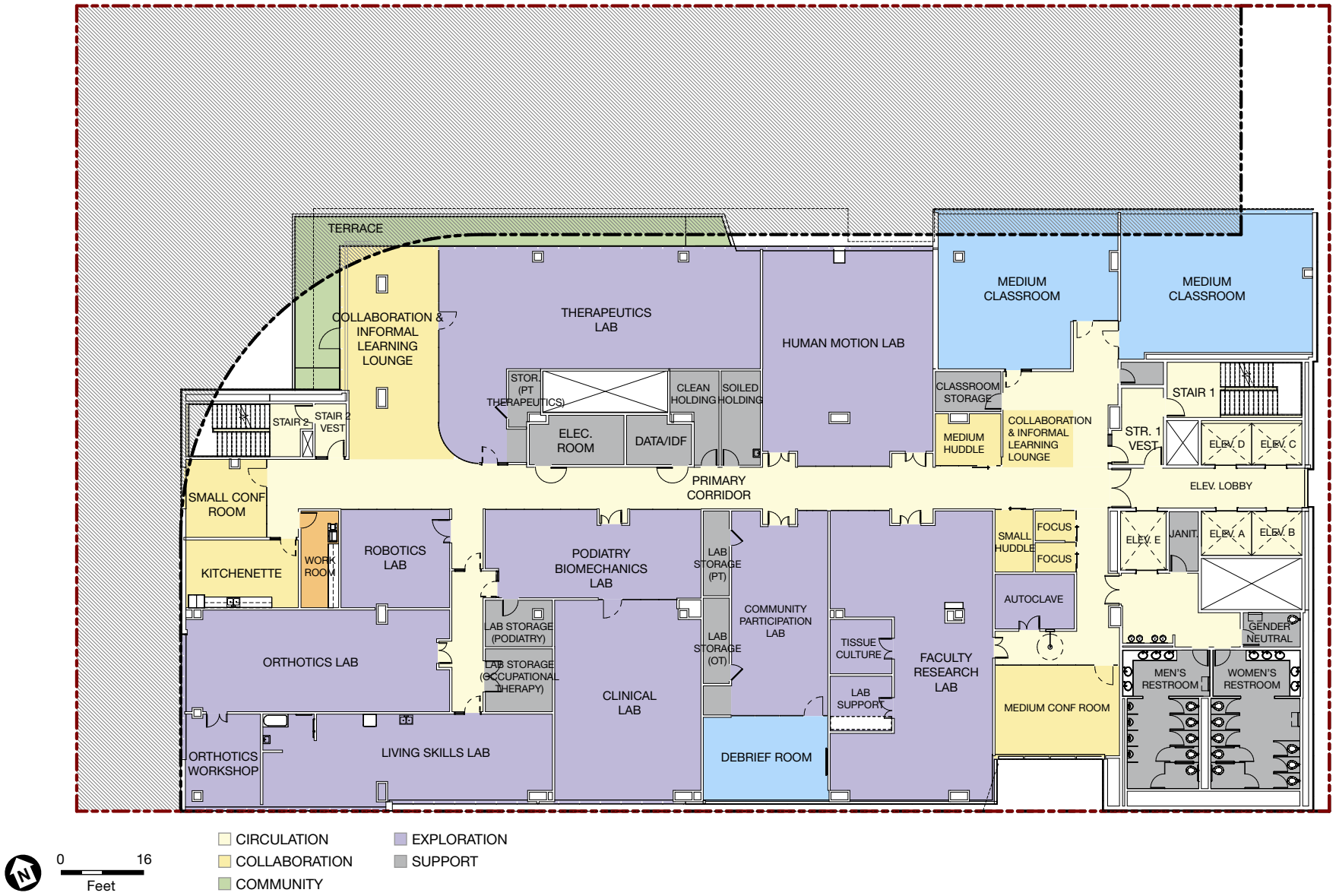
2014\D2014003430.01 - City Center T56 SMU\05 Graphics-GIS-Modeling\Illustrator

SOURCE: Perkins & Will, 2022

Samuel Merritt University Project Addendum

Figure 5
Second Floor Plan

ESA



2014\D2014003343.01 - City Center T56 SMU\05 Graphics-GIS-Modeling\Illustrator

SOURCE: Perkins & Will, 2022

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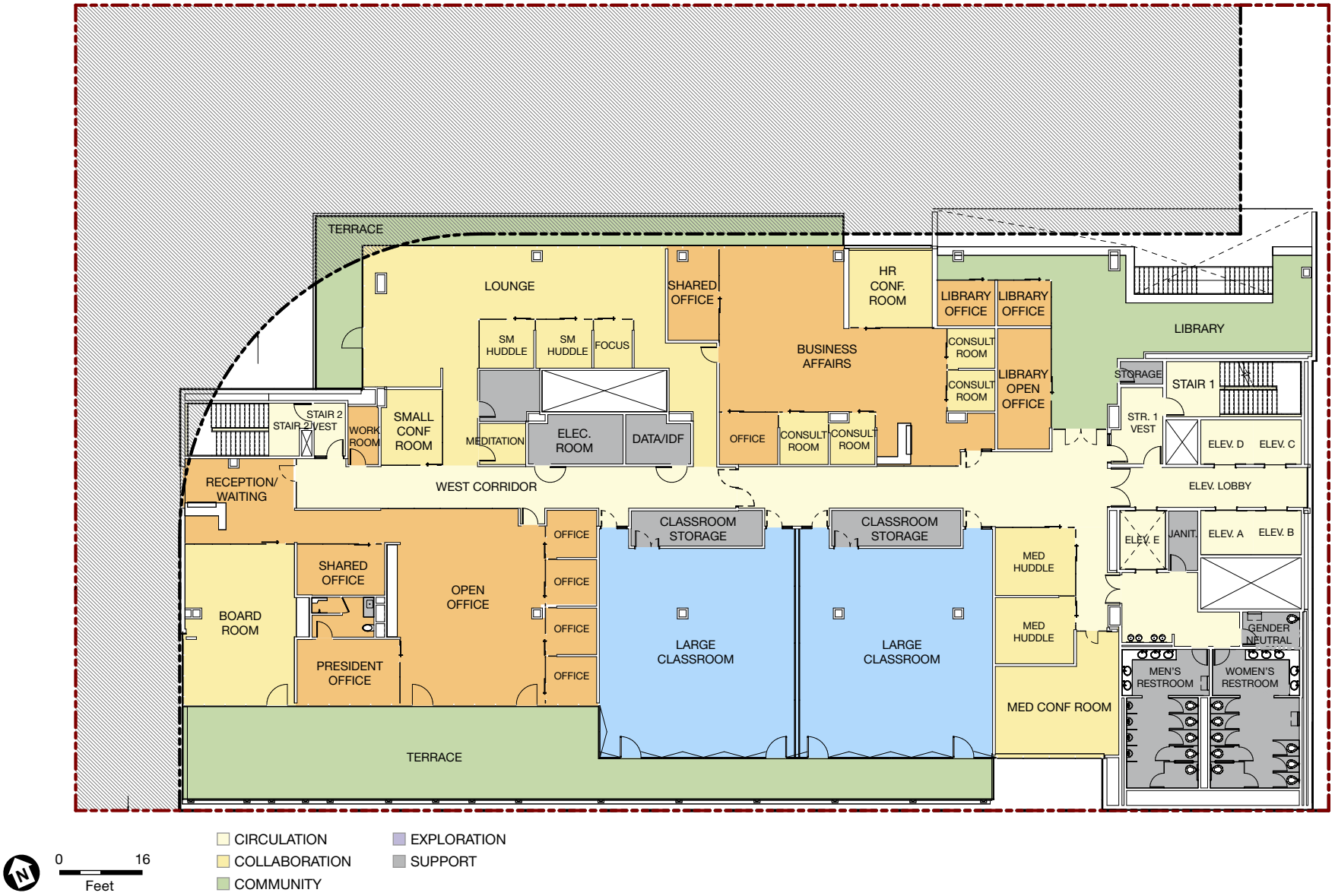
Figure 6
Sixth Floor Plan

ESA



2014\D20140034 3.01 - City Center T56 SMU\05 Graphics-GIS-Modeling\Illustrator

SOURCE: Perkins & Will, 2022

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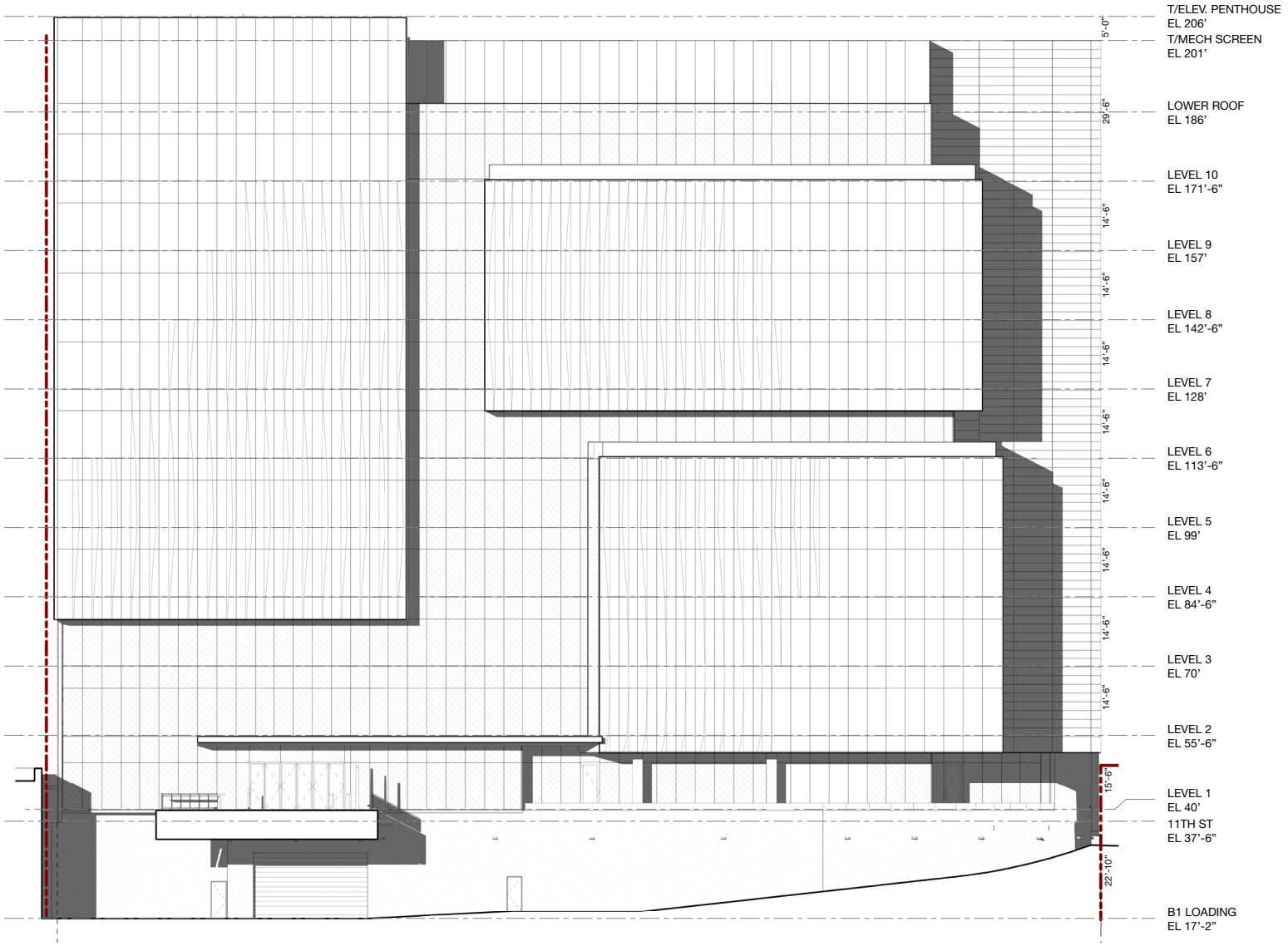
Figure 7
Tenth Floor Plan

ESA



2014\D2014003343.01 - City Center T56 SMU\05 Graphics-GIS-Modeling\Illustrator

SOURCE: Perkins & Will, 2022

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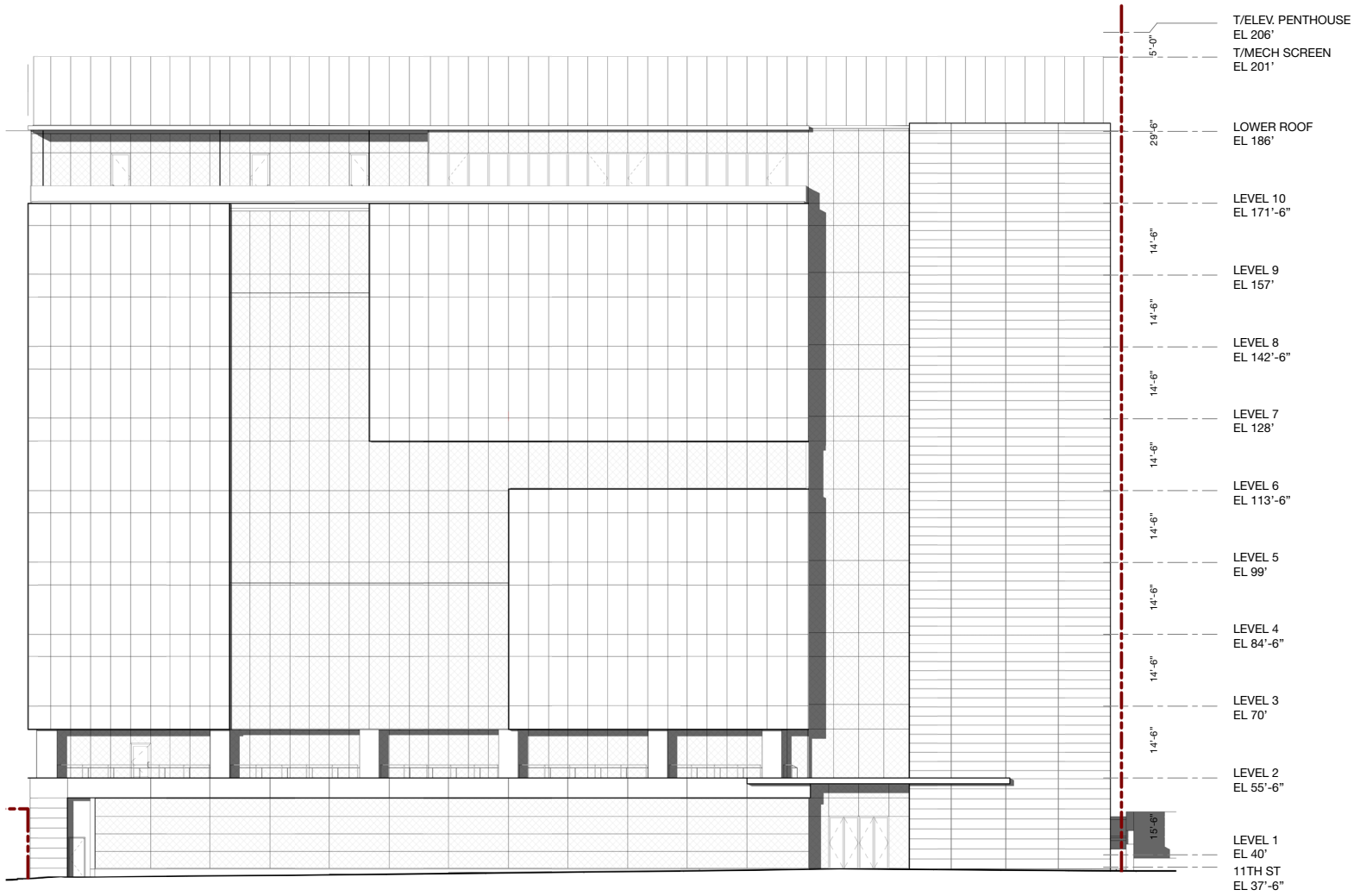
Figure 8
North Elevation

ESA



2014\D20140034 3.01 - City Center T56 SMU\05 Graphics-GIS-Modeling\Illustrator

SOURCE: Perkins & Will, 2022

Samuel Merritt University Project Addendum

Figure 9
South Elevation

ESA

The floor plan is organized around the east end of the tower and ground floor entrances from both 11th and 12th streets. The ground floor would include active spaces including the main lobby/ reception, a shared common lounge with café, teaching and research labs, and a campus bookstore. The 1,218 square foot ground floor café is currently proposed to serve SMU faculty/students/staff only but may be made accessible to the public. One below-grade level would provide space mechanical equipment, utility services, trash, bicycle storage, general storage and two loading spaces. The SMU Project would provide 98 long term and 64 short term bicycle parking spaces.

4.2.2 Open Space

The SMU Project would provide a bridge over the City Center Garage ramp connecting the main building entrance to a privately owned, publicly accessible open space along 12th Street (see Figure 2). The bridge and plaza would provide approximately 8,224 square foot landscaped open space that would include a variety of spaces and treatments (sitting areas, paved areas, natural and planter landscaping, public art). In addition, the building would provide three open terraces on levels 1, 6, and 10 for a total of approximately 4,352 square feet of additional private group open space.

4.2.3 Streetscape Improvements

The Project would include pedestrian access from both 11th and 12th Streets and an accessible loading stall on 12th Street. The Project would provide three new street trees on 11th Street and two new trees and other landscape and hardscape seating improvements on the plaza. The Project would accommodate 64 bicycles in racks along the 11th Street frontage and within the plaza facing 12th Street.

4.2.4 Project Construction

Construction activities would consist of tree removal; excavation and shoring; grading and site preparation; foundation and below-grade construction; and construction of the building and interiors. Approximately 12,806 cubic yards of excavation to depths ranging to approximately 18 feet below grade (as measured from existing sidewalks) would be required to accommodate the potential underground parking level. All of excavated materials would be exported. No soils are anticipated to be imported to the site.

Groundwater depth across the site ranges from approximately five to up to approximately 11 feet below ground surface and temporary dewatering during excavation and construction would be required. The Project would be built on a mat slab foundation. Given the potential height of the proposed buildings, pile driving would not occur or be required. Project construction is expected to occur over approximately 18 months, with construction scheduled to commence in the second or third quarter 2023 and be completed by late 2025.

4.2.5 Sustainability and Efficiency

The Project would meet or exceed the Leadership in Energy and Environmental Design (LEED) Silver standards and comply with the City of Oakland Green Building ordinance and requirements. The Project also would be required to comply with the City of Oakland Building Electrification Ordinance, adopted December 15, 2020.

5. Summary of Findings

An evaluation of the SMU Project is provided in the Section 6, *CEQA Checklist,* that follows. This evaluation concludes that the Modified T5/6 Project qualifies for an addendum as well as one or more exemptions from additional environmental review. The Project is consistent with the development density and land use characteristics established by the City of Oakland General Plan, and any potential environmental impacts associated with the Project's development were adequately analyzed and covered by the analysis in the 2000 Oakland City Center EIR and its addenda.

The Project would be required to comply with the applicable mitigation measures identified in the 2000 EIR, as updated and amended, and any applicable City of Oakland SCAs presented in Attachment A to this document. Therefore, the Project would not result in a substantial increase in the severity of significant impacts previously identified in the 2000 EIR and its subsequent addenda, nor in any new significant impacts not previously identified in any of those CEQA documents.

In accordance with California Public Resources Code Sections 21083.3, and 21166 and CEQA Guidelines Sections 15183, 15162, 15164, and 15168, and as set forth in the CEQA Checklist below, the Project qualifies for an addendum and one or more exemptions because the following findings can be made:

- **Community Plan Exemption.** Public Resources Code Section 21083.3 and CEQA Guidelines Section 15183 (Projects Consistent with a Community Plan or Zoning). The Project would not result in significant impacts that (1) would be peculiar to the project or project site; (2) were not previously identified in the 2000 EIR as significant project-level, cumulative, or off-site effects; or (3) were previously identified as significant but—as a result of substantial new information that was not known at the time the 2000 EIR was certified—would increase in severity above the level described in the 2000 EIR. Therefore, the SMU Project is exempt from further environmental review in accordance with Public Resources Code Section 21083.3 and CEQA Guidelines Section 15183.

- **Addendum and Program EIRs.** Public Resources Code Section 21166 and CEQA Guidelines Sections 15162 and 15164 (Subsequent EIRs, Supplements and Addenda to an EIR or Negative Declaration). The 2000 EIR was certified by the City in April 2000, and no supplemental environmental review is required for the Project modifications. The SMU Project would not cause new significant impacts that were not previously identified in the 2000 EIR or result in a substantial increase in the severity of previously identified significant impacts. No new mitigation measures would be necessary to reduce significant impacts. No changes have occurred with respect to the circumstances surrounding the original project that would cause significant environmental impacts to which the project would contribute considerably, and no new information has been put forward that shows that the project would cause significant environmental impacts. Therefore, in accordance with Public Resources Code Section 21166 and CEQA Guidelines Section 15162, no supplemental environmental review is required beyond this addendum. The Project is eligible for CEQA streamlining provisions in accordance with CEQA Guidelines Section 15164, for the use of an Addendum to the 2000 EIR, and CEQA Guidelines Section 15168, by tiering from the program-level analyses completed in the 2000 EIR.

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

6. CEQA Checklist

6.1 Overview

The analysis in this CEQA Checklist provides a summary of the potential environmental impacts that may result from the Project. The analysis in this CEQA Checklist also summarizes the impacts and findings of the certified 2000 EIR that covered the environmental effects of various projects encompassing the project site and that is still applicable for the Project. Given the timespan between the preparation of the 2000 EIR and today, there are variations in the specific environmental topics addressed and significance criteria; however, as discussed above in Section 3, *Background*, and throughout this Checklist, the overall environmental effects identified in the 2000 EIR are largely the same; any significant differences are noted.

As discussed specifically in Attachment A to this document, since certification of the 2000 EIR, the City of Oakland has adopted and revised its SCAs, and the most current SCAs are identified in this CEQA Checklist. All mitigation measures identified in the 2000 EIR that would apply to the Project are also identified in Attachment A to this document.

This CEQA Checklist hereby incorporates by reference the discussion and analysis of all potential environmental impact topics as presented in the certified 2000 EIR. This CEQA Checklist provides a determination of whether the Project would result in:

- Equal or Less Severity of Impact Previously Identified in the 2000 EIR;
- Substantial Increase in Severity of Previously Identified Significant Impact in the 2000 EIR; and/or
- New Significant Impact.

Where the severity of the impacts of the Project would be the same as or less than the severity of the impacts described in the 2000 EIR, the checkbox for "Equal or Less Severity of Impact Previously Identified in the 2000 EIR" is checked.

Were the checkbox for "Substantial Increase in Severity of Previously Identified Significant Impact in the 2000 EIR" or "New Significant Impact" checked, there would be significant impacts that are:

- Peculiar to project or project site (per CEQA Guidelines Section 15183);
- Not identified in the 2000 EIR including offsite and cumulative impacts (per CEQA Guidelines Section 15162, 15168, and 15183);
- Due to substantial changes in the Project (per CEQA Guidelines Section 15162 and 15168);
- Due to substantial changes in circumstances under which the Project will be undertaken (per CEQA Guidelines Sections 15162 and 15168); and/or
- Due to substantial new information not known at the time the 2000 EIR was certified (per CEQA Guidelines Sections 15162, 15168, or 15183).

However, none of the aforementioned conditions were found for the Project, as demonstrated throughout the following CEQA Checklist and in its supporting attachments (Attachments A through D) that specifically describe how the Project meets the criteria and standards specified in the CEQA Guidelines Sections 15162 through 15164, 15168, and 15183.

6.2 Aesthetics, Shadow, and Wind

Would the project:	Equal or Less Severity of Impact Previously Identified in the 2000 EIR	Substantial Increase in Severity of Previously Identified Significant Impact in the 2000 EIR	New Significant Impact
a. Have a substantial adverse effect on a public scenic vista; substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, located within a state or locally designated scenic highway; substantially degrade the existing visual character or quality of the site and its surroundings; or create a new source of substantial light or glare which would substantially and adversely affect day or nighttime views in the area;	☒	☐	☐
b. Introduce landscape that would now or in the future cast substantial shadows on existing solar collectors (in conflict with California Public Resource Code sections 25980-25986); or cast shadow that substantially impairs the function of a building using passive solar heat collection, solar collectors for hot water heating, or photovoltaic solar collectors;	☒	☐	☐
c. Cast shadow that substantially impairs the beneficial use of any public or quasi-public park, lawn, garden, or open space; or, cast shadow on an historical resource, as defined by CEQA Guidelines Section 15064.5(a), such that the shadow would materially impair the resource's historic significance;	☒	☐	☐
d. Require an exception (variance) to the policies and regulations in the General Plan, Planning Code, or Uniform Building Code, and the exception causes a fundamental conflict with policies and regulations in the General Plan, Planning Code, and Uniform Building Code addressing the provision of adequate light related to appropriate uses; or	☒	☐	☐
e. Create winds that exceed 36 mph for more than one hour during daylight hours during the year. The wind analysis only needs to be done if the project's height is 100 feet or greater (measured to the roof) and one of the following conditions exist: (a) the project is located adjacent to a substantial water body (i.e., Oakland Estuary, Lake Merritt or San Francisco Bay); or (b) the project is located in Downtown.	☒	☐	☐

Since the preparation of the 2015 Addendum, the CEQA statutes have been amended related to the assessment of impacts for aesthetics. Under CEQA Section 21099(d), "Aesthetic and parking impacts of a residential, mixed-use residential, or employment center project on an infill site located within a transit priority area shall not be considered significant impacts on the environment."[6] Accordingly, aesthetics is no longer considered in determining if a project has the potential to result in significant environmental effects for projects that meet all three of the following criteria:

6 CEQA Section 21099(d)(1).

- The project is in a transit priority area.[7]
- The project is on an infill site.[8]
- The project is residential, mixed-use residential, or an employment center.

The Project meets all three of the above criteria because the Project (1) is in a transit priority area, and is situated approximately 0.1-mile west of the 12th Street BART Station; (2) is on an infill site that has been previously developed within an urban area of Oakland; and (3) would employ an estimated 566 faculty and staff on a property zoned for commercial uses and is therefore considered an employment center. Thus, this document does not consider aesthetics, including the aesthetic impacts of light and glare, in determining the significance of Project impacts under CEQA.[9] Nevertheless, the City recognizes that the public and decision makers may be interested in information about the aesthetic effects of a proposed project; therefore, the information contained in this section related to aesthetics, light, and glare is provided solely for informational purposes, and is not used to determine the significance of environmental impacts pursuant to CEQA.

6.2.1 2000 EIR Findings

Scenic Vistas, Scenic Resources, and Visual Character (Criterion 6.2a)

The 2000 City Center Project EIR determined that potential impacts of the Original Project to visual quality would be less than significant; no mitigation measures were necessary. The 2000 EIR analysis was based on the City Center Project's development of four high-rise buildings, ranging in maximum heights of 21 stories (306 feet) to 31 stories (440 feet), on four blocks that compose the Original Project. All four of the City Center Project blocks have since been developed: Block T9 at 21 stories (approximately 306 feet), Block T10 at 8 stories (approximately 80 feet), Block T12 at 24 stories (approximately 360 feet), and part of Block T5/6 at 16 stories (approximately 172 feet). Each building has the same or lower height than was originally analyzed in the 2000 EIR (see Table 1 in Section 3, Background). Specifically, all blocks were modeled at 440 feet tall for shadow and scenic resources analyses, and at 425 feet tall for the wind the for analysis.

The 2000 EIR presented a generalized massing model of the Original Project building analyzed for Block T5/6, which was a 440-foot tall rectangular building covering most of the site, except with a set back from 12th Street.[10] While not detailed in the 2000 EIR, all of the Original Project buildings would include street-level commercial uses. The building setbacks and street-level commercial uses throughout the developments would allow for landscaped plazas and "provide visual relief in scale, form, colors, and textures at street level from the height and mass of the structures," a pattern established by adjacent high-rise development, like 1111 Broadway

7 CEQA Section 21099(a)(7) defines a "transit priority area" as an area within one-half mile of an existing or planned major transit stop. A "major transit stop" is defined in CEQA Section 21064.3 as a rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the a.m. and p.m. peak commute periods.

8 CEQA Section 21099(a)(4) defines an "infill site" as either (1) a lot within an urban area that was previously developed; or (2) a vacant site where at least 75 percent of the site perimeter adjoins (or is separated by only an improved public right-of-way from) parcels that are developed with qualified urban uses.

9 CEQA Appendix G includes light and glare under the topic of aesthetics. Therefore, light and glare, in addition to aesthetics, is not a CEQA consideration.

10 Oakland City Center Project Draft EIR, Figures IV.E-4 through IV-E.9.

(immediately east of Block T5/6) and as developed with Block T9 (immediately west of Block T5/6, across Clay Street). Moreover, as anticipated in the 2000 EIR, a plaza and garden area was developed between the existing 1111 Broadway building and the project building on Block T5/6, which would further offset the loss of existing landscaping on this block.

The 2015 Addendum analyzed the Modified T5/6 Project that would develop two buildings instead of one. The maximum height of buildings on the site would be up to 14 stories (approximately 150 feet), which is 12 stories (approximately 240 feet) less than previously analyzed. The 2015 Addendum concluded that the Site A Phase 1 building, site layout, and pedestrian plaza proposed by the Modified Block T5/6 Project would result in development compatible with the visual character and patterns in this portion of Downtown. The substantially lower building height would result in less obstruction of views of the sky than previously estimated, but would still align with the varied building heights Downtown. The 2000 EIR acknowledged limited views in the area due to the dense, multi-story development covering most blocks. Views across Block T5/6 are obstructed by the development on all adjacent blocks, and effect to any views identified in the 2000 EIR would be less with the lower building height proposed for the site. Therefore, the visual impacts of the Modified T5/6 Project were determined to be less severe than those discussed in the 2000 EIR and would remain less than significant.

Shadow (Criteria 6.2b through 6.2d)

The 2000 EIR determined that the Original Project would cast shadow to the west, north, and east of the four project blocks, and that potential shadow impacts would be less than significant; no mitigation measures were necessary. The shadow analysis of the Original Project evaluated development on all four blocks, each model with a 440-foot rectangular building, including on the project site. A subsequent shadow analysis was conducted for Addendum #3, which shows the potential shadow effects of a conceptual building on Block T5/6 in context with the other City Center Project development and surroundings, in particular the buildings that were built since the 2000 EIR analysis on Block T9 and underway at the time on T10.[11]

Both the EIR and the Addendum #3 analyses focused on the Original Project's potential effects on nearby public open space. These include Lafayette Square Park located approximately one block or 500 feet west of Block T5/6, south of 11th Street; and the historic Pardee Home and Garden and Preservation Park located approximately two blocks or 1,000 feet west of Block T5/6, both north and south of 12th Street. The previous analyses found that shadow from the modeled 440-foot tall building on Block T5/6 would cast shadow on Lafayette Square Park during the morning hours except in late spring and summer, general overlapping the shadow cast by the building on Block T9. However, neither building would substantially affect use of the park since neither building casts shadow on the park after mid-morning.

Given the substantially reduced building height, shadow cast by the Modified Project T5/6 Project would be less than previously analyzed, even considering the wider shadow would be cast with the Block T5/6 Site A building extending the full length of Clay Street between 11th and 12th Streets. No shadow from the Modified Block T5/6 Project would extend to the historic

[11] Oakland City Center Project Addendum #3, Figures 3 through 8.

Pardee Home and Garden or Preservation Park at any time. Overall, the shadow effects of the Modified T5/6 Project were determined to be less severe than those discussed in the 2000 EIR and would remain less than significant.

Wind (Criterion 6.2e)

The 2000 EIR concluded that the Original Project could result in exceedances of the 36-mph wind hazard speed and would therefore result in a significant impact. Mitigation Measure AES-F.2 was identified and requires the Project Applicant to incorporate specific design elements to reduce ground-level winds within the Downtown area, including placing tall buildings back from the sidewalk, using curved facades, incorporating facade articulation, and/or placing towers atop a podium to interrupt winds before they reach ground level. The design elements listed in Mitigation Measure AES-F.2 could substantially reduce wind speeds, and eliminate the potential for new hazardous wind conditions. Nevertheless, the 2000 EIR concluded that it cannot be stated with certainty that incorporation of typically beneficial design features identified in Mitigation Measure AES-F.2 would reduce hazardous ground-level winds (compared to conditions without such design features) to less than significant levels and determined that the impact after mitigation would remain significant and unavoidable.

The Modified Block T5/6 Project buildings would be substantially shorter than analyzed in the 2000 EIR wind assessment and would include articulation created by recesses and protrusions on all sides. Buildings conceptualized for Site B included a curved façade on the internal corner and a vertical façade offset on the 11th Street frontage. Similar to the Original Project, Mitigation Measure AES-F.2 would be required and the impact would remain significant and unavoidable, as identified in the 2000 EIR.

6.2.2 Project Analysis

Scenic Vistas, Scenic Resources, and Visual Character (Criterion 6.2a)

The existing conditions and immediate surroundings of Project site are substantially unchanged from the 2000 EIR, except for the development of the Approved Project including the Block T5/6 Site A building immediately west of the site. The Project site has no buildings and contains grass, landscaping, and an L-shaped driveway lane to the City Center Parking Garage and loading/service docks. The existing landscaping and trees on portions of the Project site were planted by the Oakland Redevelopment Agency as an interim improvement several years prior to 2000 and have since matured.

Although the Project would be approximately 35 feet taller than what was analyzed in the 2015 Addendum, the buildings would still be substantially shorter than what was analyzed in the 2000 EIR. The site layout, pedestrian plaza, and building orientation and footprint would be the same as the Modified Block T5/6 Project.

Development of the Project also would be required to comply with the City of Oakland SCA AES-1, Trash and Blight Removal, which would require the Project site to be maintained free of blight, and trash receptacles near public entryways to be installed and maintained, as

needed, to provide sufficient capacity for building users. SCA AES-2, Graffiti Control, would require landscaping, approved anti-graffiti coating, and ongoing graffiti removal using the gentlest means possible in order to protect the aesthetics and physical integrity of the building. SCA AES-3, Landscape Plans, would require review and approval of detailed landscape plans in addition to implementation and ongoing landscape maintenance. SCA UTIL-2, Underground Utilities, requires any new utilities to be placed underground and SCA AES-4, Lighting, would ensure new exterior lighting is properly shielded. SCA AES-5, Public Art for Private Development, would require a public art contribution of one percent of the building development costs in accordance with City of Oakland Ordinance No. 13275 C.M.S. Together, these SCAs would protect the visual character of the Project site and Downtown. Therefore, consistent with the 2015 Addendum determination, the visual impacts of the Project would be less severe than those discussed in the 2000 EIR and would remain less than significant.

Shadow (Criteria 6.2b through 6.2d)

Although the Project would be approximately 35 feet taller than what was analyzed in the 2015 Addendum, the building would still be substantially shorter than what was analyzed in the 2000 EIR. The site layout, pedestrian plaza, and building orientation and footprint would be the same as the Modified Block T5/6 Project. In addition, the building would be slightly shorter than the residential building on Block T5/6 Site A, immediately west of the Project site. Therefore, the Project would not cast new shadow on the historic Pardee Home and Garden or Preservation Park at any time. Overall, similar to the Modified Block T5/6 Project, the shadow effects of the Project would be less severe than those discussed in the 2000 EIR and would remain less than significant.

Wind (Criterion 6.2e)

Although the Project would be approximately 35 feet taller than what was analyzed in the 2015 Addendum, the building would still be substantially shorter than what was analyzed in the 2000 EIR. The site layout, pedestrian plaza, and building orientation would be the same as the Modified Block T5/6 Project although the Project building would not be set back from the 11th Street frontage. However, the building is proposed with both the 11th and 12th Street facades articulated with recesses and protrusions (see Figure 8 and Figure 9). Overall, the 2000 EIR concluded that it cannot be stated with certainty that incorporation of typically beneficial design features identified in Mitigation Measure AES-F.2 would reduce ground-level winds (compared to conditions without such design features) to less than significant levels. Therefore, the impact of the SMU Project would remain significant and unavoidable, as identified in the 2000 EIR.

6.2.3 Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR, implementation of the Project would not substantially increase the severity of significant impacts identified in the 2000 EIR, nor would it result in new significant impacts related to aesthetics, shadow, or wind that were not identified in the 2000 EIR. **Mitigation Measure AES-F.2** (regarding wind-reducing building design elements) from the 2000 EIR (as amended in Attachment A to this document) would continue to apply to the Project. **SCAs AES-1**, **Trash and Blight Removal**; **AES-2**, **Graffiti Control**; **AES-3**, **Landscape Plan**; **AES-4 Lighting**;

AES-5, **Public Art for Private Development**; and **SCA UTIL-2**, **Underground Utilities** (see Attachment A) would apply and be implemented by the Project and would further ensure that, with the exception of wind impacts, aesthetics-related impacts would be less than significant.

6.3 Air Quality

Would the project:	Equal or Less Severity of Impact Previously Identified in the 2000 EIR	Substantial Increase in Severity of Previously Identified Significant Impact in the 2000EIR	New Significant Impact
a. During project construction result in average daily emissions of 54 pounds per day of ROG, NO_X, or $PM_{2.5}$ or 82 pounds per day of PM_{10}; during project operation result in average daily emissions of 54 pounds per day of ROG, NO_X, or $PM_{2.5}$, or 82 pounds per day of PM_{10}; result in maximum annual emissions of 10 tons per year of ROG, NO_X, or $PM_{2.5}$, or 15 tons per year of PM_{10}; or	☒	☐	☐
b. For new sources of Toxic Air Contaminants (TACs), during either project construction or project operation expose sensitive receptors to substantial levels of TACs under project conditions resulting in (a) an increase in cancer risk level greater than 10 in one million, (b) a noncancer risk (chronic or acute) hazard index greater than 1.0, or (c) an increase of annual average $PM_{2.5}$ of greater than 0.3 microgram per cubic meter; or, under cumulative conditions, resulting in (a) a cancer risk level greater than 100 in a million, (b) a noncancer risk (chronic or acute) hazard index greater than 10.0, or (c) annual average $PM_{2.5}$ of greater than 0.8 microgram per cubic meter; or expose new sensitive receptors to substantial ambient levels of Toxic Air Contaminants (TACs) resulting in (a) a cancer risk level greater than 100 in a million, (b) a noncancer risk (chronic or acute) hazard index greater than 10.0, or (c) annual average $PM_{2.5}$ of greater than 0.8 microgram per cubic meter.	☒	☐	☐

6.3.1 2000 EIR Findings

Construction and Operational Emissions (Criterion 6.3a)

The 2000 EIR found that development of the Original Project would result in significant but mitigable impacts from construction and operational criteria pollutant emissions, as well as a significant cumulative air quality emissions impact. The 2015 Addendum concluded that the Modified T5/6 Project would result in similar impacts as those previously identified.

Toxic Air Contaminants (Criterion 6.3b)

The 2000 EIR analyzed toxic air contaminant (TAC) emissions relative to the methodology and thresholds established in the Bay Area Air Quality Management District (BAAQMD)'s *1999 CEQA Air Quality Guidelines*. The analysis did not require quantification of project-level or cumulative health risks. Screening tools for analyzing cumulative risks were not available from BAAQMD at that time. Since information on the TAC emissions was known, or could have been known, when the 2000 EIR was being prepared, it is not considered "new information" as specifically defined under CEQA. Nevertheless, the 2015 Addendum included an analysis of health risk impacts from TAC emissions to provide information to decision makers. The analysis found that the Modified T5/6 Project would not result in new significant impacts with respect to both project-level and cumulative TAC emissions.

6.3.2 Project Analysis

Construction and Operational Emissions (Criterion 6.3a)

Construction Air Emissions

Methodology and Assumptions

As noted above, the 2015 Addendum concluded that the Modified T5/6 Project would result in similar impacts as those previously identified in the 2000 EIR and that no further review was required. The analysis presented below provides a qualitative comparison of the Project's construction emissions relative to criteria pollutant emissions generated by the Modified T5/6 Project analyzed in the 2015 Addendum. A qualitative analysis is considered to be adequate for the following reasons:

- Although the Project proposes to build a gross square feet area greater than the worst-case scenario for Site B analyzed in the 2015 Addendum, the Project construction would be less than the total construction analyzed in the 2015 Addendum as part of the Modified T5/6 Project, which included development on both Sites A and B.
- The 2015 Addendum estimated construction emissions for the Modified T5/6 Project assuming a Site B construction start by 2020. The Project's construction would commence at a later date and hence default fleet-wide emissions factors for construction equipment and vehicles would be lower resulting in lower construction emissions than presented in the 2015 Addendum. Emissions factors are expected to continue to decrease in future years with advancements to fuel and emission control technologies in response to increasingly stringent standards.
- The amount of excavation and off-haul proposed for the Project is reduced relative to the amounts for Site B analyzed in the 2015 Addendum.

Analysis

As previously stated, the 2000 EIR identified a less-than-significant impact with respect to construction-related emissions, after the inclusion of mitigation measures (Mitigation Measure C.1) to control fugitive dust and ensure equipment maintenance. This measure is now incorporated into current City SCAs as SCA AIR-1, Dust Controls – Construction-Related and SCA AIR-2, Criteria Air Pollutant Controls – Construction Related, and would be required for all projects within the City of Oakland.

The 2015 Addendum quantified emissions from the construction of 262 residential units on Site A and 205,800 square feet of office on Site B, as the most impactful scenario of the three options considered for Site B. Construction emissions estimates for the Modified Block T5/6 Project were found to be less than the City's thresholds for ROG, NO_X, PM_{10} and $PM_{2.5.}$ Though the Project proposes to construct a greater area on Site B (238,550 square feet proposed by the Project versus 205,800 square feet analyzed in the 2015 Addendum), it would be less than the total development area analyzed by the 2015 Addendum for Sites A and B together. Therefore, construction of 238,550 square feet of educational space proposed as part of the Project would not generate emissions exceeding the City's thresholds resulting in a less than significant impact from construction activities.

In addition, the Project would be subject to SCAs AIR-1 and AIR-2, which include measures that were part of the 2000 EIR as Mitigation Measure C.1. These measures are also consistent with the best management practices required by the BAAQMD for all construction projects to keep impacts from fugitive dust from construction activities at a less than significant level. Therefore, with the implementation of current City SCAs AIR-1 and AIR-2, the Project would have an equal or less severe construction-related air quality impact compared to that previously identified in the 2000 EIR and the 2015 Addendum.

Operational Air Emissions

Methodology and Assumptions

Similar to the construction emissions analysis, the operational analysis presented below uses a qualitative approach to compare emissions from the Project to what was previously approved for Site B as part of the Modified T5/6 Project.

Analysis

The 2015 Addendum found that the daily operational emissions for the Modified T5/6 Project would be less than the City's significance thresholds. Operational air emissions estimates for the Modified T5/6 Project were based on a daily trip generation of 1,295 daily trips from the proposed 205,800 square feet of office space on Site B. Based on trip generation estimates provided by Fehr & Peers, the Project would generate 970 daily trips, approximately 25 percent less than analyzed in the 2015 Addendum. In addition, the Project would comply with the Building Electrification ordinance adopted by the City in December 2020 requiring all electric buildings for new construction. This would eliminate all direct emissions related to energy use. The reduction in motor vehicle trips in combination with the elimination of emissions from building energy use would ensure that the Project would generate operational emissions less than the City's significance thresholds for ROG, NOx, PM_{10}, and $PM_{2.5}$.

The 2000 EIR analyzed operational air emissions relative to the methodology and thresholds established in BAAQMD's *1999 CEQA Air Quality Guidelines*. Compared with the City's current thresholds, the 1999 thresholds were less stringent for ROG and NO_x (80 pounds per day compared with 54 pounds per day), a more stringent threshold for PM_{10} (80 pounds per day compared with 82 pounds per day), and no threshold for $PM_{2.5}$ (compared with 54 pounds per day). The 2000 EIR identified a significant impact with respect to operational emissions of NO_x upon the completion of Block T9 as well as Block T5/6 (assumed 2005).[12] Block T5/6 alone in the 2000 EIR had emissions estimates that were below the 1999 thresholds as well as under 2000 thresholds. The analysis in the 2000 EIR did not consider emissions from maintenance operation of generators. The 2000 EIR identified mitigation measures (Mitigation Measures C.2a and C.2b) addressing Transportation Control Measures and 12th Street BART Station improvements to reduce emissions to a less-than-significant level. Mitigation Measure C.2b / TRA-B.5 regarding passenger wait times at the 12th Street BART gates has been implemented and is no longer applicable to the Project.

[12] The 2000 EIR analysis considered emissions from the then-anticipated year of completion of the first building, Block T9 (2001); the then-anticipated year of completion of Block T9 and T5/6 (2005); as well as emissions for all four City Center Project blocks at the time completion was initially estimated (2010).

The 2015 Addendum analysis considered an emergency generator and found that the Modified T5/6 Project would result in less than significant impacts from operation. Mitigation Measure C.2a from the 2000 EIR had been replaced with the City of Oakland SCA-4, regarding Transportation Demand Management (TDM) applicable to all projects within the City of Oakland. Though the Modified T5/6 Project did not have a significant operational emissions impact, it was subject to SCA TRA-4. Similarly, the Project would be subject to SCA TRA-4 regarding TDM requirements. Therefore, the Project would have less-than-significant impacts with respect to operational emissions. It would not result in a new or more severe significant impact compared with the 2000 EIR and the 2015 Addendum.

Toxic Air Contaminants (Criterion 6.3b)

Assumptions and Methodology

Toxic Air Contaminants (TACs) are air pollutants that can cause health risks. TACs do not have ambient air quality standards, but are regulated using a risk-based approach. This approach uses a health risk assessment to determine what sources and pollutants to control as well as the degree of control. Such an assessment evaluates chronic, long-term effects, calculating the increased lifetime risk of cancer as a result of exposure to one or more TACs. Health risks from TACs generated during project construction and operation are discussed below primarily though the Project's consistency with SCA AIR-3, Diesel Particulate Matter Controls – Construction Related and SCA AIR-4, Stationary Sources of Air Pollution (Toxic Air Contaminants). In addition, consistent with the City's CEQA significance thresholds, the analysis also evaluates cumulative health risks from the Project and nearby sources of TACs to existing receptors in the vicinity.

Analysis

Construction TAC Emissions

Project construction activities would produce TACs primarily in the form of diesel particulate matter (DPM) and $PM_{2.5}$ emissions from the exhaust of diesel fueled construction equipment and heavy duty truck trips. These emissions could result in elevated concentrations of DPM and $PM_{2.5}$ at existing receptors in the project vicinity. Exposure of receptors in the vicinity of the Project site to these elevated concentrations could lead to an increase in cancer risk or other health impacts. The nearest receptors to the Project would be the occupants of the residential tower on Site A.

The analysis in the 2000 EIR did not address health risk associated with TACs as it was not required at the time. The analysis in the 2015 Addendum used screening tables developed by the BAAQMD for commercial and residential land use development projects that estimate screening distances from sensitive receptors sufficient to avoid exposure to substantial construction-related health risks, and concluded that the impact of the Modified T5/6 Project regarding exposure to construction related health risks would be less than significant. The analysis for the Project does not rely on the BAAQMD's screening tables to assess health risks from construction activities, but instead uses compliance with SCAs to reduce this impact.

SCA AIR-3 requires implementation of appropriate measures during construction of projects to reduce potential health risks to sensitive receptors from exposure to DPM from construction emissions. It requires projects to conduct a health risk assessment (HRA) using current guidelines

from California Air Resources Board (CARB) and Office of Environmental Health Hazard Assessment and identify reduction measures if health risks are found to exceed the City's thresholds and SCA AIR-3b requires the identified reduction measures to be submitted to the City as part of a Construction Emissions Minimization Plan.

SCA AIR-3a(ii) provides an alternate way to comply with the requirements of the SCA if projects can commit to using all off-road diesel equipment fitted with the most effective Verified Diesel Emission Control Strategy (VDECS) available for the engine type as part of the project. 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. The requirement for a Construction Emissions Minimization Plan (SCA AIR 3b) would not apply in this case.

Equipment with engines meeting the Tier 4 Final standard currently qualify as VDECS as certified by CARB. The Project would comply with SCA 22 by committing to use all construction equipment that meet the Tier 4 Final standard to reduce health risks from exposure to Project construction emissions. Use of Tier 4 Final equipment could reduce health risks by as much as 90 percent. Therefore, with the implementation of City SCA AIR-3b, health risks from project construction to nearby residential receptors would be less than significant and the Project would not result in a new or more severe significant impact compared with the 2000 EIR.

The Project would not include demolition activities as the site is currently vacant. Therefore, City SCA regulating demolition and renovation of asbestos containing materials would not apply to the Project.

Operational TAC Emissions

Consistent with emergency and standby power systems requirements in the California Fire Code for high-rise buildings more than 75 feet in height, the Project would include an emergency generator. The emergency generator would need to be tested routinely to ensure its readiness during emergency operations. Installation and operation of the emergency generator would require a permit and an Authority to Construct from the BAAQMD, which would involve an evaluation of emissions based on size and require Best Available Control Technology, if warranted. A site-specific HRA would be conducted as part of the BAAQMD's permitting process and the BAAQMD would deny an Authority to Construct or a Permit to Operate for any new or modified source of TACs that exceeds a cancer risk of 10 in one million or a chronic or acute hazard index of 1.0. This would be consistent with the requirements of SCA AIR-4, Stationary Sources of Air Pollution (TACs) and therefore, operation of the emergency generator would result in a less than significant impact. Health risks from emergency generators are not considered in the 2000 EIR but the 2015 Addendum concluded a less than significant impact. Therefore, the Project would not result in a new or more severe significant impact compared with the 2000 EIR and the 2015 Addendum.

Cumulative TAC Impact

In addition to a Project's individual TAC impacts during construction and operation, the BAAQMD recommends evaluating the potential cumulative health risks to sensitive receptors from existing and reasonably foreseeable future sources of TACs. The BAAQMD's CEQA Air Quality

Guidelines include standards and methods for determining the significance of cumulative health risk impacts. The method for determining cumulative health risk requires the tallying of health risk from permitted stationary sources, highways, major roadways, and any other identified substantial sources of TACs in the vicinity of a Project site (i.e., within a 1,000-foot radius) and then adding the individual sources to determine whether the BAAQMD's cumulative health risk thresholds are exceeded. A cumulative screening analysis was conducted for sensitive receptors in the residential building on Site A where there would likely be the most affected receptors.

Health risks from permitted stationary sources within 1,000 feet of the Site A residential receptors were obtained from BAAQMD's Permitted Stationary Sources Risk and Hazards web tool supplemented with details from the BAAQMD in response to the Stationary Source Inquiry Form submitted for the Project. Background health risks provided by the BAAQMD for freeways and major roadways were also included. Further, future projects proposed within 1,000 feet of the nearest receptors at Site A could include emission sources, primarily emergency generators; all proposed projects were conservatively assumed to include backup generators. **Table AIR-1** shows the cumulative health risks to the residential receptors nearest to the Project from the various sources. The screening analysis shows that health risks to the Site A residential receptors would be less than the City's cumulative thresholds and hence, less than significant.

Impact to Project Receptors

Academic uses serving children are considered sensitive to health risks because children have greater exposure than adults to airborne pollutants resulting from higher breathing rates, more time spent outdoors and because of their still developing immune systems and organs. However, the Project proposes a university use and students attending the university would be adults and would therefore not be considered sensitive. Therefore, the Project would not introduce sensitive receptors to the area and City SCA 23, Exposure to Air Pollution (Toxic Air Contaminants) would not apply to the Project.

6.3.3 Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR considered throughout this analysis, implementation of the Project would not substantially increase the severity of significant impacts identified in the 2000 EIR, nor would it result in new significant impacts related to air quality that were not identified in the 2000 EIR**.** Based on the analysis, with implementation of the applicable SCAs, the Project would not exceed any of the City's applicable significance thresholds related to air quality. Therefore, Project construction and operation would result in less-than-significant impacts relating to air quality, including health risk. City **SCA AIR-1**, **Dust Controls – Construction-Related**; **SCA AIR-2**, **Criteria Air Pollutant Controls - Construction Related**; **SCA AIR-3**, **Diesel Particulate Matter Controls-Construction Related**; and **SCA AIR-4**, **Stationary Sources of Air Pollution (Toxic Air Contaminants)** (see Attachment A) would apply and be implemented by the Project to ensure that air quality impacts would be less than significant. Some of these SCAs implement mitigation measures from the 2000 EIR; no additional mitigation measures are required.

TABLE AIR-1
CUMULATIVE HEALTH IMPACTS TO SITE A RESIDENTIAL RECEPTORS

Source	Source Type	Distance to Off-site Site A Receptors (feet)	Cancer Risk[a] (persons per million)	Chronic Hazard Impact[a]	$PM_{2.5}$ Concentration[a] ($\mu g/m^3$)
Existing Permitted Stationary Sources (BAAQMD Plant Number) within 1,000 feet					
MCI dba Verizon Business (12765)	Diesel generator(s)	970	3.52	0.001	0.004
Oakland 14th Office (14423)	Diesel generator(s)	600	0.48	0.001	0.001
Trans Pacific Centre (14837)	Diesel generator(s)	950	0.45	0.001	<0.001
Alameda County Employees Retirement Association (16713)	Diesel generator(s)	600	0.05	0.00	0.00
General Services Administration – East Bay Office (16749)	Diesel generator(s)	420	2.51	0.005	0.12
CIM Group (17739)	Diesel generator(s)	430	0.08	0.00	0.00
Level 3 Communications LLC (18110)	Diesel generator(s)	975	0.16	0.00	<0.001
CIM Properties (20345)	Diesel generator(s)	700	1.22	0.001	0.006
FEMA (20724)	Diesel generator(s)	440	0.21	<0.001	0.00
Domain Residences, LLC (20802)	Diesel generator(s)	640	0.07	0.001	0.00
Jefferson Oaks Housing (20823)	Diesel generator(s)	850	0.00	0.00	0.00
KRE 1221 Broadway Owners LLC (22058)	Diesel generator(s)	515	0.77	0.00	0.001
Oakland Marriott City Center (22781)	Diesel generator(s)	350	2.02	0.002	0.005
Broadway Franklin LLC (22884)	Diesel generator(s)	420	2.0	0.003	0.023
USPA City Center LLC c/o Harvest Properties (23711)	Diesel generator(s)	180	23.94	0.036	0.104
KBS SOR II Oakland City Center LLC (24068)	Diesel generator(s)	530	0.63	0.001	0.00
KBS SOR II Oakland City Center LLC (24356)	Diesel generator(s)	415	1.99	0.003	0.002
Backup Generators at Proposed Projects within 1,000 feet					
T12 City Center PUD FDP[b,c]	Diesel generator	550	1.0	<0.001	0.002
420 13th Street Office Conversion[b,c]	Diesel generator	950	0.40	<0.001	0.001
Delger Block[b,c]	Diesel generator	750	0.70	<0.001	0.001
Mobile Sources					
Highways[d]			25.3	--	0.42
Major Roadways[d]			3.3	--	0.03
Project Sources					
Emergency Generator[b]			5.5	0.002	0.01
Cumulative Impacts[e]			**72.3**	**0.06**	**0.72**
City of Oakland Cumulative Significance Criteria			100	10	0.8
Potentially Significant Impact?			No	No	No

NOTES:

a. Health risk screening values were obtained from BAAQMD's Permitted Stationary Sources Risk and Hazards web tool and adjusted for distance using the BAAQMD's distance multiplier. Health risk data for some of the sources included in this analysis has not been refined pending BAAQMD input.
b. Risks posed by the generators are conservatively assumed to be at the maximum permitted value but will likely be less.
c. Projects within 1,000 feet was derived from Oakland Planning Bureau/Major Projects List – NOV 2021. All projects assumed to have generators.
d. Background risks from mobile sources from BAAQMD.
e. Cumulative totals may not add up due to rounding.

SOURCE: Table compiled by ESA in 2022.

6.4 Biological Resources

Would the project:	Equal or Less Severity of Impact Previously Identified in the 2000 EIR	Substantial Increase in Severity of Previously Identified Significant Impact in the 2000 EIR	New Significant Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service; Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service; Have a substantial adverse effect on federally protected wetlands (as defined by Section 404 of the Clean Water Act) or state protected wetlands, through direct removal, filling, hydrological interruption, or other means; Substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;	☒	☐	☐
b. Fundamentally conflict with the City of Oakland Tree Protection Ordinance (Oakland Municipal Code [OMC] Chapter 12.36) by removal of protected trees under certain circumstances; or Fundamentally conflict with the City of Oakland Creek Protection Ordinance (OMC Chapter 13.16) intended to protect biological resources.	☒	☐	☐

6.4.1 2000 EIR Findings

Special-Status Species, Wildlife Corridors, Riparian and Sensitive Habitat, Wetlands, Tree and Creek Protection (Criteria 6.4a and 6.4b)

The 2000 EIR found that the potential impact of the Original Project on biological resources would be less than significant; no mitigation measures were necessary.

As was described in the previous analysis, the Oakland City Center Project blocks are located in the fully developed urban area of Downtown; this remains the existing condition for the Project site as it does not contain vegetation or hydrology conditions suitable for sustaining wetlands, nor are any known special status species or sensitive habitats, including those that could support migratory fish or birds, located on the site. The existing landscaping and trees on portions of the Project site were planted by the Oakland Redevelopment Agency as an interim improvement several years prior to 2000 and have since matured. However, this vegetation is not connected to other nearby natural habitats, and therefore would not constitute a wildlife corridor. There are no natural sensitive communities in the area.

As it was when assessed in the 2000 EIR, and again recently in a tree survey conducted for the Project Applicant, the approximately 10 trees on the project are "Protected Trees," per Oakland's Protected Tree Ordinance. That previous analysis discussed that the development of Block T5/6 in particular would require approval of a tree removal permit prior to the issuance of building permits, consistent with standard City practices and regulations. This requirement is now directed by City of Oakland SCAs related to the removal and replacement of trees, tree protection during construction, and protection of nesting birds during the breeding season.

Compliance with these SCAs would protect natural resources from potential degradation that could result from development of the Project. A relevant requirement of the tree removal permit is that the project must include specific planting for the removal of any native species. As shown in Figure 3 in this document, the Project would introduce three new trees on 11th Street, landscaping onsite including two trees in a new pedestrian plaza.

6.4.2 Project Analysis

Special-Status Species, Wildlife Corridors, Riparian and Sensitive Habitat, Wetlands, Tree and Creek Protection (Criteria 6.4a and 6.4b)

Ten existing trees are planned for removal to accommodate project construction, all of which would be considered "Protected Trees," per Oakland's Protected Tree Ordinance. The City of Oakland Code of Ordinances, Chapter 12.36 *Protected Trees* defines "protected trees" as a coast live oak (*Quercus agrifolia*) measuring four inches or greater diameter at breast height (dbh), or any other tree measuring nine inches or greater dbh, except Eucalyptus and Monterey pine (*Pinus radiata*). In addition, any tree of any size located in the public right-of-way (including street trees), is protected.

The Project Applicant would be required to implement SCA BIO-1, Tree Permit, ensuring compliance with the City's Tree Protection Ordinance regulating tree removal on the Project site. As shown in Figure 3 in this document, the Project would introduce three new trees on 11th Street. A proposed underground utility vault as well as significant existing underground utility vaults and streetlight infrastructure underlie the remainder of the 11th Street frontage. PG&E's required maintenance clearance along the frontage of both the proposed and existing subgrade utilities which are essential to servicing the building make street trees infeasible in front of these utility locations.

The City Center garage is directly below the sidewalk along 12th Street and the existing garage structure cannot support the soil volume and depth required to support additional trees. However, the Project would introduce two new trees on the12th Street plaza above the garage's existing structural beams. Additional street trees in this area are not proposed as they would inhibit line of site to the 12th Street entry of the university which would create an unsafe condition.

Given the site constraints, the Project as proposed would comply with the City's Tree Protection Ordinance and SCA BIO-1. Therefore, there would be equal or less severity of impact from the Project as compared to that identified in the 2000 EIR.

However, although not considered in the 2000 EIR, existing trees on the Project site could be nursery sites for nesting birds. The Project Applicant would be required to implement SCA BIO-12 Tree Removal During Bird Breeding Season, either prohibiting tree removal during the bird breeding season of February 1 to August 15 or requiring a qualified biologist to verify the presence or absence of nesting raptors or other birds.

In addition, the proposed building could cause harm to birds by increasing bird collisions with buildings. However, although glass is a part of the Project's exterior, the Project is not located immediately adjacent to a substantially vegetated park larger than one acre or a substantial body or water. The Project would include several landscaped terraces which would not be considered a substantial vegetated green roof or substantial vegetated area. In addition, the Project would be required to implement AES-4, Lighting, to ensure new exterior lighting is properly shielded to prevent unnecessary glare onto adjacent properties.

The Project site is not located adjacent to a creek. Although implementation of the Project would increase the amount of impervious surfaces on the Project site, the Project would comply with SCAs relating to stormwater runoff from construction and operation including SCA HYD-1, Erosion and Sedimentation Control Plan for Construction and SCA HYD-2, NPDES C.3 Stormwater Requirements for Regulated Projects (see Section 6.9, *Hydrology and Water Quality* below). Additionally, the Project would comply with SCA UTIL-7, Water Efficient Landscape Ordinance (WELO), in order to reduce landscape water usage, which would further reduce stormwater runoff. Each of these measures contributes to protection and health of creeks and waterways downstream of the Project site.

6.4.3 Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR, implementation of the Project would not substantially increase the severity of significant impacts identified in the 2000 EIR, nor would it result in new significant impacts related to biological resources that were not identified in the 2000 EIR. The 2000 EIR did not identify any mitigation measures related to biological resources, and none would be needed for the Project. **SCA BIO-1, Tree Permit**; **SCA BIO-2, Tree Removal During Breeding Season**; **SCA HYD-1, Erosion and Sedimentation Control Plan for Construction**; **SCA HYD-2**, **NPDES C.3 Stormwater Requirements for Regulated Projects**; and **SCA UTIL-7**, **Water Efficient Landscape Ordinance (WELO)** (see Attachment A) would apply and be implemented by the Project and would further ensure that impacts related to biological resources would be less than significant. No mitigation measures are required.

6.5 Cultural Resources

Would the project:	Equal or Less Severity of Impact Previously Identified in the 2000 EIR	Substantial Increase in Severity of Previously Identified Significant Impact in the 2000 EIR	New Significant Impact
a. Cause a substantial adverse change in the significance of an historical resource as defined in CEQA Guidelines Section 15064.5. Specifically, a substantial adverse change includes physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be "materially impaired." The significance of an historical resource is "materially impaired" when a project demolishes or materially alters, in an adverse manner, those physical characteristics of the resource that convey its historical significance **and** that justify its inclusion on, or eligibility for inclusion on an historical resource list (including the California Register of Historical Resources, the National Register of Historic Places, Local Register, or historical resources survey form (DPR Form 523) with a rating of 1-5);	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5;	☒	☐	☐
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or	☒	☐	☐
d. Disturb any human remains, including those interred outside of formal cemeteries.	☒	☐	☐

6.5.1 2000 EIR Findings

Historical Resources (Criterion 6.5a)

The 2000 EIR found that the potential impact of development of the Original Project on historical resources would be less than significant. There are three historic districts in the area of the Original Project; these include the Grove Street-Lafayette Square Residential District, the Old Oakland District, and the Downtown District. In addition to the historic districts, two designations of the S-7 Preservation Combining Zones generally overlap with each of the nearby districts.

Archaeological and Paleontological Resources and Human Remains (Criteria 6.5b through 6.5d)

The 2000 EIR found that the potential impact of development of the Original Project on archaeological and paleontological resources and human remains would be less than significant with the implementation of mitigation measures identified in the Initial Study.[13]

[13] The Initial Study to the 2000 EIR did not identify designators for mitigation measures.

6.5.2 Project Analysis

Historic Architectural Resources

The Project site does not have existing structures, nor is it located near the historic resources identified in the 2000 EIR that could potentially be affected by the City Center Project. Previous analysis discussed that "the nearby historic districts are identified as isolated remnants of what was once greater Downtown Oakland, defined by their isolation from the remainder of the historic Downtown. Additionally, these districts are isolated by existing land use patterns." Like the Original Project, development of the Project would neither alter the character-defining elements of the historic districts nor impair the physical characteristics that convey the significance of the districts. The proposed land use and design change resulting from the Project compared to those discussed in the 2000 EIR would not result in new or substantially more severe impacts on historic resources than were identified in the 2000 EIR.

Archaeological and Paleontological Resources and Human Remains

The Project would involve grading and excavation activities up to depths of approximately 18 feet below grade to construct the building and associated below-grade level. The soil characterization of Block T5/6 Site B has not changed since the 2000 EIR. Based on the results of the Geotechnical Report prepared for the 2000 EIR and the Preliminary Geotechnical Evaluation prepared for the Block T5/6 project site in 2015, the Project site is underlain with approximately five to seven feet of loose to dense silty clayey sand and the near-surface soil is not expansive.[14] Below the initial layer of sand lies about 22 to 32 feet of dense to very dense silty sand known as the Merritt sand. Stiff to hard clayey silt and silty clay with interlayered sand underlie the Merritt sand. Borings indicate the presence of groundwater at approximately five to 11 feet below ground surface to the west of the site and approximately seven to 11 feet below ground surface to the south of the site.[15]

In addition, according to the Phase 1 Environmental Site Assessment prepared for the Block T5/6 project site in 2015, the Project site was previously developed as a service station with various surrounding uses, including parking lots and garages, gas stations, and commercial service uses. As updated from the 2000 EIR, the previous development on the Project site was cleared approximately 35 years ago, and the site has since been excavated for the below-grade City Center Parking Garage.[16]

The 2000 EIR acknowledged the potential for discovery of archaeological and paleontological resources and/or human remains during construction and excavation on the Project site. The mitigation measures identified in the 2000 EIR, including one pertaining to archaeological resources that was updated in subsequent addenda to the EIR, are now are now City of Oakland SCAs, as listed in Attachment A to this document. Implementation of SCA CUL-1, Archaeological and Paleontological Resources – Discovery During Construction; SCA CUL-2, Archaeologically Sensitive Areas – Pre-Construction Measures; and SCA CUL-3, Human Remains – Discovery During Construction would be required for the Project and would ensure that archaeological

14 Langan Treadwell Rollo, Preliminary Geotechnical Evaluation, T5/6 Oakland City Center 11th Street, April 14, 2015.
15 Ibid.
16 Langan Treadwell Rollo, Phase I Environmental Site Assessment, Oakland City Center 11th Street, January 22, 2015.

resources are recovered and that appropriate procedures are followed in the event of accidental discovery; would require a qualified paleontologist to document a discovery, would require that appropriate procedures be followed in the event of a discovery, and would ensure that the appropriate procedures for handling and identifying human remains are followed. Adherence to the applicable SCAs would reduce potential risks of impact to these resources to less than significant.

6.5.3 Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR considered throughout this analysis, the Project would not result in any more severe significant impacts than those identified in the 2000 EIR, nor would it result in new significant impacts related to cultural resources that were not identified in the 2000 EIR. Implementation of **SCA CUL-1**, **Archaeological and Paleontological Resources – Discovery During Construction**; **SCA CUL-2**, **Archaeologically Sensitive Areas – Pre-Construction Measures**; and **SCA CUL-3**, **Human Remains – Discovery During Construction** (see Attachment A) would further ensure that potential impacts associated with cultural resources would be less than significant. No mitigation measures are required.

6.6 Geology, Soils, and Geohazards

Would the project:	Equal or Less Severity of Impact Previously Identified in the 2000 EIR	Substantial Increase in Severity of Previously Identified Significant Impact in the 2000 EIR	New Significant Impact
a. Expose people or structures to substantial risk of loss, injury, or death involving: • Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map or Seismic Hazards Map issued by the State Geologist for the area or based on other substantial evidence of a known fault; • Strong seismic ground shaking; • Seismic-related ground failure, including liquefaction, lateral spreading, subsidence, collapse; or • Landslides;	☒	☐	☐
b. Be located on expansive soil, as defined in Section 1802.3.2 of the California Building Code (2007, as it may be revised), creating substantial risks to life or property; result in substantial soil erosion or loss of topsoil, creating substantial risks to life, property, or creeks/waterways.	☒	☐	☐

6.6.1 2000 EIR Findings

Seismic Hazards, Expansive Soils, and Soil Erosion (Criteria 6.6a and 6.6b)

The Original Project site is located approximately 3.5 miles southwest of the Hayward Fault and is outside of the Alquist-Priolo Geologic Hazards Special Studies Zone. The 2000 EIR described that all of the City Center blocks were located in soil zone II which may experience a variety of types of ground failure due to ground motion, particularly if there is strong seismic activity. However, the 2000 EIR determined that development of the Original Project would not result in any significant impacts with respect to rupture of a known earthquake fault, ground shaking, or seismic-related ground failure because development would adhere to standard City practices employed to ensure that all buildings are designed and built in conformance with state and local seismic requirements.

The 2000 EIR reported that the Project site is in an area characterized as Urban Land-Danville complex, which have some development limitations. The 2000 EIR determined that development of the Original Project would result in less-than-significant impacts regarding potential geohazards impacts because these limitations would be addressed pursuant to requirements specified in the required site-specific Geotechnical Report. Similarly, the 2000 EIR determined that development of the Original Project would result in less-than-significant impacts regarding substantial soil erosion or loss of topsoil due to the Project Applicant's required compliance with standard City practices.

As reported in the 2000 EIR, the Original Project sites are located in an area designated as least susceptible to landslides; they do not have contributing factors such as slopes over 15 percent or a history of landslide problems. Moreover, the sites are relatively flat and developed in the

Downtown urban area that is built-out or paved, landscaped, and served by an existing storm drain system.

As discussed in the 2000 EIR, development of the Original Project would occur on sites served by the existing sewer system; development of Block T5/6 would not involve septic tanks or alternative wastewater disposal.

Overall, the 2000 EIR found that the potential impact of development of the Original Project on geology, soils and geohazards would be less than significant with the Project Applicant's adherence to local and state regulations. The 2015 Addendum notes that City of Oakland SCAs, published since the preparation of the 2000 EIR, incorporate local and state regulations related to geology, soils, and geohazards and measures discussed in the 2000 EIR and would reduce potential impacts to less-than-significant levels.

6.6.2 Project Analysis

The Project would be constructed within the Original Project site, which is not located within Alquist-Priolo Geologic Hazards Special Studies Zone and is in an area characterized as Urban Land-Danville complex. As reported in a 2015 preliminary geotechnical investigation and 2016 Phase I Environmental Site Assessment, the Project site generally consists of about 5 to 7 feet of loose to dense silty clayey sand underlain by about 22 to 32 feet of dense to very dense silty sand.[17,18] No excavation or development has occurred on the site since the 2000 EIR, and the soil characterization of the Project site has not changed. The Project would require excavation of up to 12,806 cubic yards of soil with a maximum depth of up to 18 feet below ground surface, and therefore would be required to obtain a grading permit from the City. All of excavated materials would be exported. As with the Original Project, the Project would be required to comply with the requirements of California Building Code and the Seismic Hazards Mapping Act, which would prevent exposure of people or structures to substantial risk of loss, injury, or death during a large regional earthquake. The Project would also be required to comply with SCA GEO-1, Construction-Related Permit(s); SCA GEO-2, Soils Report; and SCA HYD-1, Erosion and Sedimentation Control Plan for Construction (see Section 6.9, *Hydrology and Water Quality*). These SCAs would ensure that development of the Project would avoid and minimize potential geologic impacts through compliance specifically with local and state regulations governing design and construction practices, including the California Building Code. Further, SCAs would require the preparation of soils and geotechnical reports specifying generally accepted and appropriate engineering techniques and compliance with local and state regulations and codes and would minimize potential geohazards impacts. SCAs would also require the Project Applicant to prepare and submit an erosion control plan and landscaping plans to address erosion during and after construction.

The Project site continues to have the characteristics described above regarding susceptibility to landslides and therefore would not result in substantial risks to life or property with respect to landslides and the impact would be less than significant. The Project site continues to be served

[17] Langan Treadwell Rollo, Preliminary Geotechnical Evaluation T5/6 Oakland City Center 11th Street, April 14, 2015.
[18] Langan Treadwell Rollo, Phase I Environmental Site Assessment, Oakland City Center 11th Street, April 8, 2016.

by the existing sewer system and would not involve septic tanks or alternative wastewater disposal and the impact would be less than significant.

6.6.3 Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR considered in this analysis, the Project would not result in any new or more significant impacts related to geology, soils, and geohazards than those identified in the 2000 EIR. Furthermore, implementation of **SCA GEO-1**, **Construction-Related Permit(s)**; **SCA GEO-2**, **Soils Report**; and **SCA HYD-1**, **Erosion and Sedimentation Control Plan for Construction** (see Section 6.9, *Hydrology and Water Quality*) (see Attachment A), would ensure that potential impacts associated with hazardous geologic and soils conditions would be less than significant. No mitigation measures are required.

6.7 Greenhouse Gas and Climate Change

Would the project:	Equal or Less Severity of Impact Previously Identified in the 2000 EIR	Substantial Increase in Severity of Previously Identified Significant Impact in the 2000 EIR	New Significant Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, specifically: • For a project involving a land use development, produce total emissions of more than 1,100 metric tons of CO_2e annually AND more than 4.64 metric tons of CO_2e per service population annually. The service population includes both the residents and the employees of the project. The project's impact would be considered significant if the emissions exceed BOTH the 1,100 metric tons threshold and the 4.6 metric tons threshold. Accordingly, the impact would be considered less than significant if the project's emissions are below EITHER of these thresholds.	☒	☐	☐
b. Fundamentally conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing greenhouse gas emissions.	☒	☐	☐

6.7.1 2000 EIR Findings

Climate change and greenhouse gas (GHG) emissions were not expressly addressed in the 2000 EIR. However, since information on climate change and GHG emissions was known, or could have been known, in 2000, it is not considered "new information" as specifically defined under CEQA and thus is not required to be analyzed as a part of the 2015Addendum. However, an analysis of the Modified T5/6 Project using the previously recommended May 2011 BAAQMD CEQA Guidelines and Thresholds was included in the 2015 Addendum to provide more information to the public and decision-makers, and in the interest of being conservative.

The 2015 Addendum concluded that construction and operation of the Modified T5/6 Project would not result in a significant effect (cumulative) relating to GHG emissions. Further, the 2015 Addendum determined that the Modified T5/6 Project would comply with the Oakland Energy and Climate Action Plan, current City Sustainability Programs, and General Plan policies and regulations regarding GHG reductions and other local, regional and statewide plans, policies and regulations that are related to the reduction of GHG emissions and relevant to the Modified T5/6 Project.

6.7.2 Project Analysis

Greenhouse Gas Emissions (Criterion 6.7a)

Both BAAQMD and the California Air Pollution Control Officers Association ("CAPCOA") consider GHG impacts to be exclusively cumulative impacts in that no single project could, by itself, result in a substantial change in climate. Therefore, the evaluation of GHG emissions impacts evaluates whether the Project would make a considerable contribution to cumulative climate change

impacts. The City of Oakland's current adopted thresholds for the evaluation of GHG impacts rely upon the technical and scientific basis for the City's 2030 Equitable Climate Action Plan (ECAP), which provide substantial evidence that adherence to the 2030 ECAP action items will achieve GHG emissions reduction targets of 56 percent below 2005 levels by 2030 and 83 percent below 2005 levels by 2050. These reduction targets are more aggressive than the State's adopted 2030 reduction target of 40 percent below 1990 levels (per Senate Bill 32). Therefore, reductions below the City of Oakland's efficiency metric also meet the State's adopted 2030 goals.

An ECAP Consistency Review Checklist was prepared for the Project (see **Appendix A**). The purpose of the ECAP Consistency Review Checklist is to determine, for purposes of compliance with CEQA, whether a development project complies with the ECAP and the City's GHG emissions reduction targets. According to the Project's ECAP Consistency Review Checklist, the Project has committed to all applicable GHG emissions reduction strategies, and would, therefore, be in compliance with the ECAP. Therefore, the Project would be required to implement SCA GHG-1, Project Compliance with the ECAP Consistency Checklist, which would ensure that all ECAP Checklist items are incorporated into the Project. Since the Project has committed to all applicable GHG emissions reductions strategies described on the ECAP Consistency Checklist, Project GHG emissions associated with land use development would be less than significant.

Although not required to mitigate a significant impact related to GHG emissions, the Project would be required to implement several other City of Oakland SCAs that would contribute to minimizing potential GHG emissions from Project construction and operations. These include SCA AES-3, Landscape Plan; SCA AIR-2, Criteria Air Pollutant Controls - Construction Related; SCA AIR-3, Diesel Particulate Matter Controls - Construction Related; SCA TRA-2, Bicycle Parking; SCA TRA-4, Transportation and Parking Demand Management; SCA UTIL-1, Construction and Demolition Waste Reduction and Recycling; SCA UTIL-4, Green Building Requirements; and SCA UTIL-7, Water Efficient Landscape Ordinance (WELO).

Consistency with GHG Emissions Plans and Policies (Criterion 6.7b)

The Project would comply with the City of Oakland's ECAP, current City Sustainability Programs, and General Plan policies and regulations regarding GHG reductions and other local, regional and statewide plans, policies and regulations that are related to the reduction of GHG emissions and relevant to the Project. Specifically, the Project has committed to all applicable GHG emissions reductions strategies and would include a number of sustainability design features as part of its consistency with the City of Oakland's ECAP (as indicated by the attached ECAP Checklist in Appendix A). This would also ensure that the Project is consistent with the State's Updated Climate Change Scoping Plan.

On December 15, 2020, the Oakland City Council adopted an Ordinance, adding to the Oakland Municipal Code Chapter 15.37, "All-Electric Construction In Newly Constructed Buildings." These new regulations require all newly constructed buildings to meet the definition of an All-Electric Building, as defined therein. As a result, the Project will be required to be designed to use a permanent supply of electricity as the source of energy for all space heating, water heating, cooking appliances, and clothes drying appliances, and will be prohibited from having natural gas or propane plumbing installed in the building. Designing the building to use a permanent supply of

electricity would eliminate direct GHG emissions from building energy use. The Project's electricity needs would be served by PG&E and East Bay Community Energy, who are required to comply with both the California Renewables Portfolio Standard and SB 350 and will meet these standards. SB 350 requires that the proportion of electricity from renewable sources be 50 percent renewable power by 2030.

The Project would be designed to comply with the most recent version of the California Building Efficiency Standards (CCR, Title 24, Part 6) and California Green Building Standards Code (CCR, Title 24, Part 11 - CALGreen) enforced through the City's Green Building Ordinance. Further, the Project Applicant intends to achieve a LEED Silver certification. The Project would optimize the efficiency of its building envelope, and it would reduce the building's energy use through the use of efficient lighting and HVAC systems. Additionally, the Project would be located in area with diverse land uses and in proximity to transit services, which would reduce the number of vehicle trips and the associated GHG emissions generated. Therefore, the Project would be considered to be consistent with all applicable goals, policies and regulations adopted to reduce GHG emissions and this impact would be less than significant.

6.7.3 Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR considered throughout this analysis, implementation of the Project would not substantially increase the severity of significant impacts identified in the 2000 EIR, nor would it result in new significant impacts related to GHG emissions or compliance with applicable plans, policies, or regulations adopted for the purposes of reducing GHG emissions that were not identified in the 2000 EIR. Implementation of **SCA GHG-1, Project Compliance with the ECAP Consistency Checklist** (see Attachment A) would apply and ensure that impacts related to GHG emissions associated with the Project are less than significant. In addition, implementation of SCAs relating to Aesthetics, Air Quality, Transportation, and Utilities (see Sections 6.2, 6.3, 6.14, 6.15 and Attachment A) including **SCA AES-3, Landscape Plan**; **SCA AIR-2, Criteria Air Pollutant Controls - Construction Related**; **SCA AIR-3, Diesel Particulate Matter Controls - Construction Related**; **SCA TRA-2, Bicycle Parking**; **SCA TRA-4, Transportation and Parking Demand Management**; **SCA UTIL-1, Construction and Demolition Waste Reduction and Recycling**; **SCA UTIL-4, Green Building Requirements**; and **SCA UTIL-7, Water Efficient Landscape Ordinance (WELO)**, would further ensure that impacts associated with GHG emissions would be less than significant. No mitigation measures are required.

6.8 Hazards and Hazardous Materials

Would the project:	Equal or Less Severity of Impact Previously Identified in the 2000 EIR	Substantial Increase in Severity of Previously Identified Significant Impact in the 2000 EIR	New Significant Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment; Create a significant hazard to the public through the storage or use of acutely hazardous materials near sensitive receptors; Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (i.e., the "Cortese List") and, as a result, would create a significant hazard to the public or the environment;	☒	☐	☐
b. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;	☒	☐	☐
c. Result in less than two emergency access routes for streets exceeding 600 feet in length unless otherwise determined to be acceptable by the Fire Chief, or his/her designee, in specific instances due to climatic, geographic, topographic, or other conditions; or Fundamentally impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	☒	☐	☐

6.8.1 2000 EIR Findings

Hazardous Materials Use, Storage and Disposal and Hazardous Building Materials; Exposure to Hazardous Materials in the Subsurface (Criterion 6.8a)

The 2000 EIR determined that development of the Original Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

As noted in the 2000 EIR, none of the blocks of the Original Project would be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment. The Phase 1 Environmental Site Assessment prepared for the Modified T5/6 Project indicated that the site had been developed as a service station, with various surrounding uses, including parking lots and garages, gas stations, and commercial service uses.[19] The previous development on the site was cleared approximately 40 years ago, and the site has since been excavated for the below-grade City Center Parking Garage. Four underground storage tanks (USTs) were reportedly at the

[19] Langan Treadwell Rollo, Phase I Environmental Site Assessment, Oakland City Center 11th Street, January 22, 2015.

site since 1929 with no documentation of their removal. Previous testing indicated semi-volatile organic compounds in the groundwater and elevated levels of lead in the soil such that some of the fill material would be classified as California Hazardous Waste. Other hazardous materials were identified in groundwater tests from the southeastern most edge of the site and vapor intrusion from groundwater to indoor air could not be ruled out.

Hazardous Materials within a Quarter Mile of a School (Criterion 6.8b)

The 2000 EIR reported that development of the Original Project would have a less-than-significant impact regarding the emissions or handle of hazardous or acutely hazardous materials, substances, or waste near a school. Lincoln Elementary School at 225 11th Street is the nearest school to Block T5/6, at a distance of one-half mile.

Emergency Access Routes (Criteria 6.8c)

The 2000 EIR determined that construction of the Original Project would not significantly interfere with emergency response plans or evacuation plans; no impact was identified. Implementation of the Original Project would result in temporary road closures, however compliance with all applicable requirements would reduce potential impacts to a less-than-significant level.

6.8.2 Project Analysis

Exposure to Hazards, Hazardous Materials Use, Storage and Disposal; Exposure to Hazardous Materials in the Subsurface (Criterion 6.8a)

Project construction activities would include excavation of approximately 12,806 cubic yards of soil. All excavated materials would be exported. Although there are no existing buildings on the Project site, the site contains some concrete and/or asphalt driveways that may require removal. A preliminary review of the Project site on the State's GeoTracker database indicates the site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (i.e., the "Cortese List"). As noted above, beginning in 1990, various environmental investigations were performed on the Block T5/6 project site to characterize soil and groundwater following release of petroleum hydrocarbons. In a letter dated 4 October 2001, Parcel T5 (the SMU Project site) was granted regulatory closure by the Alameda County Health Care Services Agency (ACEH).[20] Nonetheless, numerous existing regulations require that demolition and construction activities that may disturb or require the removal of hazardous materials must be inspected and/or tested for the presence of hazardous materials. If present, the hazardous materials must be managed and disposed of in accordance with applicable laws and regulations.

Groundwater in the vicinity of the Project site could be encountered as the measured groundwater table is assumed to be between approximately five and 11 feet below ground surface. Grading activities are anticipated to potentially reach a depth of 18 feet; therefore, dewatering during construction may be required. Additional soil and groundwater characterization would be

[20] Langan Treadwell Rollo, Phase I Environmental Site Assessment, Oakland City Center 11th Street, April 8, 2016.

required prior to off-site disposal of excess soil and groundwater resulting from excavation and grading activities.

During the demolition and construction phases, construction equipment and materials would include fuels, oils and lubricants, solvents and cleaners, cements and adhesives, paints and thinners, degreasers, cement and concrete, and asphalt mixtures, which are all commonly used in construction. The routine use or an accidental spill of hazardous materials used in construction could result in inadvertent releases, which could adversely affect construction workers, the public, and the environment.

Construction activities would be required to comply with numerous hazardous materials regulations designed to ensure that hazardous materials are transported, used, stored, and disposed of in a safe manner to protect worker safety, and to reduce the potential for a release of construction-related fuels or other hazardous materials into the environment, including stormwater and downstream receiving water bodies. Compliance with regulations is reinforced in the City's SCAs specific to hazardous materials. As discussed in Section 6.9, *Hydrology and Water Quality*, in compliance with SCA HYD-1, Erosion and Sedimentation Control Plan for Construction, the Project Applicant would be required to implement best management practices to reduce water quality impacts during construction to the maximum extent practicable.

SCA HAZ-1 identifies best management practices during construction including practices for use, storage and disposal of chemical products and containers; management of fuel gas tanks, grease, and oils from construction equipment; compliance with local, regional, state and federal regulations concerning lead; and compliance with the City and applicable regulatory agencies' required steps and actions if suspected contamination is encountered during construction. The California Fire Code would also require measures for the safe storage and handling of hazardous materials. In addition, the transport of hazardous materials is regulated by the U.S. Department of Transportation (USDOT), Caltrans, and the California Highway Patrol (CHP). Together, federal and State agencies determine driver-training requirements, load labeling procedures, and container specifications designed to minimize the risk of an accidental release.

SCA HAZ-2, Hazardous Building Materials and Site Contamination, requires the Project Applicant to document the presence or lack thereof of hazardous building or stored materials and specifications for the stabilization and/or removal of the identified materials in accordance with applicable laws and regulations. It requires a Phase I and, as needed a Phase II along with evidence of approved remedial action and required clearances by applicable local, state, or federal regulatory agency. Compliance with this SCA includes implementation of a City-approved Health and Safety Plan and construction Best Management Practices related to potential soil and groundwater hazards.

The transportation, use, and storage of all hazardous materials involved with the Project (construction and operation) would be required to follow the applicable laws and regulations adopted to safeguard workers and the general public. In the event of a spill that releases hazardous materials at the Project site, a coordinated response would occur at the federal, state, and local levels, including the City of Oakland. The Oakland Fire Department is the local hazardous materials response team. In the event of a hazardous materials spill, the Oakland Police

and Fire departments would be simultaneously notified and sent to the scene to respond and assess the situation.

The required compliance with the numerous laws and regulations discussed above that govern the transportation, use, handling, and disposal of hazardous materials would limit the potential for creation of hazardous conditions due to the use or accidental release of hazardous materials. Since development of the Project would be subject to the SCAs pertaining to the handling of hazardous materials related to construction activities and the remedial actions required when site contamination is encountered, consistent with the findings and conclusions of the 2000 EIR, the potential impacts would be reduced to less-than-significant levels.

Hazardous Materials within a Quarter Mile of a School (Criterion 6.8b)

As noted above, the school closest to the Project site is Lincoln Elementary School, which is approximately one-half mile from the Project site. Therefore, potential impacts of the Project would be less than significant, consistent with the findings and conclusions of the 2000 EIR.

Emergency Access Routes (Criterion 6.8c)

The Project would not significantly interfere with emergency response plans or evacuation plans. Construction in the urban Downtown setting may result in temporary road closures, which would require traffic control plans to ensure at least two emergency access routes are available for streets exceeding 600 feet in length, per the City of Oakland's Ordinances and General Plan Policies. In accordance with SCA TRA-1, Construction Activity in the Public Right-of-Way (Section 6.14, *Transportation and Circulation*), the Project would: (1) 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; (2) submit a Traffic Control Plan to the City for review and approval prior to obtaining an obstruction permit; and (3) repair any damage to the public right-of way, including streets and sidewalks, caused by project construction. As such, the Project would not permanently change the surrounding streets or roadways. The Project's compliance with all applicable requirements would reduce potential impacts to a less-than significant level, as identified in the 2000 EIR.

6.8.3 Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR, the Project would not result in any new or more severe significant impacts related to hazards and hazardous materials than those identified in the 2000 EIR. Implementation of **SCA HYD-1, Erosion and Sedimentation Control Plan for Construction**; **SCA HAZ-1**, **Hazards Materials Related to Construction**; **SCA HAZ-2**, **Hazards Building Materials and Site Contamination**; and **SCA TRA-1**, **Construction Activity in the Public Right-of-Way** (see Attachment A) would further ensure that potential impacts associated with hazardous conditions would be less than significant.

6.9 Hydrology and Water Quality

Would the project:	Equal or Less Severity of Impact Previously Identified in the 2000 EIR	Substantial Increase in Severity of Previously Identified Significant Impact in the 2000 EIR	New Significant Impact
a. Violate any water quality standards or waste discharge requirements; Result in substantial erosion or siltation on- or off-site that would affect the quality of receiving waters; Create or contribute substantial runoff which would be an additional source of polluted runoff; Otherwise substantially degrade water quality; Fundamentally conflict with the City of Oakland Creek Protection Ordinance (OMC Chapter 13.16) intended to protect hydrologic resources.	☒	☐	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or proposed uses for which permits have been granted);	☒	☐	☐
c. Create or contribute substantial runoff which would exceed the capacity of existing or planned stormwater drainage systems; Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course, or increasing the rate or amount of flow, of a creek, river, or stream in a manner that would result in substantial erosion, siltation, or flooding, both on- or off-site	☒	☐	☐
d. Result in substantial flooding on- or off-site; Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, that would impede or redirect flood flows; Place within a 100-year flood hazard area structures which would impede or redirect flood flows; or Expose people or structures to a substantial risk of loss, injury, or death involving flooding.	☒	☐	☐

6.9.1 2000 EIR Findings

Water Quality, Stormwater, and Drainages and Drainage Patterns (Criteria 6.9a and 6.9c)

The 2000 EIR determined that development of the Original Project would not result in any significant impacts related to hydrology or water quality given required adherence to existing regulatory requirements. Development on each of the blocks of the Original Project would involve ground disturbance and increase the amount of impervious surface area on the sites, thereby increasing the amount of runoff to the City's stormwater drainage system. The analysis

discussed measures that pertained to erosion and sedimentation control, the preparation of storm water pollution prevention plans (SWPPP), post construction stormwater management and treatment measures and associated maintenance agreements. The 2015 Addendum noted that these measures are incorporated in several City of Oakland SCAs that would ensure impacts are less than significant by minimizing runoff and erosion, as well as sedimentation and contamination to stormwater and surface water during and after construction activities. The Modified T5/6 Project would involve the same construction activities described in the 2000 EIR and would adhere to the existing City of Oakland SCAs.

Use of Groundwater (Criterion 6.9b)

As described in the 2000 EIR for the Original Project, some dewatering may be required for construction of the Modified T5/6 Project, but the dewatering is not anticipated to substantially lower the groundwater level. Potable water is supplied to the Original Project area through imported surface water by EBMUD. The groundwater is not considered potable and is not utilized in the public drinking water supply. The 2000 EIR also assumed project compliance with existing City practices, which are now City of Oakland SCAs that address all applicable regulatory standards and regulations pertaining to grading and excavation activities. The Modified T5/6 Project would adhere to these SCAs and therefore would have a less-than-significant impact on water quality or groundwater supplies, as identified in the 2000 EIR.

Flooding and Substantial Risks from Flooding (Criterion 6.9d)

As reported in the 2000 EIR, the Original Project is located in Zone C, which is not located in either a 100-year or 500-year flood boundary. In addition, the Original Project blocks are not located near a levee or a dam. Therefore, the 2000 EIR found that development of the Original Project on the Project site would not result in a significant impact with respect to flood-related risks.

6.9.2 Project Analysis

Water Quality, Stormwater, and Drainages and Drainage Patterns (Criteria 6.9a and 6.9c)

The Project would involve the same construction activities described in the 2000 EIR and the Program EIRs and would adhere to the existing City of Oakland SCAs.

The Project would result in approximately 24,659 square feet of new impervious surface area on the Project site. Implementation of SCA HYD-1, Erosion and Sedimentation Control Plan for Construction, would reduce potential erosion and sedimentation impacts to less-than-significant levels. Implementation of SCA GEO-1, Construction-Related Permit(s); and SCA UTIL-6, Storm Drain System would further reduce potential impacts related to sedimentation and erosion. Therefore, the potential for the Project to substantially or adversely alter drainage patterns or increase the flow of runoff is less than significant.

Implementation of SCA HYD-2, NPDES C.3 Stormwater Requirements for Regulated Projects, which requires the Project's Stormwater Control Plan to comply with Provision C.3 of the

Municipal Regional Stormwater Permit issued under the NPDES, would reduce the potential impact of polluted runoff to a less-than significant level.

Use of Groundwater (Criterion 6.9b)

As noted above, the Project would increase the amount of impervious surface on the Project site. However, compliance with SCA HYD-2 and the C.3 provisions of the NPDES Municipal Stormwater Permit for the Alameda County Clean Water Program would require that recharge rates at the Project site be equivalent to the recharge rate at the site prior to development. This would ensure such the Project would not deplete groundwater resources, which is not anticipated since groundwater in the area is not a potable water source. Therefore, the Project would have a less-than-significant impact on groundwater supplies, as identified in the 2000 EIR.

Flooding and Substantial Risks from Flooding (Criterion 6.9d)

The Project would be developed on the same Project site as Original Project. The Project site is located in Zone C, which is not located in either a 100-year or 500-year flood boundary. Further, the Project site is not located near a levee or a dam. Therefore, development of the Project would not result in substantial flooding on- or off-site and would not result in a significant impact with respect to flood-related risks.

6.9.3 Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR, implementation of the Project would not result in any new or more severe significant impacts related to hydrology and water quality, groundwater, or flooding than those identified in the 2000 EIR. The 2000 EIR identified no mitigation measures related to hydrology and water quality, and none would be required for the Project. Implementation of **SCA HYD-1**, **Erosion and Sedimentation Control Plan for Construction**; **SCA HYD-2**, **NPDES C.3 Stormwater Requirements for Regulated Projects**; **SCA GEO-1**, **Construction-Related Permit(s)**; and **SCA UTIL-6**, **Storm Drain System** (see Attachment A) would ensure that potential impacts to hydrology and water quality would be less than significant. No mitigation measures are required.

6.10 Land Use, Plans, and Policies

Would the project:	Equal or Less Severity of Impact Previously Identified in the 2000 EIR	Substantial Increase in Severity of Previously Identified Significant Impact in the 2000 EIR	New Significant Impact
a. Physically divide an established community;	☒	☐	☐
b. Result in a fundamental conflict between adjacent or nearby land uses; or	☒	☐	☐
c. Fundamentally conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect and actually result in a physical change in the environment.	☒	☐	☐

6.10.1 2000 EIR Findings

Division of Existing Community, Conflict with Land Uses, or Land Use Plans (Criteria 6.10a through 6.10c)

The 2000 EIR found less-than-significant impacts related to land use, plans, and policies, and no mitigation measures were warranted. The 2000 EIR determined that the Original Project would have less-than-significant land use impacts related to the division of an established community, or potential conflicts with nearby land uses or applicable land use plans, policies, and regulations. The 2015 Addendum analyzed Option 3 (residential + office) of the Modified Block T5/6 Project as the most intensive scenario of the for purposes of assessing land use, and concluded it would not result in any new or more severe significant impacts.

6.10.2 Project Analysis

Land uses surrounding the Project site are primarily commercial land uses. The Project site is part of the existing urban grid of Downtown, and its development would be of similar and compatible scale and use to its surroundings; it would not create a division of the community. Block T5/6 is in Oakland's Downtown Showcase District, an area intended to promote a mixture of vibrant and unique uses with around-the-clock activity, continued expansion of job opportunities, and growing residential population. The Project would be consistent with this intent, with the development of institutional use that would support job opportunities. Moreover, the 2000 EIR described how all four blocks of the Original Project are located on land designated by the Oakland General Plan, the Central District Urban Renewal Plan, and the Zoning Regulations for the most intense development in Oakland.

The Project site is within the Central Business District Central Commercial Zone (CBD-C) and has a Central Business District (CBD) land use designation. The intent of the CBD-C zone (Mixed Use Boulevard Zone) is to create, maintain, and enhance areas of the CBD appropriate for a wide range of ground-floor office and other commercial activities. Upper-story spaces are intended to be available for a wide range of residential and office or other commercial activities. The Project site's Central Business District General Plan land use designation applies to areas

suitable for high density mixed use urban center with a mix of large-scale offices, commercial, urban (high-rise) residential, and infill hotel uses, among many others, in the central Downtown core of the City. The Project would develop ground-floor commercial retail/restaurant space with upper level educational and office use and is therefore consistent with the zoning classification and land use designation.

As shown in Table 5 in Chapter 4, *Project Description,* the maximum height of the Project building would be up to 201 feet tall (206 feet to the top of the penthouse), with a base height of approximately 78 feet. This would be in compliance with the height limits for the site, which are a minimum 45 feet and maximum 85 feet for the height of the building base, and no height limit above the base. The CBD zoning and height/bulk/density area six has the following regulations: above base tower length maximum of 195 feet and above base tower diagonal maximum is 235 feet is allowed. The border of the project site is approximately 120-feet by 221-feet; however, the developable area of the site is reduced because the proposed tower cannot be conducted on the City Center parking garage's vehicle access aisle. Therefore, the developable area of the site is actually 76 feet by 201 feet. To accommodate the proposed capacity, the Project Applicant is seeking two variances to elongate the above base tower length by approximately 24 feet and increase the diagonal length by approximately 2 feet to achieve a building with an efficient building layout. Development of the Project would total approximately 238,550 square feet of gross floor area on the 0.56-acre site, or 9.3 FAR. A maximum 20.0 FAR is allowed on Block T5/6, pursuant to the CBD-C Zoning and CBD General Plan designations. The Project would not conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project. The Project does not include or require a request for variance, the approval of which would potentially affect the environment.

6.10.3 Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR, implementation of the Project would not result in any new or more severe significant impacts related to land use and planning that were not identified in the 2000 EIR. The 2000 EIR identified no mitigation measures related to land use and planning, and none would be required for the Project. No mitigation measures are required.

6.11 Noise

Would the project:	Equal or Less Severity of Impact Previously Identified in the 2000 EIR	Substantial Increase in Severity of Previously Identified Significant Impact in the 2000 EIR	New Significant Impact
a. Generate noise in violation of the City of Oakland Noise Ordinance (Oakland Planning Code Section 17.120.050) regarding construction noise, except if an acoustical analysis is performed that identifies recommend measures to reduce potential impacts. During the hours of 7 p.m. to 7 a.m. on weekdays and 8 p.m. to 9 a.m. on weekends and federal holidays, noise levels received by any land use from construction or demolition shall not exceed the applicable nighttime operational noise level standard;	☒	☐	☐
b. Generate noise in violation of the City of Oakland nuisance standards (Oakland Municipal Code Section 8.18.020) regarding persistent construction-related noise;	☒	☐	☐
c. Generate noise in violation of the City of Oakland Noise Ordinance (Oakland Planning Code Section 17.120.050) regarding operational noise;	☒	☐	☐
d. Generate noise resulting in a 5 dBA permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or, if under a cumulative scenario where the cumulative increase results in a 5 dBA permanent increase in ambient noise levels in the project vicinity without the project (i.e., the cumulative condition including the project compared to the existing conditions) and a 3-dBA permanent increase is attributable to the project (i.e., the cumulative condition including the project compared to the cumulative baseline condition without the project);	☒	☐	☐
e. Expose persons to interior L_{dn} or CNEL greater than 45 dBA for multi-family dwellings, hotels, motels, dormitories and long-term care facilities (and may be extended by local legislative action to include single-family dwellings) per California Noise Insulation Standards (CCR Part 2, Title 24); Expose the project to community noise in conflict with the land use compatibility guidelines of the Oakland General Plan after incorporation of all applicable Standard Conditions of Approval (see Figure 1); Expose persons to or generate noise levels in excess of applicable standards established by a regulatory agency (e.g., occupational noise standards of the Occupational Safety and Health Administration [OSHA]); or	☒	☐	☐
f. During either project construction or project operation expose persons to or generate groundborne vibration that exceeds the criteria established by the Federal Transit Administration (FTA).	☒	☐	☐

6.11.1 2000 EIR Findings

Construction and Operational Noise and Vibration, Exposure of Receptors to Noise (Criteria 6.11a, 6.11b, 6.11d, and 6.11e)

The 2000 EIR determined that noise impacts related to construction of the Original Project would be significant but that mitigation measures, which are now City of Oakland SCAs, would reduce the severity of the construction noise impacts to a less than significant level. Construction-related activities associated with Approved Project would temporarily increase ambient noise levels and vibration in the vicinity of construction sites. Implementation of City SCAs would minimize construction noise impacts by limiting hours of construction activities; require best available noise control technology on construction equipment; require vibration analysis when construction activities take place adjacent to structures or vibration-sensitive activities; and require project applicants and/or their contractors to notify residents in the project vicinity of construction activities and hours, and to track and respond to any noise complaints. As a result, the construction noise impacts of the Approved Project were found to be less than significant.

The 2000 EIR disclosed that during operations of the Original Project buildings, mechanical equipment would generate noise; however, equipment would be standardized and would be required to comply with the City of Oakland Noise Ordinance. The measures discussed in the 2000 EIR are now incorporated in City of Oakland SCAs that would reduce operational noise impacts to less than significant through project designs that would achieve acceptable interior noise levels for buildings; limit groundborne vibration at the Project site; and require mechanical equipment compliance with applicable noise performance standards. Development of the Modified T5/6 Project would incorporate all applicable SCAs to ensure the less than significant impact identified in the 2000 EIR.

Traffic Noise (Criterion 6.11c)

The 2000 EIR determined that development of the Original Project would increase noise levels adjacent to nearby roads due to additional vehicles traveling on nearby streets. The analysis found that the increase in traffic noise from the Existing Plus Original Project scenario, as compared to existing conditions, would increase peak hour noise levels by less than 5 A-weighted decibels (dBA) at all studied roadway segments. However, the increase in traffic noise between Existing (2000) and the Cumulative Plus Original Project (2005) scenarios was identified as significant along Castro Street and 18th Street. The 2000 EIR noted that cumulative increases in traffic noise on these roadways may not be perceptible due to the noise contribution from traffic on the adjacent I-980 freeway. The EIR conservatively determined that no feasible mitigation measures were available, and that the impact would be significant and unavoidable.

The Block T5/6 is not located on Castro Street or 18th Street (which are three and six blocks away, respectively), and the Modified T5/6 Project would not be anticipated to experience significant impacts related to traffic noise. Nonetheless, the 2015 Addendum prepared a revised quantitative traffic noise analysis for roadways used to access the Project site: Broadway, Brush Street, 11th Street and 12th Street. The increase in traffic noise from the Existing Plus Modified T5/6 Project scenario compared to the Existing scenario and the increase in traffic from the Cumulative Plus

Modified T5/6 Project (2035) scenario and Existing (2013) would increase peak hour noise levels by less than 5.0 dBA at all roadway segments. Traffic noise impacts associated with the Modified T5/6 Project at all analyzed roadway segments in the project vicinity were determined to be less than significant.

The 2015 Addendum also updated the cumulative noise analysis to consider cumulative noise from both mobile and stationary sources. The Modified T5/6 HVAC equipment, which would operate within the restrictions of the City's Noise Ordinance and would be located over 500 feet from the nearest sensitive receptor (Domain apartments north of Jefferson Street and 13th Street) at which distance this equipment would not meaningfully contribute to cumulative noise levels. The cumulative noise impact of the Modified T5/6 Project was determined to be less than significant.

6.11.2 Project Analysis

Construction Noise and Vibration (Criteria 6.11a, 6.11b, and 6.11f)

Construction Noise

Construction activities for the Project would be expected to occur over approximately 18 months and would entail site preparation, grading, excavation and shoring, foundation and below-grade construction, building construction, paving, and finishing interiors and exteriors. Required implementation of applicable City of Oakland SCAs would minimize construction noise by limiting hours of construction activities, requiring best available noise control technology and notification of any local residents of construction activities, and by tracking and responding to noise complaints. Specifically, Project construction would comply with the following SCAs: SCA NOI-1, Construction Days/Hours which limits construction hours mirroring the City's Noise Ordinance requirements; SCA NOI-2, Construction Noise which requires projects to implement construction noise reduction measures; SCA NOI-3, Extreme Construction Noise which requires the preparation of a Construction Noise Management Plan with site-specific noise attenuation measures to reduce impacts to specific receptors and notification to property owners and occupants located within 300 feet of the construction activities; and SCA NOI-4, Construction Noise Complaints which sets a protocol for receiving and addressing construction noise complaints from the public. Implementation of identified SCAs would reduce construction noise impacts to nearby receptors to a less than significant level.

Construction Vibration

The Project site not located adjacent to any active rail lines. Therefore, City SCA 69, Exposure to Vibration, would not apply to the Project. The Project would involve construction that includes the use of heavy off-road equipment to perform earthwork. However, no structures or vibration sensitive activities where vibration could substantially interfere with normal operations, are located adjacent to the Project site. Therefore, City SCA 70, Vibration Impacts on Adjacent Structures or Vibration-Sensitive Activities, requiring a Vibration Analysis, would not be required for the Project.

Operational Noise (Criteria 6.11c and 6.11d)

Noise from Project Stationary Sources

Once operational, the Project would include stationary sources such as heating, ventilating, and air conditioning (HVAC) mechanical equipment. As noted above, such equipment would be operated within the restrictions of the City's Noise Ordinance. Chapter 17.120.050 of the City of Oakland Planning Code specifies the maximum sound level received at residential, public open spaces and commercial land uses. Development of the Project would be required to comply with SCA NOI-5, Operational Noise, which ensures compliance with operational noise limits in the City's Noise Ordinance and would result in a less-than-significant impact with respect to noise from stationary sources on the Project site. This would be consistent with the findings of the 2000 EIR.

Traffic Noise

As noted above, the 2015 Addendum prepared a revised quantitative traffic noise analysis for roadways used to access the Block T5/6 project site and concluded that traffic noise impacts associated with the Modified T5/6 Project at all analyzed roadway segments in the project vicinity would result in less-than-significant impacts. The 2015 Addendum further concluded that the cumulative noise from both mobile and stationary sources would also result in less-than-significant impacts.

The 2015 Addendum relied on peak hour intersection turning data from the Project traffic study to evaluate traffic volume increases and resulting traffic-generated noise increases on roadway links most affected by Modified T5/6 Project. As shown in Section 6.14, *Transportation and Circulation,* the SMU Project would generate fewer trips relative to the Modified T5/6 Project. Therefore, the SMU Project would result in reduced less-than-significant impacts relative to those identified in the 2015 Addendum.

The nearest sensitive receptor to the Project site is the residential development at Block T5/6 Site A, which is approximately 20 feet from the Project site. However, given the increase in traffic noise is the same as or reduced compared with the Modified Block T5/6 Project, project mechanical equipment would be located inside the enclosed basement level rather than on the roof, and that such equipment would be operated within the restrictions of the City's Noise Ordinance, the cumulative noise impact of the Modified T5/6 Project would be consistent with the findings of the 2000 EIR.

Exposure to Project Receptors (Criterion 6.11e)

The Project does not include land uses subject to the interior noise standards prescribed by the California Noise Insulation Standards (CCR Part 2, Title 24). Therefore, City SCA 67, Exposure to Community Noise, would not apply to the Project. Consequently, the Project would not be anticipated to substantially increase the severity of significant impacts identified in the 2000 EIR or result in new significant impacts with respect to exposure of Project receptors to excessive noise levels. This would be consistent with the findings of the 2000 EIR.

6.11.3 Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR and considered throughout this analysis, implementation of the Project would not substantially increase the severity of impacts identified in the 2000 EIR, nor would it result in new significant impacts related to noise that were not identified in the 2000 EIR. Therefore, Project construction and operation would result in less-than-significant impacts relating to noise. **SCA NOI-1**, **Construction Days/Hours**; **SCA NOI-2**, **Construction Noise**; **SCA NOI-3**, **Extreme Construction Noise**; **SCA NOI-4**, **Construction Noise Complaints**; and **SCA NOI-5**, **Operational Noise**; (see Attachment A) would be applicable and would be implemented with the Project to ensure that noise-related impacts would be less than significant. No mitigation measures are required.

6.12 Population and Housing

Would the project:	Equal or Less Severity of Impact Previously Identified in the 2000 EIR	Substantial Increase in Severity of Previously Identified Significant Impact in the 2000 EIR	New Significant Impact
a. Induce substantial population growth in a manner not contemplated in the General Plan, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extensions of roads or other infrastructure), such that additional infrastructure is required but the impacts of such were not previously considered or analyzed;	☒	☐	☐
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere in excess of that contained in the City's Housing Element; or Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere in excess of that contained in the City's Housing Element.	☒	☐	☐

6.12.1 2000 EIR Findings

Population Growth and Displacement of Housing and People (Criteria 6.12a and 6.12b)

The 2000 EIR determined that impacts related to population growth and displacement of housing and people with the Original Project would be less than significant. Development of the Modified T5/6 Project, assuming Option 2 (second residential building on Site B) would represent approximately 0.1 and 2.5 percent of the total 2015-2035 population growth projected for Oakland and the Downtown/Jack London Square PDA, respectively[21]; these proportions of growth would not be considered substantial. Infill growth from development of the Modified Block T5/6 Project, whether new residents or employees, was anticipated in the 2010 General Plan Housing Element Update EIR and its 2014 Addendum, the Central District Urban Renewal Plan Amendment (2011), the Oakland General Plan Land Use and Transportation Element (LUTE) (1998, as amended), and each of the CEQA documents to each of these policy documents. Therefore, the Approved Project's impacts to population and housing were determined to be less than significant.

6.12.2 Project Analysis

The Project would not displace any housing units, as none exist on the Project site. The Project is anticipated to enroll 1,375 new students at the time of opening. However, the SMU Project would offer some programs online, some faculty would teach multiple classes a day or teach remotely, and some faulty would only teach off campus at various clinical sites.

[21] The Downtown / Jack London Square PDA growth from 2010 to 2040: 39,440. City of Oakland growth from 2010 to 2040: 857,240. (ABAG, 2012)

Specifically, with SMU moving toward a "hybrid" mode of curriculum delivery, some students would be on campus attending classes in person, while at the same time, many students would be accessing courses remotely. SMU anticipates the Project would have 36 classes on an average weekday with 50 percent of classes fully hosted virtually and 50 percent (18 classes) held in person at the Project site. Considering the average class size of 28 (ranging between 8 and 50 students), 18 in-person classes would result in approximately 504 students on campus on an average weekday, which represents approximately 37 percent of the 1,375-student population. Based on a survey of faculty members and feedback from department leaders, SMU anticipates 63 percent of faculty (260) would be on campus on an average weekday. This accounts for the 50 percent virtual curriculum, and average weekday class load of 1-3 classes per full-time faculty member, and the fact that 30-40 percent of faculty would be part-time. This estimate also considers non-class on-campus visits for faculty to conduct research, prep for courses, meet with students, and attend administrative meetings. Of the 155 staff members, SMU anticipates that 110 staff members or 71 percent would be on campus on an average weekday. With a move to remote work plans (e.g., three days on campus, two days remote), some staff members will not be required to be present on campus five days per week. However, most staff, including administrators, support staff, and operations staff would need to remain on site.

Considering these factors based on the current trends and student enrollment at the existing Oakland Campus, **Table POP-1** presents the expected average weekday on-site population. Although the average weekday onsite student headcount is anticipated to be approximately 37 percent of total enrollment, this document conservatively relies on 41 percent of total enrollment to account for possible fluctuations. Overall, the expected average weekday onsite population includes approximately 934 people comprised of 564 students, 110 staff, and 260 faculty.

TABLE POP-1
AVERAGE WEEKDAY ON-SITE POPULATION

	Current Total Headcount (Oakland Campus)	Expected % on campus (average weekday)	Expected Headcount on campus (average weekday)
Student	1,375	41%	564
Staff	155	71%	110
Faculty	411	49%	260
Total	**1,941**	**48%**	**934**

Consistent with the Approved Project, the Project aligns with Oakland General Plan policies that support additional employment opportunities and educational uses in proximity to alternative transportation options, like Downtown. The Project would not result in substantial population growth in a manner not contemplated in the General Plan or 2000 EIR and the impacts to population and housing would be less than significant, as identified in the 2000 EIR.

6.12.3 Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR, the Project would not result in any new or more severe significant impacts related to population and housing than those identified in the 2000 EIR. The 2000 EIR did not identify any mitigation measures related to population and housing, and none would be required for the Project. Overall, the Project's potential impacts to population and housing would be less than significant. No mitigation measures are required.

6.13 Public Services, Parks and Recreation Facilities

Would the project:	Equal or Less Severity of Impact Previously Identified in the 2000 EIR	Substantial Increase in Severity of Previously Identified Significant Impact in the 2000 EIR	New Significant Impact
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services: • Fire protection; • Police protection; • Schools; or • Other public facilities.	☒	☐	☐
b. Increase the use of existing neighborhood or regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or Include recreational facilities or require the construction or expansion of recreational facilities which might have a substantial adverse physical effect on the environment.	☒	☐	☐

6.13.1 2000 EIR Findings

Public Services and Parks and Recreation (Criteria 6.13a and 6.13b)

The 2000 EIR determined that the Original Project impacts related to fire and police protection, schools, and other public facilities would be less than significant. As discussed for the Original Project, although development would increase density and population in the area, this growth has been anticipated and factored into Oakland's General Plan, as previously discussed (see *11. Population and Housing*). The development would occur in an urban area already served by public services and recreation facilities, and recent plan amendments and corresponding CEQA analyses have consistently determined that the anticipated growth would not impose a burden on existing public services to create a significant impact. The 2000 EIR discussed that compliance with standard City practices would further ensure the less-than significant impact. These included City practices and requirements, such as the Oakland Fire Services' review of the Project plans, and Project Applicants' required contribution amount to school impact fees to offset any impacts to school facilities from the Original Project.

City of Oakland SCAs now incorporate most of these standard practices and requirements to address potential public services and park and recreation facilities impacts. The 2015 Addendum concluded that implementation of City SCA would reduce potential impacts to public services, park, and recreation facilities to a less than significant level. Adherence to the General Plan's Open Space, Conservation and Recreation Element policies 3.1, 3.3, and 3.10 and General Plan policies N.12.1, N.12.2, N.12.5, FI-1, and FI-2 would further reduce less-than-significant impacts.

6.13.2 Project Analysis

The Project would add approximately 238,550 gross square feet of institutional use with an expected average weekday on-site population of approximately 934 people comprised of 564 students, 110 staff, and 260 faculty members. The Project would include a privately owned, publicly accessible open space along 12th Street connected to the main building entrance with a bridge over the City Center Garage ramp. The bridge and plaza would provide approximately 8,244 square feet of landscaped open space. Neither the development nor use of the plaza is expected to cause a significant impact, and any effects that could result are thoroughly addressed here and in other sections of this CEQA Checklist, with appropriate mitigation measures or SCAs identified. In addition, the building would provide three open terraces on levels 1, 6 and 10 for a total of approximately 4,352 square feet of additional private group open space serving students, staff, and faculty.

The SMU Project would comply with City of Oakland SCAs related to the increased need for fire protection by implementing required safety features, and complying with all applicable codes and regulations. The Project could cause a minor increase in demand for police and fire protection services; however, as described in the 2000 EIR, adherence to General Plan policies N.12.1, N.12.2, N.12.5, FI-1, and FI-2 would reduce the potential for deficiencies. SCA PUB-1 Capital Improvement Fee, requiring the payment of the appropriate development impact fees, would also apply to the Project and would further reduce potential impacts Overall, the Project would result in the same less-than-significant public services, parks and recreation impacts, as were identified in the 2000 EIR.

6.13.3 Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR, the Project would not result in any new or more severe significant impacts related to public services and parks and recreation than those identified in the 2000 EIR. The 2000 EIR did not identify any mitigation measures related to public services and parks and recreation, and none would be required for the Project. Nonetheless, the City's required **SCA PUB-1**, **Capital Improvements Impact Fee** (see Attachment A) applies the Project, and would further reduce less-than-significant effects. No mitigation measures are required.

6.14 Transportation and Circulation

Would the project:	Equal or Less Severity of Impact Previously Identified in the 2000 EIR	Substantial Increase in Severity of Previously Identified Significant Impact in the 2000 EIR	New Significant Impact
c. Conflict with a plan, ordinance, or policy addressing the safety or performance of the circulation system, including transit, roadways, bicycle lanes, and pedestrian paths (except for automobile level of service or other measures of vehicle delay)	☒	☐	☐
d. Cause substantial additional vehicle miles traveled (VMT) per capita, per service population, or other appropriate efficiency measure	☒	☐	☐
e. Substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow lanes) or by adding new roadways to the network.	☒	☐	☐

6.14.1 2000 EIR Findings

The 2000 EIR for the Original Project analyzed transportation and circulation conditions in and around the Project area. The analysis primarily focused on the impacts of the Original Project on intersection level of service (LOS). The 2000 EIR identified significant and unavoidable impacts at the Brush Street/12th Street/I-980 Westbound Off-Ramp intersection and the 12th Street/ Broadway intersections. The 2000 EIR identified mitigation measures at these two intersections to reduce the magnitude of the impacts; however, the mitigation measures would not reduce theses impacts to less-than-significant.

The 2015 Addendum, which analyzed the Modified T5/6 Project, confirmed that the impact at the Brush Street/12th Street/I-980 Westbound Off-Ramp intersection would remain significant and unavoidable. According to the 2015 Addendum, since the mitigation measure at the 12th Street/ Broadway intersection was implemented, the Modified T5/T6 Project did not cause a significant impact at this intersection. The 2015 Addendum also confirmed that the Modified T5/6 Project did not cause significant impacts at other intersections.

The 2000 EIR also identified significant but mitigable impacts on automobile parking, passenger wait times at BART gates, bicycle parking, and circulation during periods of construction. According to the 2015 Addendum, impacts on automobile parking, bicycle parking, and circulation during periods of construction, would not be considered significant due to Project adherence to City of Oakland's Standard Conditions of Approval (SCA). The mitigation measure regarding passenger wait times at BART gates was implemented as part of the 2016 T12 Addendum and is no longer applicable to the Project.

6.14.2 Project Analysis

Conflicts with Plans, Ordinances, or Policies Relating to Safety, or Performance of the Circulation System (Criterion a)

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 LOS or other measures of vehicle delay).

In accordance with SCA TRA-1, Construction Activity in the Public Right-of-Way, the Project would: (1) 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; (2) submit a Traffic Control Plan to the City for review and approval prior to obtaining an obstruction permit; and (3) repair any damage to the public right-of way, including streets and sidewalks, caused by project construction. SCA TRA-5, Transportation Impact Fee, would ensure compliance with the requirements of the City of Oakland Transportation Impact Fee Ordinance (chapter 15.74 of the Oakland Municipal Code).

The 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 high-density use with no increase in parking in a dense, walkable, mixed-use, urban environment that is well-served by local and regional transit.

The Project is consistent with both the City's 2017 Pedestrian Master Plan Update ("Oakland Walks!") and the 2019 Bicycle Master Plan ("Let's Bike Oakland") 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, such as the Class 4 protected bike lanes on 11th and 12th Streets proposed in the 2019 Bicycle Master Plan. In addition, SCA TRA-2, Bicycle Parking, would be applicable to the Project and would ensure that the Project complies with the City of Oakland Bicycle Parking Requirements (chapter 17.118 of the Oakland Planning Code).

The Project would also implement SCA TRA-3, Transportation Improvements, which would include the recommended on- and off-site transportation-related improvements contained in the Transportation Impact Review (TIR) for the Project (see Appendix B). These improvements would not only benefit the Project workers, students, and visitors, but also residents, workers, and visitors in the areas surrounding the Project site.

The off-site transportation improvements included in the Project TIR are consistent with the City's adopted plans, ordinances, and policies relating to safety and performance of the circulation system because they improve the pedestrian, bicycle, and transit environment in the Project vicinity.

Further, because the Project would generate more than 50 peak hour trips, the Project is required to prepare and implement a Transportation and Parking Demand Management (TDM) Plan to satisfy SCA TRA-4, Transportation and Parking Demand Management. The TDM Plan includes on-going operational strategies, as well as infrastructure improvements including the ones described above, that encourage the use of non-automobile travel modes (see Appendix C). The TDM Plan also includes annual monitoring requirements because the Project would generate more than 100 peak hour trips.

As described below, the Project is consistent with the 2000 EIR for the Original Project and the 2015 Addendum for the Modified T5/6 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.

Consistency with the 2000 EIR and 2015 Addendum

The 2000 EIR and the 2015 Addendum evaluated the impacts of different development options on the transportation system primarily using LOS per the City of Oakland Significance Criteria at the time. As described below and consistent with State requirements, the City has since updated its Significance Criteria to a VMT analysis and has eliminated LOS or other congestion-based metrics. As a result, an updated LOS analysis is not required for CEQA purposes. Nonetheless, for informational purposes only, a comparison of the Project's automobile trip generation to the Modified T5/6 is provided below.

The 2015 Addendum evaluated the impacts of three different development options at the site, a 300-room hotel (Option 1), a 262-unit residential building (Option 2), and a 205,800 square-foot office building (Option 3). The 2015 Addendum identified Option 3 as having the highest automobile trip generation. As described above, the 2015 Addendum did not identify any new significant impacts on transportation and circulation beyond the ones identified in the 2000 EIR.

Project Trip Generation

Trip generation is the process of estimating the number of vehicles that would likely access the Project on a typical day. The trip generation for the Project was based on the results of survey data collected at the current SMU site at the Alta Bates Summit Medical Center, population forecasts for the Project, and US Census data. Appendix B provides the detailed trip generation calculations and assumptions.

Table TRA-1 summarizes the estimated number of vehicles that would likely access the SMU Project on a typical weekday and during the weekday AM and PM peak hours. Table TRA-1 also compares the Project trip generation to the highest trip generating option (Option 3) for the Modified T5/6 Project, which was evaluated in the 2015 Addendum. As shown in Table TRA-1, the Project would generate fewer daily and AM and PM peak hour trips than Option 3. Thus, the Project would not result in additional impacts on traffic operations at the locations analyzed in the 2015 Addendum.

TABLE TRA-1
PROJECT TRIP GENERATION SUMMARY

Land Use	Daily	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Project[a]	970	186	1	187	3	137	140
Approved Project (205,800 square feet of office)[b]	1,295	171	23	194	30	146	176
Difference	***-325***	***+15***	***-22***	***-7***	***-27***	***-19***	***-36***

NOTES:

a. See Appendix E, Table 4 for detailed calculations.
b. Based on the *1100 Clay Street – Modified Block T5/6 Project City Center EIR CEQA Analysis* (May 2015), Table TRA-4.

SOURCE: Fehr & Peers, 2022.

Vehicle Miles Traveled (VMT) Assessment (Criterion b)

On September 21, 2016, the City of Oakland's Planning Commission directed staff to update the City of Oakland's California Environmental Quality Act (CEQA) Thresholds of Significance Guidelines related to transportation impacts in order to implement the direction from Senate Bill 743 (Steinberg 2013) to modify local environmental review processes by removing automobile delay, as described solely by LOS or similar measures of vehicular capacity or traffic congestion, as a significant impact on the environment pursuant to CEQA. The Planning Commission direction aligns with the guidance from the Governor's Office of Planning and Research (OPR) and the City's approach to transportation impact analysis, with adopted plans and policies related to transportation that promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diverse set 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* (TIRG) 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 automobile travel compared to development located in urban areas, where a higher density of development, a mix of land uses, and travel options other than private vehicles are available.

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, some neighborhoods of the City, such as Downtown Oakland, have lower VMT ratios than other areas of the City.

VMT Estimate

This analysis primarily uses the Metropolitan Transportation Commission (MTC) Travel Model to determine the impact of the project components on VMT. Oakland is geographically broken down into transportation analysis zones, or TAZs. The MTC Travel Model includes 116 TAZs within Oakland that vary in size from a few city blocks in the downtown core, to multiple blocks in outer neighborhoods, to even larger geographic areas in lower density areas in the hills. TAZs are used in transportation planning models for transportation analysis and other planning purposes.

The MTC Travel Model is a model that assigns all predicted trips within, across, or to or from the nine-county San Francisco Bay Area region onto the roadway network and the transit system, by mode (single-driver and carpool vehicle, biking, walking, or transit) and transit carrier (bus, rail) for a particular scenario.

The travel behavior from the 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 automobile ownership rates derived from the 2000 Bay Area Travel Survey; and
- Observed vehicle counts and transit boardings.

The daily VMT output from the MTC Travel Model for residential and office uses comes from a tour-based analysis. The tour-based analysis examines the entire chain of trips over the course of a day, not just trips to and from the project site. In this way, all of the VMT for an individual resident or employee is included; not just trips into and out of the person's home or workplace. For example: a resident leaves her apartment in the morning, stops for coffee, and then goes to the office. In the afternoon she heads out to lunch, and then returns to the office, with a stop at the drycleaners on the way. After work, she goes to the gym to work out, and then joins some friends at a restaurant for dinner before returning home. The tour-based approach would sum the total amount driven and assign the daily VMT to this resident for the total number of miles driven on the entire "tour".

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

Thresholds of Significance for VMT

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.

According to the TIRG, since SMU is a post-secondary institutional (non-student housing) use, it should be treated as office use for VMT screening and analysis.

Screening Criteria

VMT impacts would be less than significant for a project if any of the identified screening criteria 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 criterion by being located in an area that exhibits VMT below threshold, or at least 15% below the regional average.

3. Near Transit Stations: The project is located in a Transit Priority Area[22] or within a one-half mile of a Major Transit Corridor or Stop[23] 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 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).

VMT Impact Analysis Screening

The Project satisfies the Low-VMT Area (#2) and the Near Transit Stations (#3) screening criteria, as described below.

Criterion #1: Small Projects

As shown in Table TRA-1, the Project would generate more than 100 trips per day and therefore would not meet criterion #1.

Criterion #2: Low-VMT Area

Table TRA-2 describes the 2020 and 2040 VMT per worker for TAZ 969 in the MTC Model, the TAZ in which the Project is located, as well as the applicable VMT thresholds of 15-percent below the regional average. The 2020 and 2040 average daily VMT per worker in the Project TAZ is 15 percent or more below the regional averages. Thus, the Project meets criterion #2.

TABLE TRA-2
PROJECT DAILY VMT SCREENING SUMMARY

Metric	Total VMT per Worker (2020)[a]	Total VMT per Worker (2040)[a]
Project TAZ (MTC Model TAZ 969)	13.7	11.9
Regional Average	21.8	20.3
Regional Average minus 15% (i.e., screening criterion)	18.5	17.3
Meet Screening Criterion?	**Yes**	**Yes**

NOTE:

a. MTC model results, accessed in December 2021: https://mtc.maps.arcgis.com/apps/webappviewer/index.html?id=98463b4f73ca43c5944a5c30648fd689

SOURCE: Fehr & Peers, 2022.

[22] According to the California Public Resource Code, a Transit Priority Area is defined as a one-half mile area around an existing major transit stop or an existing stop along a high-quality transit corridor. Public Resources Code, § 21064.3 defines major transit stop as a site containing an existing 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 15 minutes or less during the morning and afternoon peak commute periods. Public Resources Code, § 21155 defines a high-quality transit corridor as a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

[23] 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.

Criterion #3: Near Transit Stations

The Project would be located about 0.1 miles from the 12th Street Oakland City Center BART Station, which is considered a major transit stop. The Project would satisfy Criterion #3 because it would meet all the following three conditions for this criterion:

- The Project has an FAR of 9.2, which is more than 0.75.
- The Project would not provide any parking spaces. According to the City of Oakland Municipal Code Section 17.116.070, the Project is not required to provide parking and no parking maximum applies to the site. Therefore, the Project would not provide more parking than the Project demands, nor would it provide more parking than allowed by the Municipal Code.
- The Project is located within the Downtown & Jack London Square Priority Development Area (PDA) as defined by Plan Bay Area, and is therefore consistent with the region's Sustainable Communities Strategy.

VMT Screening Conclusion

The Project would satisfy the Low-VMT Area criterion (#2) and the Near Transit Stations criterion (#3) and is therefore presumed to have a less–than-significant impact on VMT.

Induced Automobile Travel (Criteria c)

The Project would not modify the roadway network surrounding the Project area. Therefore, the Project 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.

6.14.3 Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR considered throughout this analysis, the Project would not result in any new or more severe significant impacts than those identified in the 2000 EIR, nor would it result in new significant impacts related to transportation and circulation that were not identified in the 2000 EIR. The Project would contribute trips to the significant impacts previously identified in the 2000 EIR. However, as noted above, the Project would generate fewer trips than the previously approved project at the site. Thus, the impacts of the Project are considered equal to, or less severe than, those previously identified and disclosed in the 2000 EIR. The Project's potential impacts related to pedestrian, bicycle, transit, emergency access, and design and incompatible use considerations would be less than significant and thus consistent with that identified in the 2000 EIR. The Project would not cause any significant impacts based on VMT, nor would it induce additional automobile travel. The Project would not result in any other transportation related significant impacts. Implementation of **SCA TRA-1, Construction Activity in the Public Right-of-Way; SCA TRA-2, Bicycle Parking**; **SCA TRA-3, Transportation Improvements**; **SCA TRA-4, Transportation and Parking Demand Management; and SCA TRA-5, Transportation Impact Fee**; would be applicable to the Project and would ensure that transportation and circulation-related impacts associated with the Project would be less than significant (see Attachment A). No mitigation measures would be required.

6.15 Utilities and Service Systems

Would the project:	Equal or Less Severity of Impact Previously Identified in the 2000 EIR	Substantial Increase in Severity of Previously Identified Significant Impact in the 2000 EIR	New Significant Impact
a. Exceed wastewater treatment requirements of the San Francisco Bay Regional Water Quality Control Board; Require or result in construction of new storm water drainage facilities or expansion of existing facilities, construction of which could cause significant environmental effects; Result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the providers' existing commitments and require or result in construction of new wastewater treatment facilities or expansion of existing facilities, construction of which could cause significant environmental effects;	☒	☐	☐
b. Exceed water supplies available to serve the project from existing entitlements and resources, and require or result in construction of water facilities or expansion of existing facilities, construction of which could cause significant environmental effects;	☒	☐	☐
c. Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs and require or result in construction of landfill facilities or expansion of existing facilities, construction of which could cause significant environmental effects; Violate applicable federal, state, and local statutes and regulations related to solid waste;	☒	☐	☐
d. Violate applicable federal, state and local statutes and regulations relating to energy standards; or Result in a determination by the energy provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the providers' existing commitments and require or result in construction of new energy facilities or expansion of existing facilities, construction of which could cause significant environmental effects.	☒	☐	☐

6.15.1 2000 EIR Findings

Water, Wastewater, and Stormwater (Criteria 6.15a and 6.15b)

The 2000 EIR determined that development of the Original Project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board; would not require or result in the construction of new water or wastewater treatment or storm water drainage facilities or expansion of existing facilities; would not result in a shortfall in water supply or wastewater treatment capacity.

Although the Approved Project would increase density and population in the area, this growth has been anticipated and factored into Oakland's General Plan LUTE (1998, as amended), its 2015-2023 Housing Element Update (2014), the Central District Urban Renewal Plan Amendment (2011), and each of the CEQA documents prepared and approved/certified for each of these policy documents. Therefore, the Approved Project had been accounted for in the water demand projections associated with development of the Original Project analyzed in the 2000 EIR. Further, the development would occur in an urban area already served by public service utilities and infrastructure.

Solid Waste Services (Criterion 6.15c)

As described in the 2000 EIR, impacts associated with solid waste would be less than significant; development of the Original Project would not overburden landfill(s); and would comply with federal, state, and local statutes related to solid waste. Nonhazardous solid waste from the Project site would be ultimately hauled to the Altamont Landfill and Resource Facility. The Altamont Landfill would have sufficient capacity to accept waste generated by the Original Project, as determined in the 2000 EIR. In addition, the Approved Project would comply with a City of Oakland SCA pertaining to waste reduction and recycling and thereby reduce waste through compliance with the City of Oakland's Recycling Space Allocation Ordinance (Oakland Municipal Code, Chapter 17.118). The impact regarding solid waste services would remain less than significant for the Modified T5/6 as identified for the Original Project in the 2000 EIR.

Energy (Criterion 6.15d)

As reported in the 2000 EIR, development of the Original Project would result in less-than-significant impacts related to energy standards and use. The Modified T5/6 Project would comply with the standards of Title 24 of the California Code of Regulations and City SCAs pertaining to compliance with the green building ordinance that would require construction projects to incorporate energy-conserving design measures. The Modified T5/6 Project would result in the same less-than-significant impacts as identified in the 2000 EIR.

6.15.2 Project Analysis

No changes with respect to the environmental issues listed above have occurred. As noted above, the Project is anticipated to result in an average weekday on-site population of approximately 934 people comprised of 564 students, 110 staff, and 260 faculty. All on-site utilities would be designed in accordance with applicable codes and current engineering practices including SCA UTIL-1, Construction and Demolition Waste Reduction and Recycling; SCA UTIL-2, Underground Utilities; SCA UTIL-3, Recycling Collection and Storage Space; SCA UTIL-4, Green Building Requirements; SCA UTIL-5, Sanitary Sewer System; SCA UTIL-6, Storm Drain System; SCA UTIL-7, Water Efficient Landscape Ordinance (WELO); SCA HYD-1, Erosion and Sedimentation Control Plan for Construction; and SCA HYD-2, NPDES C.3 Stormwater Requirements for Regulated Projects. The Project would pay a sewer mitigation fee, which would either contribute to the cost of replacing pipes for the local collection system to increase capacity or be used to perform inflow and infiltration rehabilitation projects elsewhere in the City.

Implementation of SCA AIR-2 would reduce the wasteful, inefficient, or unnecessary consumption of fuel during Project construction by requiring limiting idling from some diesel-fueled off-road vehicles and portable equipment to be powered by grid electricity if available (see Section 6.3, *Air Quality*). The Project would constitute higher density transit-oriented development by locating a university in immediate proximity to major transit options which would reduce the need for vehicle use and associated fuel, and would reduce the wasteful, inefficient, or unnecessary consumption of fuel during Project operation. Additionally, SCA TRA-2, Bicycle Parking would further reduce the need for vehicle use and associated fuel (see Section 6.14, *Transportation and Circulation*).

These SCAs would reduce potential impacts to utilities and service systems and the Project would not result in new significant impacts regarding the provision of or need for new or substantially expanded utilities and service systems, the construction of which could cause significant environmental effects. The impact of Project regarding water, wastewater, stormwater, solid waste, and energy would remain less than significant as identified in the 2000 EIR.

6.15.3 Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR, implementation of the Project would not substantially increase the severity of significant impacts identified in the 2000 EIR, nor would it result in new significant impacts related to utilities and service systems that were not identified in the 2000 EIR. The 2000 EIR did not identify any mitigation measures related to utilities and service systems, and none would be required for the Project. Implementation of **SCA UTIL-1**, **Construction and Demolition Waste Reduction and Recycling**; **SCA UTIL-2**, **Underground Utilities**; **SCA UTIL-3**, **Recycling Collection and Storage Space**; **SCA UTIL-4**, **Green Building Requirements**; **SCA UTIL-5**, **Sanitary Sewer System**; **SCA UTIL-6**, **Storm Drain System**; **SCA UTIL-7**, **Water Efficient Landscape Ordinance (WELO)**; **SCA HYD-1**, **Erosion and Sedimentation Control Plan for Construction**; **SCA HYD-2**, **NPDES C.3 Stormwater Requirements for Regulated Projects**; **SCA AIR-2, Criteria Air Pollutant Controls – Construction Related**; and **SCA TRA-2**, **Bicycle Parking** (see Attachment A), as well as compliance with Title 24 and CALGreen requirements, would ensure that impacts to water supply, sewer capacity, stormwater drainage facilities, solid waste services, and energy would be less than significant.

7. References

(All references cited below are available at the Oakland Bureau of Planning, Agency, 250 Frank Ogawa Plaza, Suite 3330, Oakland, California, unless specified otherwise.)

7.1 Oakland City Center Project

City of Oakland, Draft EIR, 2014. Oakland City Center Project Draft Environmental Impact Report, January 31, 2000.

City of Oakland, Oakland City Center Project Final Environmental Impact Report, April 14, 2000.

City of Oakland, Oakland City Center Project Final Environmental Impact Report, Addendum #1, October 13, 2003.

City of Oakland, Oakland City Center Project Final Environmental Impact Report, Addendum #2, June 9, 2005.

City of Oakland, Oakland City Center Project Final Environmental Impact Report, Addendum #3, November 27, 2007.

City of Oakland, Oakland City Center Project Final Environmental Impact Report, Addendum #4, July 27, 2010.

City of Oakland, Oakland City Center Project Final Environmental Impact Report, Addendum #5, May 29, 2015.

7.2 Oakland Planning Code

City of Oakland, 2020. City of Oakland Planning Code. CEDA https://cao-94612.s3.amazonaws.com/documents/Planning-Code-after-7-28-20-RV-Parking_Living-Amendments.pdf, accessed January, 2022.

Attachments

A. Standard Conditions of Approval and Mitigation Monitoring and Reporting Program
B. Criteria for Use of Addendum, pursuant to CEQA Guidelines Section 15164
C. Project Consistency with Community Plan or Zoning, per CEQA Guidelines Section 15183
D. Criteria for Use of Other Applicable Previous CEQA Documents, per CEQA Guidelines Section 15168

Appendices

A. ECAP Consistency Review Checklist
B. Non-CEQA Transportation Analysis/Transportation Tables
C. Transportation and Parking Demand Management Plan

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ATTACHMENT A

Standard Conditions of Approval and Mitigation Monitoring and Reporting Program

This Standard Conditions of Approval and Mitigation Monitoring and Reporting Program (SCAMMRP) is based on the CEQA Checklist prepared for the Samuel Merritt University Project (SMU Project or Project).

This SCAMMRP is in compliance with Section 15097 of the CEQA Guidelines, which requires that the Lead Agency "adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects." The SCAMMRP lists mitigation measures and SCAs from the 2000 EIR and its addenda that apply to the Project. The SCAMMRP also lists other SCAs that apply to the Project that have been updated or otherwise modified by the City since publication of the 2000 EIR and its addenda. Specifically, on December 16, 2020, the City of Oakland released a revised set of all City of Oakland SCAs, which largely still include SCAs adopted by the City in 2008, along with supplemental, modified, and new SCAs.

SCAs are measures that would minimize potential adverse effects that could result from implementation of the Project, to ensure the conditions are implemented and monitored. None of the 2020 revised set of the City of Oakland SCAs diminish or negate the ability of the SCAs that are considered "environmental protection measures" to minimize potential adverse environmental effects. As such, the SCAs identified in the SCAMMRP reflect the most recent SCAs only. Although the SCA numbers listed below may not correspond to the SCA numbers in the 2000 EIR addenda, all of the environmental topics and potential effects addressed by the SCAs in the 2000 EIR are included in this SCAMMRP (as applicable to the Project). This SCAMMRP also identifies the mitigation monitoring requirements for each mitigation measure and SCA.

To the extent that there is any inconsistency between any mitigation measures and/or SCAs, the more restrictive conditions shall govern; to the extent any mitigation measure and/or SCA identified in the CEQA Checklist were inadvertently omitted, they are automatically incorporated herein by reference.

- The first column of the SCAMMRP table identifies the mitigation measure or SCA applicable to that topic in the CEQA Checklist. While a mitigation measure or SCA can apply to more than one topic, it is listed in its entirety only under its primary topic (as indicated in the mitigation or SCA designator). The SCAs are numbered to specifically apply to the Project and this CEQA Checklist; however, the SCAs as presented in the City's *Standard Conditions*

of Approval and Uniformly Applied Development Standards document are included in parenthesis for cross-reference purposes.[24]

- 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.

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

[24] Dated December 16, 2020 as amended.

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
General		
SCA GEN-1 (Standard Condition Approval 15) *Regulatory Permits and Authorizations from Other Agencies* Requirement: The project applicant shall obtain all necessary regulatory permits and authorizations from applicable resource/regulatory agencies including, but not limited to, the Regional Water Quality Control Board, Bay Area Air Quality Management District, Bay Conservation and Development Commission, California Department of Fish and Wildlife, U. S. Fish and Wildlife Service, and Army Corps of Engineers and shall comply with all requirements and conditions of the permits/authorizations. The project applicant shall submit evidence of the approved permits/authorizations to the City, along with evidence demonstrating compliance with any regulatory permit/authorization conditions of approval.	Prior to activity requiring permit/ authorization from regulatory agency.	City of Oakland Bureau of Planning and applicable regulatory agency with jurisdiction
Aesthetics, Shadow, and Wind		
Mitigation Measure AES-F.2: (amended per Addendum #5) The City shall require the project sponsors ~~Shorenstein~~ Strada T5, LLC or its successor), as applicable) to incorporate, to the maximum extent feasible, specific design elements in the final siting and designs for the high rises that would reduce ground-level winds within the Downtown Showcase District. Recommended modifications to the building masses as tested [i.e., 425-foot towers tested for the 1997 General Plan Land Use and Transportation Element EIR] to reduce winds would include some of the design features already included in the project, such as: • placing the buildings back from the sidewalk, which would likely reduce winds at the sidewalk itself; • the introduction of curved facades, which could reduce the tendency of the project structures to intercept upper-level winds and direct them down to ground level; and • placing the tower atop a lower podium level, which would serve to interrupt winds traveling down the tower before they reach ground level. In addition, the use of facade articulation, to break up winds along the building face, and horizontally projecting wind screens, to disturb the downward flow of wind, could further serve to reduce ground-level winds.	Prior to issuance of a building permit.	City of Oakland Bureau of Building and City of Oakland Bureau of Planning
SCA AES-1 (Standard Condition of Approval 16) *Trash and Blight Removal* 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.	City of Oakland Bureau of Building
SCA AES-2 (Standard Condition of Approval 17) *Graffiti Control* 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.	Ongoing.	City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Aesthetics, Shadow, and Wind (cont.)		
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).		
SCA AES-3 (Standard Condition of Approval 18) *Landscape Plan* ***a. Landscape Plan Required*** The project applicant shall submit a final Landscape Plan for City review and approval that is consistent with the approved Landscape Plan. The Landscape Plan shall be included with the set of drawings submitted for the construction-related permit and shall comply with the landscape requirements of chapter 17.124 of the Planning Code. Proposed plants shall be predominantly drought-tolerant. Specification of any street trees shall comply with the Master Street Tree List and Tree Planting Guidelines (which can be viewed at http://www2.oaklandnet.com/oakca1/groups/pwa/documents/report/oak042662.pdf and http://www2.oaklandnet.com/oakca1/groups/pwa/documents/form/oak025595.pdf, respectively), and with any applicable streetscape plan. ***b. Landscape Installation*** The project applicant shall implement the approved Landscape Plan unless a bond, cash deposit, letter of credit, or other equivalent instrument acceptable to the Director of City Planning, is provided. The financial instrument shall equal the greater of $2,500 or the estimated cost of implementing the Landscape Plan based on a licensed contractor's bid. ***c. Landscape Maintenance*** All required planting shall be permanently maintained in good growing condition and, whenever necessary, replaced with new plant materials to ensure continued compliance with applicable landscaping requirements. The property owner shall be responsible for maintaining planting in adjacent public rights-of-way. All required fences, walls, and irrigation systems shall be permanently maintained in good condition and, whenever necessary, repaired or replaced.	a. Prior to approval of construction-related permit. b. Prior to building permit final. c. Ongoing	a. City of Oakland Bureau of Planning b. City of Oakland Bureau of Building c. City of Oakland Bureau of Building
SCA AES-4 (Standard Condition of Approval 19): *Lighting* 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.	City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Aesthetics, Shadow, and Wind (cont.)		
SCA AES-5 (Standard Condition of Approval 93): *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.	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.	City of Oakland Bureau of Planning and Bureau of Building
See **SCA UTIL-2**, **Underground Utilities.** See *Utilities and Service Systems,* below.		
Air Quality		
SCA AIR-1 (Standard Condition of Approval 20) *Dust Controls – Construction-Related* 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.	During construction.	City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Air Quality (cont.)		
SCA AIR-2 (Standard Condition of Approval 21) *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 use 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 and subject to 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, the project applicant shall provide written documentation that fleet requirements have been met.	During construction.	City of Oakland Bureau of Building
SCA AIR-3 (Standard Condition of Approval 22) *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 -	a. Prior to issuance of a construction related permit (i), during construction (ii). b. Prior to issuance of a construction related permit.	a. City of Oakland Bureau of Planning and Bureau of Building. b. City of Oakland Bureau of Planning and Bureau of Building.

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Air Quality (cont.)		
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)*** 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.		
SCA AIR-4 (Standard Condition of Approval 24) *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. The approved risk reduction measures shall be implemented during construction and/or operations as applicable. - 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.	Prior to approval of construction-related permit	City of Oakland Bureau of Planning and Bureau of Building.

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Biological Resources		
SCA BIO-1 (Standard Condition of Approval 30) *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. ***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.	a. Prior to approval of construction-related permit b. During construction c. Prior to building permit final	a. City of Oakland Public Works Department, Tree Division and Bureau of Building. b. City of Oakland Public Works Department, Tree Division c. City of Oakland Public Works Department, Tree Division and Bureau of Building.

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Biological Resources (cont.)		
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.		
SCA BIO-2 (Standard Condition of Approval 29) *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.	Prior to removal of trees	City of Oakland Bureau of Planning and Bureau of Building.

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Biological Resources (cont.)		
See **SCA HYD-1, Erosion and Sedimentation Control Plan for Construction**. See *Hydrology and Water Quality*, below.		
See **SCA HYD-2, NPDES C.3 Stormwater Requirements for Regulated Projects**. See *Hydrology and Water Quality*, below.		
See **SCA UTIL-7, Water Efficient Landscape Ordinance (WELO)**. See *Utilities and Service Systems*, below.		
Cultural Resources		
SCA CUL-1 (Standard Condition of Approval 32): *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.	During construction.	City of Oakland Bureau of Building
SCA CUL-2 (Standard Condition of Approval 33): *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:	Prior to approval of construction-related permit; During construction	City of Oakland Bureau of Planning and Bureau of Building.

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Cultural Resources (cont.)		
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.		
SCA CUL-3 (Standard Condition of Approval SCA 34): *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.	During construction.	City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Geology, Soils, and Geohazards		
SCA GEO-1 (Standard Condition of Approval 36): *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.	Prior to approval of construction-related permit.	City of Oakland Bureau of Building
SCA GEO-2 (Standard Condition of Approval 37): *Soils Report* Requirement: 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.	City of Oakland Bureau of Building
See **SCA HYD-1, Erosion and Sedimentation Control Plan for Construction**. See *Hydrology and Water Quality*, below.		
Greenhouse Gases and Climate Change		
SCA GHG-1 (Standard Condition of Approval 41): *Project Compliance with the Equitable Climate Action Plan (ECAP) Consistency Checklist* Requirement: The project applicant shall implement all the measures in the Equitable Climate Action Plan (ECAP) Consistency Checklist that was submitted during the Planning entitlement phase. a. For physical ECAP Consistency Checklist measures to be incorporated into the design of the project, the measures shall be included on the drawings submitted for construction-related permits. b. For physical ECAP Consistency Checklist measures to be incorporated into the design of the project, the measures shall be implemented during construction. c. For ECAP Consistency Checklist measures that are operational but not otherwise covered by these SCAs, including but not limited to the requirement for transit passes or additional Transportation Demand Management measures, the applicant shall provide notice of these measures to employees and/or residents and post these requirements in a public place such as a lobby or work area accessible to the employees and/or residents.	a. Prior to approval of construction-related permit b. During construction c. Ongoing	a. City of Oakland Bureau of Planning b. City of Oakland Bureau of Planning and Bureau of Building c. City of Oakland Bureau of Planning
See **SCA AES-3, Landscape Plan**. See *Aesthetics, Wind, and Shadow*, above.		
See **SCA AIR-2, Criteria Air Pollutant Controls - Construction Related**. See *Air Quality*, above.		
See **SCA AIR-3, Diesel Particulate Matter Controls - Construction Related**. See *Air Quality*, above.		
See **SCA TRA-2, Bicycle Parking**. See *Transportation and Circulation*, below.		
See **SCA TRA-4, Transportation and Parking Demand Management**. See *Transportation and Circulation*, below.		
See **SCA UTIL-1, Construction and Demolition Waste Reduction and Recycling**. See *Utilities and Service Systems*, below.		
See **SCA UTIL-4**, **Green Building Requirements.** See *Utilities and Service Systems*, below.		
See **SCA UTIL-7**, **Water Efficient Landsacpe Ordinance (WELO).** See *Utilities and Service Systems*, below.		

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Hazards and Hazardous Materials		
SCA HAZ-1 (Standard Condition of Approval 43): *Hazards 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.	During construction.	City of Oakland Bureau of Building
SCA HAZ-2 (Standard Condition of Approval 44): ***Hazardous Building Materials and Site Contamination*** ***a. Hazardous Building Materials and Site Contamination*** 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. ***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.	a. Prior to approval of demolition, grading, or building permits b. Prior to approval of construction-related permit c. Prior to approval of construction-related permit d. During Construction	a. City of Oakland Bureau of Building b. Applicable regulatory agency with jurisdiction c. City of Oakland Bureau of Building d. City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Hazards and Hazardous Materials (cont.)		
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. ***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.		
See **SCA HYD-1, Erosion and Sedimentation Control Plan for Construction.** See *Hydrology and Water Quality, below.*		
See **SCA TRA-1, Construction Activity in the Public Right-of-Way**. See *Transportation and Traffic*, below.		
Hydrology and Water Quality		
SCA HYD-1 (Standard Condition of Approval 49): *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. ***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.	a. Prior to approval of construction-related permit. b. During construction.	City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Hydrology and Water Quality (cont.)		
SCA HYD-2 (Standard Condition of Approval 54): *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. ***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.	a. Prior to approval of construction-related permit. b. Prior to building permit final.	a. City of Oakland Bureau of Building b. City of Oakland Bureau of Building
See **SCA GEO-1, Construction-Related Permit(s).** See *Geology, Soils, and Geohazards*, above.		
See **SCA UTIL-6, Storm Drain System**. See *Utilities and Service Systems*, below.		

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Noise		
SCA NOI-1 (Standard Condition of Approval 62) *Construction Days/Hours* Requirement: The project applicant shall comply with the following restrictions concerning construction days and hours: a. Construction activities are limited to between 7:00 a.m. and 7:00 p.m. Monday through Friday, except that pier drilling and/or other extreme noise generating activities greater than 90 dBA shall be limited to between 8:00 a.m. and 4:00 p.m. b. Construction activities are limited to between 9:00 a.m. and 5:00 p.m. on Saturday. In residential zones and within 300 feet of a residential zone, construction activities are allowed from 9:00 a.m. to 5:00 p.m. only within the interior of the building with the doors and windows closed. No pier drilling or other extreme noise generating activities greater than 90 dBA are allowed on Saturday. c. No construction is allowed on Sunday or federal holidays. 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.	During construction.	City of Oakland Bureau of Building
SCA NOI-2: (Standard Condition of Approval 63) *Construction Noise* Requirement: The project applicant shall implement noise reduction measures to reduce noise impacts due to construction. Noise reduction measures include, but are not limited to, the following**:** a. Equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds) wherever feasible. b. Except as provided herein, impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used, if such jackets are commercially available, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures. c. Applicant shall use temporary power poles instead of generators where feasible. d. Stationary noise sources shall be located as far from adjacent properties as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or use other measures as determined by the City to provide equivalent noise reduction. e. The noisiest phases of construction shall be limited to less than 10 days at a time. Exceptions may be allowed if the City determines an extension is necessary and all available noise reduction controls are implemented.	During construction.	City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Noise (cont.)		
SCA NOI-3 (Standard Condition of Approval 64) *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. ***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.\	a. Prior to approval of construction-related permit. b. During construction.	City of Oakland Bureau of Building
SCA NOI-4 (Standard Condition of Approval 66) *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.	Prior to approval of construction-related permit.	City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Noise (cont.)		
SCA NOI-5 (Standard Condition of Approval 68) *Operational Noise* Requirement: Noise levels from the project site after completion of the project (i.e., during project operation) shall comply with the performance standards of chapter 17.120 of the Oakland Planning Code and chapter 8.18 of the Oakland Municipal Code. If noise levels exceed these standards, the activity causing the noise shall be abated until appropriate noise reduction measures have been installed and compliance verified by the City.	Ongoing.	City of Oakland Bureau of Building
Public Services, Parks, and Recreation Facilities		
SCA PUB-1 (Standard Condition of Approval 73) *Capital Improvements Impact Fee* Requirement: 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	City of Oakland Bureau of Building
Transportation and Circulation		
SCA TRA-1 (Standard Condition of Approval 75) *Construction Activity in the Public Right-of-Way* ***a. Obstruction Permit Required*** Requirement: The project applicant shall obtain an obstruction permit from the City prior to placing any temporary construction-related obstruction in the public right-of-way, including City streets, sidewalks, bicycle facilities, and bus stops. ***b. 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. ***c. Repair of City Streets*** Requirement: The project applicant shall repair any damage to the public right-of way, including streets and sidewalks caused by project construction at his/her expense within one week of the occurrence of the damage (or excessive wear), unless further damage/excessive wear may continue; in such case, repair shall occur prior to approval of the final inspection of the construction-related permit. All damage that is a threat to public health or safety shall be repaired immediately.	a. Prior to approval of construction-related permit. b. Prior to approval of construction-related permit. c. Prior to building permit final.	City of Oakland Department of Transportation
SCA TRA-2 (Standard Condition of Approval 76) *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.	Prior to approval of construction-related permit.	City of Oakland Bureau of Planning and Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Transportation and Circulation (cont.)		
SCA TRA-3 (Standard Condition of Approval 77): *Transportation Improvements.* The project applicant shall implement the recommended on- and off-site transportation-related improvements contained within the Transportation Impact Review for the project (e.g., signal timing adjustments, restriping, signalization, traffic control devices, roadway reconfigurations, transportation demand management measures, and transit, pedestrian, and bicyclist amenities). The project applicant is responsible for funding and installing the improvements, and shall obtain all necessary permits and approvals from the City and/or other applicable regulatory agencies such as, but not limited to, Caltrans (for improvements related to Caltrans facilities) and the California Public Utilities Commission (for improvements related to railroad crossings), prior to installing the improvements. To implement this measure for intersection modifications, the project applicant shall submit Plans, Specifications, and Estimates (PS&E) to the City for review and approval. All elements shall be designed to applicable City standards in effect at the time of construction and all new or upgraded signals shall include these enhancements as required by the City. All other facilities supporting vehicle travel and alternative modes through the intersection shall be brought up to both City standards and ADA standards (according to Federal and State Access Board guidelines) at the time of construction. Current City Standards call for, among other items, the elements listed below: a. 2070L Type Controller with cabinet accessory b. GPS communication (clock) c. Accessible pedestrian crosswalks according to Federal and State Access Board guidelines with signals (audible and tactile) d. Countdown pedestrian head module switch out e. City Standard ADA wheelchair ramps f. Video detection on existing (or new, if required) g. Mast arm poles, full activation (where applicable) h. Polara Push buttons (full activation) i. Bicycle detection (full activation) 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)	Prior to building permit final or as otherwise specified	City of Oakland Bureau of Building and City of Oakland Department of Transportation

<table>
<tr><th rowspan="2">Standard Conditions of Approval/Mitigation Measures</th><th colspan="2">Mitigation Implementation/Monitoring</th></tr>
<tr><th>Schedule</th><th>Responsibility</th></tr>
<tr><td colspan="3">Transportation and Circulation (cont.)</td></tr>
<tr><td>SCA TRA-4 (Standard Condition of Approval 78) Transportation and Parking Demand Management

a. Transportation and Parking Demand Management (TDM) Plan Required

<u>Requirement</u>: The project applicant shall submit a Transportation and Parking Demand Management (TDM) Plan for review and approval by the City.

i. The goals of the TDM Plan shall be the following:
• Reduce vehicle traffic and parking demand generated by the project to the maximum extent practicable.
• 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

<table>
<tr><th>Improvement</th><th>Required by code or when…</th></tr>
<tr><td>Bus boarding bulbs or islands</td><td>• A bus boarding bulb or island does not already exist and a bus stop is located along the project frontage; and/or
• A bus stop along the project frontage serves a route with 15 minutes or better peak hour service and has a shared bus-bike lane curb</td></tr>
<tr><td>Bus shelter</td><td>• A stop with no shelter is located within the project frontage, or
• The project is located within 0.10 miles of a flag stop with 25 or more boardings per day</td></tr>
</table>
</td><td>a. Prior to approval of planning application.
b. Prior to building permit final
c. Ongoing</td><td>a. City of Oakland Bureau of Planning
b. City of Oakland Bureau of Building
c. City of Oakland Department of Transportation</td></tr>
</table>

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Transportation and Circulation (cont.)		

Improvement	Required by code or when…
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
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[25]	• 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[26]	• 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)

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

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

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	Responsibility
Transportation and Circulation (cont.)		

Improvement	Required by code or when…
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[27]	• 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[28]	• Project size exceeds 100 residential units, 80,000 sf. of retail, or 100,000 sf. of commercial; and • Project frontage abuts an intersection with signal infrastructure older than 15 years
Transit queue jumps	• Identified as a needed improvement within operations analysis of a project with frontage along a Tier 1 transit route with 2 or more routes or peak period frequency of 15 minutes or better
Trenching and placement of conduit for providing traffic signal interconnect	• Project size exceeds 100 units, 80,000 sf. of retail, or 100,000 sf. of commercial; and • Project frontage block is identified for signal interconnect improvements as part of a planned ITS improvement; and • A major transit improvement is identified within operations analysis requiring traffic signal interconnect
Unbundled parking	• If proposed parking ratio exceeds 1:1.25 (residential)

27 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.

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

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Transportation and Circulation (cont.)		
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, 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.		

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Transportation and Circulation (cont.)		
• 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. ***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. ***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. **NOTE: This measure has been implemented by the project applicant and no further action is required.**		
SCA TRA-5 (Standard Condition of Approval 79) *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).	Prior to issuance of building permit	City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Utilities and Service Systems		
SCA UTIL-1 (Standard Condition of Approval 82) *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.	Prior to approval of construction-related permit	City of Oakland Public Works Department, Environmental Services Division
SCA UTIL-2 (Standard Condition of Approval 83) *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.	During construction	City of Oakland Bureau of Building
SCA UTIL-3 (Standard Condition of Approval 84) *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 cubic feet of storage and collection space per residential unit is required, with a minimum of ten cubic feet. For nonresidential projects, at least two cubic feet of storage and collection space per 1,000 square feet of building floor area is required, with a minimum of ten cubic feet.	Prior to approval of construction-related permit.	City of Oakland Bureau of Planning and Bureau of Building
SCA UTIL-4 (Standard Condition of Approval 85) *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.	a. Prior to approval of construction-related permit. b. During construction. c. Prior to Final Approval.	a. City of Oakland Bureau of Building b. City of Oakland Bureau of Building c. City of Oakland Bureau of Planning and Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Utilities and Service Systems (cont.)		
• 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. • Compliance with the appropriate and applicable 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*** 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. ***c. Compliance with Green Building Requirements After Construction*** Requirement: Prior to the finalizing the Building Permit, the Green Building Certifier shall submit the appropriate documentation to City staff and attain the minimum required point level.		
SCA UTIL-5 (Standard Condition of Approval 87) *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.	Prior to approval of construction-related permit.	City of Oakland Public Works Department, Department of Engineering and Construction

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Utilities and Service Systems (cont.)		
SCA UTIL-6 (Standard Condition of Approval 88) *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.	Prior to approval of construction-related permit.	City of Oakland Bureau of Building
SCA UTIL-7 (Standard Condition of Approval 90) *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	Prior to approval of construction-related permit.	City of Oakland Bureau of Planning

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/Monitoring	
	Schedule	**Responsibility**
Utilities and Service Systems (cont.)		
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. Effective May 1, 2018 Page 77 http://www.water.ca.gov/wateruseefficiency/landscapeordinance/docs/Title%2023%20extract%20-%20Official%20CCR%20pages.pdf		
See **SCA AIR-2, Criteria Air Pollutant Controls - Construction Related**. See *Air Quality*, above		
See **SCA HYD-1, Erosion and Sedimentation Control Plan for Construction**. See *Hydrology and Water Quality*, above.		
See **SCA HYD-2 NPDES C.3 Stormwater Requirements for Regulated Projects.** See *Hydrology and Water Quality*, above.		
See **SCA TRA-2, Bicycle Parking**. See *Transportation and Circulation*, above.		

ATTACHMENT B

Criteria for Use of Addendum, pursuant to CEQA Guidelines Section 15164

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

As discussed in detail in Section 6 of this CEQA Analysis document, the analysis in the 2000 EIR and its addenda is considered for this assessment under Section 15164.

Project Modifications

The 2000 City Center Project EIR evaluated the potential significant environmental impacts that could result from development of a Preliminary PUD program of approximately 2.2 million square feet of office space, 200 residential units, 23,000 square feet of ground-floor commercial space, and 836 off-street parking spaces in high-rise buildings on the four city blocks: Blocks T5/6, T9, T10 and T12. Building heights would range between 20 stories (about 300 feet) and 31 stories (about 440 feet). Although the Original Project would be phased (with some blocks constructed at a later date), because the overall development program included the development of four structures, the 2000 EIR analyzed the physical effects related to the entire program.

Six addenda to the 2000 EIR were completed to consider modifications to the Original Project: Addendum #1 for Block T10 (2003); Addenda #2 through #4 for Block T12 (2005, 2007 and 2010), and Addendum #5 for Blocks T5/6 (2015). The 2003 Addendum #1 evaluated a Modified Block T10 project with increased the residential units and decreased office square footage. The 2005 Addendum #2 considered an increased number of residential units for Block T12. The 2007 Addendum #3 and 2010 Addendum #4 were completed to address the reversion of the Modified Block T12 project of Addendum #2 to office use. The 2015 Addendum #5 evaluated the impacts of a modified development proposal for Block T5/6 comprised of Phase 1 on Site A and three options for Phase 2 on Site B. The three development options evaluated for Site B included a 300-room hotel (Option 1), a 262-unit residential building (Option 2), and a 205,800 square-foot office building (Option 3). Each of the addenda determined that no further review was required, in terms of a subsequent or supplemental EIR, pursuant to CEQA Guidelines Sections 15162 and

15164 (Subsequent EIRs, Supplements and Addenda to an EIR or Negative Declaration). The approved modified project through Addendum #5 is referred to as the Approved Project.

The Samuel Merritt University Project (SMU Project) would instead develop a new academic and administrative office building on Block T5/6 Site B. The SMU Project would develop an approximately 238,550 gross square foot, 10-story, approximately 201-foot-tall building (206 feet to the top of the penthouse) over a single below grade level. The building would be designed to accommodate SMU's anticipated average weekday on-site population of approximately 934 people with a mix of small and large classrooms, teaching labs, research labs, simulation space, and student clinic space.[29] In addition, the building would include administrative workspaces to accommodate faculty and staff, a library, and common areas. The SMU Project would entail minor revisions to the Approved Project analyzed by the 2000 EIR and subsequent addenda, providing the basis for use of an Addendum.

Conditions for Addendum

As demonstrated in the CEQA Checklist in Section 6 of this document, none of the following conditions for preparation of a subsequent EIR per Sections 15162(a) apply to the Project:

(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

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

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:

   (A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;

   (B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

   (C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the

[29] The SMU Project would offer some programs online, some faculty would teach multiple classes a day or teach remotely, and some faulty would only teach off campus at various clinical sites. Therefore, the expected average weekday on-site population includes approximately 934 people comprised of 564 students, 110 staff, and 260 faculty (see Section 6.12, *Population and Housing)*.

environment, but the project proponents decline to adopt the mitigation measure or alternative.

Project Consistency with Section 15162 of the CEQA Guidelines

Since certification of the 2000 EIR, no changes have occurred in the circumstances under which the Project would be implemented that would change the severity of the Project's physical impacts, as explained in the CEQA Checklist in Section 6 of this document. No new information has emerged that would substantially change the analyses or conclusions set forth in the 2000 EIR.

Furthermore, as demonstrated in the CEQA Checklist, the Project would not result in any new significant environmental impacts, result in any substantial increases in the significance of previously identified effects, or necessitate implementation of additional or considerably different mitigation measures than those identified in 2000 EIR, nor render any mitigation measures or alternatives found not to be feasible, feasible. The effects of the Project would be substantially the same as those reported in the 2000 EIR. No major revisions to the 2000 EIR are required.

The analysis presented in this CEQA Checklist, combined with the analysis in the 2000 EIR and its addenda, demonstrates that the Project would not result in significant impacts that were not previously identified in the 2000 EIR. The Project would not result in a substantial increase in the significance of impacts, nor would the Project contribute considerably to cumulative effects that were not already accounted for in the certified 2000 EIR. Overall, the Project's impacts are similar to those identified and discussed in the 2000 EIR, as described in the CEQA Checklist, and the findings reached in the 2000 EIR are applicable.

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ATTACHMENT C

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

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

Further, Section 15183 states,

(1) In approving a project meeting the requirements of this section, a public agency shall limit its examination of environmental effects to those which the agency determines, in an initial study or other analysis:

   (1) Are peculiar to the project or the parcel on which the project would be located,

   (2) Were not analyzed as significant effects in a prior EIR on the zoning action, general plan or community plan with which the project is consistent,

   (3) Are potentially significant off-site impacts and cumulative impacts which were not discussed in the prior EIR prepared for the general plan, community plan or zoning action, or

   (4) Are previously identified significant effects which, as a result of substantial new information which was not known at the time the EIR was certified, are determined to have a more severe adverse impact than discussed in the prior EIR.

(2) If an impact is not peculiar to the parcel or to the project, has been addressed as a significant effect in the prior EIR, or can be substantially mitigated by the imposition of uniformly applied development policies or standards, as contemplated by subdivision (e) below, then an additional EIR need not be prepared for the project solely on the basis of that impact.

Section 15183 (f) states, "An effect of a project on the environment shall not be considered peculiar to the project or the parcel for the purposes of this section if uniformly applied development policies or standards have been previously adopted by the city or county with a finding that the development policies or standards will substantially mitigate that environmental effect when applied to future projects, unless substantial new information shows that the policies or standards will not substantially mitigate the environmental effect."

Project Consistency. In accordance with State CEQA Guidelines 15183, the Project qualifies for a Community Plan Exemption because the following findings can be made:

- The General Plan land use designation for the site is Central Business District (CBD), which applies to areas suitable for high density mixed use urban center with a mix of large-scale offices, commercial, urban (high-rise) residential, and infill hotel uses, among many others, in the central Downtown core of the City. The Project would develop ground-floor commercial retail/restaurant space with upper level educational and office use and is therefore consistent with the land use designation.

- The Project site is within the Central Business District Central Commercial Zone (CBD-C). The intent of the CBD-C Zone is to create, maintain, and enhance areas of the CBD appropriate for a wide range of ground-floor office and other commercial activities. Upper-story spaces are intended to be available for a wide range of residential and office or other commercial activities. The Project would develop ground-floor commercial retail/restaurant space with upper level educational and office use and is therefore consistent with the land use designation.

- The Project site is within Oakland's Downtown Showcase District, an area intended to promote a mixture of vibrant and unique uses with around-the-clock activity, continued expansion of job opportunities, and growing residential population. The Project would be consistent with this intent, with the development of institutional use that would support job opportunities. Moreover, the 2000 EIR described how all four blocks of the Original Project are located on land designated by the Oakland General Plan, the Central District Urban Renewal Plan, and the Zoning Regulations, for the most intense development in Oakland.

- The Project site's height limits are a minimum 45 feet and maximum 85 feet for the height of the building base, and no height limit after the base height. Pursuant to the CBD-C Zoning and CBD General Plan land use designation, a maximum 20.0 FAR is allowed on the Project site. The Project would be in compliance with these requirements. The maximum height of the Project building would be up to 201 feet tall (206 feet to the top of the penthouse), with a base height of approximately 78 feet. Development of the Project, which would total approximately 238,550 square feet of gross floor area on the 0.56-acre site, or 9.3 FAR.

- The CBD zoning and height/bulk/density area six has the following regulations: above base tower length maximum of 195 feet and above base tower diagonal maximum is 235 feet is allowed. The border of the project site is approximately 120-feet by 221-feet; however, the developable area of the site is reduced because the proposed tower cannot be conducted on the City Center parking garage's vehicle access aisle. Therefore, the developable area of the site is actually 76 feet by 201 feet. To accommodate the proposed capacity, the Project Applicant is seeking two variances to elongate the above base tower length by approximately 24 feet and increase the diagonal length by approximately 2 feet to achieve a building with an efficient building layout.

- The Project is consistent with the development density established by existing zoning and General Plan policies for the site, and there are no peculiar aspects that would increase the severity of any of the previously identified significant cumulative effects in the 2000 EIR. Therefore, consistent with CEQA Guidelines Section 15183 which allows for streamlined environmental review, this document needs only to consider whether there are project-specific effects peculiar to the Project or its site, and then relies on the streamlining provisions of CEQA Guidelines Section 15183 to not re-consider cumulative effects.

New Significant Effects and Changed Circumstances

The Project would not cause new significant effects that were not addressed in the 2000 EIR. The analysis of the Project in the CEQA Checklist analysis addresses all the resource topics identified in the 2000 EIR as potentially resulting in significant unavoidable impacts:

- Aesthetics: Wind
- Air Quality
- Noise
- Traffic, Circulation, and Parking

As these analyses demonstrate, the SMU Project would not substantially increase the severity of the significant impacts identified in the 2000 EIR, nor would it result in new significant impacts that were not identified in the 2000 EIR. Further, there have been no substantial changes in circumstances following certification of the 2000 EIR that would result in any new specific significant effects of the Project.

Substantial New Information

There is no new information that was not known at the time the 2000 EIR was certified that would cause more severe adverse impacts than discussed in the 2000 EIR. There have been no significant changes in the underlying development assumptions, nor in the applicability or feasibility of mitigation measures or SCAs included in the 2000 EIR.

Standard Conditions of Approval

SCAs incorporate policies and standards from various adopted plans, policies, and ordinances, 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, thus meeting the provision of Section 15183 (f), which states that impacts that are addressed by uniformly applied development standards (in this case, City of Oakland SCAs) are not considered peculiar to the parcel for the purpose of requiring further environmental review. Therefore, the Project requires no additional environmental review under California Public Resources Code Section 21083.3 and Section 15183 of the CEQA Guidelines.

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ATTACHMENT D

Criteria for Use of Other Applicable Previous CEQA Documents, per CEQA Guidelines Section 15168

Section 15168(a) of the California Environmental Quality Act (CEQA) Guidelines states that "A program EIR is an EIR which may be prepared on a series of actions that can be characterized as one large project and are related either:

1. Geographically,
2. As logical parts in the chain of contemplated actions,
3. In connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or
4. As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.

Further, Section 15168(c) states that "Later activities in the program must be examined in the light of the program EIR to determine whether an additional environmental document must be prepared." Specifically,

(1) If a later activity would have effects that were not examined in the program EIR, a new initial study would need to be prepared leading to either an EIR or a negative declaration. That later analysis may tier from the program EIR as provided in Section 15152.

(2) If the [lead] agency finds that pursuant to Section 15162, no subsequent EIR would be required, the agency can approve the activity as being within the scope of the project covered by the program EIR, and no new environmental document would be required. Whether a later activity is within the scope of a program EIR is a factual question that the lead agency determines based on substantial evidence in the record. Factors that an agency may consider in making that determination include, but are not limited to, consistency of the later activity with the type of allowable land use, overall planned density and building intensity, geographic area analyzed for environmental impacts, and covered infrastructure, as described in the program EIR.

(3) An agency shall incorporate feasible mitigation measures and alternatives developed in the program EIR into later activities in the program.

(4) Where the later activities involve site specific operations, the agency should use a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were within the scope of the program EIR.

(5) A program EIR will be most helpful in dealing with later activities if it provides a description of planned activities that would implement the program and deals with the effects of the program as specifically and comprehensively as possible. With a good and detailed project description and analysis of the program, many later activities could be found to be within the scope of the project described in the program EIR, and no further environmental documents would be required.

As discussed in detail in Section 6 of this CEQA Analysis document, the program-level analysis in the 2000 EIR is considered for this assessment under CEQA Guidelines Sections 15162 and 15168.

New Significant Effects. As demonstrated in the CEQA Checklist in Section 6 of this document, the Project would not cause new specific effects that were not addressed in the 2000 EIR. Therefore, an initial study is not required for the Project.

Project Consistency. Attachment C to this CEQA Analysis document demonstrates the Project's consistency with the development density established by the existing zoning, community plan, and general plan policies previously analyzed in the 2000 EIR. Attachment B to this CEQA Analysis document establishes that the Project would represent a minor change to the Approved Project, and such changes are anticipated and analyzed in the 2000 EIR and its addenda. Pursuant to CEQA Guidelines Section 15162, no subsequent EIR would be required since the Project is within the scope of the project covered by the 2000 EIR.

Mitigation Incorporation. The analysis conducted in the CEQA Checklist in Section 6 of this document incorporates by reference the information contained in the 2000 EIR. The Project is required to incorporate and/or comply with the applicable requirements of the mitigation measures identified in the 2000 EIR. Therefore, the mitigation measures are herein assumed to be included as part of the Project, including those that have been modified to reflect the City's current standard language and requirements.

CEQA Checklist. Section 6 of this document is the CEQA Checklist that evaluates the potential project-specific environmental effects of the Project and evaluates whether such impacts were adequately covered by the 2000 EIR, in which case the provisions afforded by CEQA Guidelines Section 15168 applies.

Finding. The information presented in this CEQA Analysis and its attachments supports that the Project is within the scope of the project analyzed in the 2000 EIR and meets all requirements under CEQA Guidelines Section 15168. As such, the Project qualifies for the tiering provisions afforded under CEQA Guidelines Section 15168 and no supplemental environmental review is required.

Appendix A
ECAP Consistency Review Checklist

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CITY OF OAKLAND
Equitable Climate Action Plan Consistency Checklist

250 Frank H. Ogawa Plaza, Suite 2114, Oakland, CA 94612-2031
Zoning Information: 510-238-3911
https://www.oaklandca.gov/topics/planning

The purpose of this Equitable Climate Action Plan Consistency Review Checklist is to determine, for purposes of compliance with the California Environmental Quality Act (CEQA), whether a development project complies with the City of Oakland Equitable Climate Action Plan (ECAP) and the City of Oakland's greenhouse gas (GHG) emissions reduction targets. CEQA Guidelines require the analysis of GHG emissions and potential climate change impacts from new development.

- If a development project completes this Checklist and can qualitatively demonstrate compliance with the Checklist items as part of the project's design, or alternatively, demonstrate to the City's satisfaction why the item is not applicable, then the project will be considered in compliance with the City's CEQA GHG Threshold of Significance.
- If a development project cannot meet all of the Checklist items, the project will alternatively need to demonstrate consistency with the ECAP by complying with the City of Oakland GHG Reduction Plan Condition of Approval.
- If the project cannot demonstrate consistency with the ECAP in either of those two ways, the City will consider the project to have a significant effect on the environment related to GHG emissions.

Application Submittal Requirements

1. The ECAP Consistency Checklist applies to all development projects needing a CEQA GHG emissions analysis, including a specific plan consistency analysis.
2. If required, the ECAP Consistency Review Checklist must be submitted concurrently with the City of Oakland Basic Application.

Application Information

Applicant's Name/Company: Strada T5, LLC

Property Address: 525 12th Street

Assessor's Parcel Number: Lot 2 (Final Parcel Map 10430; 2-97-39, 2-97-40) & Lot 1 (2-97-38)

Phone Number: 314-276-0707

E-mail: wgoodman@stradasf.com

Checklist Item (Check the appropriate box and provide explanation for your answer).			
Transportation & Land Use			
1. Is the proposed project substantially consistent with the City's over-all goals for land use and urban form, and/or taking advantage of allowable density and/or floor area ratio (FAR) standards in the City's General Plan? (TLU1)	**Yes**	**No**	**N/A**
	X		
Please explain how the proposed project is substantially consistent with the City's General Plan with respect to density and FAR standards, land use, and urban form. **The proposed project is compliant with City's allowable density, FAR, per the site's CBD-C zoning.**			
2. For developments in "Transit Accessible Areas" as defined in the Planning Code, would the project provide: i) less than half the maximum allowable parking, ii) the minimum allowable parking, or iii) take advantage of available parking reductions? (TLU1)	**Yes**	**No**	**N/A**
	X		
Please explain how the proposed project meets this action item. **The project is adjacent to 12th Street BART and is minimizing parking. There is no maximum parking limit in this zone and no parking is required. The project is exploring scenarios between zero (0) and 21 stalls.**			
3. For projects including structured parking, would the structured parking be designed for future adaptation to other uses? (Examples include, but are not limited to: the use of speed ramps instead of sloped floors.). (TLU1)	**Yes**	**No**	**N/A**
	X		
Please explain how the proposed project meets this action item. **Given parking is provided is all within the building on a single level, this single level adjacent to the loading area could be easily adapted to storage and other back of house uses.**			
4. For projects that ***are*** subject to a Transportation Demand Management Program, would the project include transit passes for employees and/or residents? (TLU1)	**Yes**	**No**	**N/A**
	X		
Please explain how the proposed project meets this action item. **The project is subject to a TDM Program and will comply with this provision.**			

	Yes	No	N/A
5. For projects that are ***not*** subject to a Transportation Demand Management Program, would the project incorporate one or more of the optional Transportation Demand Management measures that reduce dependency on single-occupancy vehicles? (Examples include but are not limited to transit passes or subsidies to employees and/or residents; carpooling; vanpooling; or shuttle programs; on-site carshare program; guaranteed ride home programs) (TLU1 & TLU8)			**X**
Please explain how the proposed project meets this action item. **The project is subject to a TDM Program.**			
6. Does the project comply with the Plug-In Electric Vehicle (PEV) Charging Infrastructure requirements (Chapter 15.04 of the Oakland Municipal Code), if applicable? (TLU2 & TLU-5)	**X**		
Please explain how the proposed project meets this action item. **The project will comply with required PEV infrastructure requirements, if parking is provided.**			
7. Would the project reduce or prevent the direct displacement of residents and essential businesses? (For residential projects, would the project comply with SB 330, if applicable? For projects that demolish an existing commercial space, would the project include comparable square footage of neighborhood serving commercial floor space.) (TLU3)			**X**
Please explain how the proposed project meets this action item. **The project is being constructed on a lot that is currently vacant.**			

	Yes	No	N/A
8. Would the project prioritize sidewalk and curb space consistent with the City's adopted Bike and Pedestrian Plans? (The project should not prevent the City's Bike and Pedestrian Plans from being implemented. For example, do not install a garage entrance where a planned bike path would be unless otherwise infeasible due to Planning Code requirements, limited frontage or other constraints.) (TLU7)	X		

Please explain how the proposed project meets this action item.

The project will comply with all bike and pedestrian plans, pending any items deemed infeasible due to Planning Code requirements. No bike paths currently exist or are planned on 11th or 12th street fronting the project.

Buildings

	Yes	No	N/A
9. Does the project not create any new natural gas connections/hook-ups? (B1 & B2)	X		

Please explain how the proposed project meets this action item.

This building will be fully electric.

	Yes	No	N/A
10. Does the project comply with the City of Oakland Green Building Ordinance (Chapter 18.02 of the Oakland Municipal Code), if applicable? (B4)	X		

Please explain how the proposed project meets this action item.

The project will comply with the City of Oakland Green Building Ordinance and will pursue a LEED Certification Silver minimum.

	Yes	No	N/A
11. For retrofits of City-owned or City-controlled buildings: Would the project be all-electric, eliminate gas infrastructure from the building, and integrate energy storage wherever technically feasible and appropriate? (B5)			X

Please explain how the proposed project meets this action item.

This project is built on City-owned land and will be all-electric but does NOT include a retrofit.

Material Consumption & Waste			
12. Would the project reduce demolition waste from construction and renovation and facilitate material reuse in compliance with the Construction Demolition Ordinance (Chapter 15.34 of the Oakland Municipal Code)? (MCW6)	**Yes**	**No**	**N/A**
	X		
Please explain how the proposed project meets this action item. **The project will comply with Chapter 15.34.**			
City Leadership			
13. For City projects: Have opportunities to eliminate/minimize fossil fuel dependency been analyzed in project design and construction? (CL2)	**Yes**	**No**	**N/A**
	X		
Please explain how the proposed project meets this action item. **The building will be built to a LEED Silver standard at a minimum and fully electric to reduce / eliminate natural gas consumption.**			
Adaptation			
14. For new projects in the Designated Very High Wildfire Severity Zone: Would the project incorporate wildfire safety requirements such creation of defensible space around the house, pruning, clearing and removal of vegetation, replacement of fire resistant plants, as required in the Vegetation Management Plan? (A4)	**Yes**	**No**	**N/A**
			X
Please explain how the proposed project meets this action item. **The proposed project is NOT in a Designated Very High Wildfire Severity Zone.**			

Carbon Removal			
15. Would the project replace a greater number of trees than will be removed in compliance with the Tree Preservation Ordinance (Chapter 12.36 of the Oakland Municipal Code) and Planning Code if applicable and feasible given competing site constraints? (CR-2)	**Yes**	**No**	**N/A**
			X
Please explain how the proposed project meets this action item. **Please see Attachment A for additional information.**			
16. Does the project comply with the Creek Protection, Stormwater Management and Discharge Control Ordinance (Chapter 13.16 of the Oakland Municipal Code), as applicable? (CR-3)	**Yes**	**No**	**N/A**
	X		
Please explain how the proposed project meets this action item. **A creek does not exist near the site. The project will comply with the Stormwater Management and Discharge Control Ordinance, as applicable.**			

I understand that answering ***yes*** to all of these questions, means that the project ***is in compliance with*** the City's Energy and Climate Action Plan as adopted on to July 28, 2020 and requires that staff apply the Project Compliance with the Equitable Climate Action Plan (ECAP) Consistency Checklist Condition of Approval as adopted by the Planning Commission on December 16, 2020 and all Checklist items must be incorporated into the project

I understand that answering ***no*** to any of these questions, means that the project ***is not in compliance*** with the City's Energy and Climate Action Plan as adopted on to July 28, 2020 and requires that staff apply the Greenhouse Gas (GHG) Reduction Plan Condition of Approval as adopted by the Planning Commission on December 16, 2020 which will require that the applicant prepare a quantitative GHG analysis and GHG Reduction Plan for staff's review and approval. The GHG Reduction Plan and all GHG Reduction measures shall be incorporated into the project and implemented during construction and after construction for the life of the project.

Strada T5, LLC Jesse Blout (Dec 10, 2021 11:00 PST) 12/10/2021

Name and Signature of Preparer Date

ATTACHMENT A
In-feasibility of Additional Trees

- ***Street Tree Replacement Requirement: The project is removing 10 trees which are protected due to their size and would require replacement due to the fact that they are Populus fremontii, a native to California species. The project is planting 5 trees—two on the 12th street plaza and 3 along 11th street. All other locations on the site are either limited by utilities, the odd shape of the site requiring lot line construction, and or the structural capacity of the existing garage.***

- ***12th Street:***

Additional street trees are not feasible given the City Center garage is directly below the sidewalk. The soil volumes and depths required cannot be supported by the existing garage structure. Note that 1150 Clay also did not add street trees to 12th Street for this reason during the first phase of the project.

- ***12th Street Plaza:***

In an effort to respond to the City's comment for greater plant diversity and to get some representation of trees on 12th street, we were able to add two (2) trees to the 12th street plaza above the garage's existing structural beams. Street trees in addition to the two (2) trees proposed are not advised as they inhibit line of site to the 12th Street entry of the university which would create a unsafe condition.

- ***11th Street:***

Three (3) street trees are accommodated on the eastern most edge of the 11th Street frontage where there are not subgrade utilities infringing on required soil depths. Additional street trees are infeasible along the remainder of the frontage given the significant existing underground utility vaults and streetlight infrastructure. In addition, the proposed underground utility vault approved by OakDOT prohibits street trees for the remainder of the frontage. PG&E's required maintenance clearance along the frontage of both the proposed and existing subgrade utilities which are essential to servicing the building make street trees infeasible in front of these utility locations.

Please see the attached diagram which shows the location of the various surrounding subgrade improvements, both existing and proposed, which demonstrate why planting additional trees is infeasible. As you will see we have removed a tree in conflict with the proposed PG&E vault on 11th street noted with an 'X' in the attached. Additionally the code sections we have used as a reference are attached in the memo from project landscape architect, Einwiller Kuehl.

SMU Required Trees

Updated 20220331

The requirement for street trees is covered in Chapter 12 and Chapter 17 of Oakland Code and in the

City of Oakland tree ordinance:

Relevant Code

17.124.025 - Required landscape plan for new Nonresidential Facilities and certain additions to Nonresidential Facilities.

Submittal and approval of a landscape plan for the entire site and street frontage is required for the establishment of a new Nonresidential Facility and for additions to Nonresidential Facilities of over one thousand (1,000) square feet. The landscape plan and the plant materials installed pursuant to the plan shall conform with all provisions of this Chapter, Title 12 street , Sidewalks and Public Spaces and the standards for required landscaping and screening, including the following:

A. On streets with sidewalks where the distance from the face of the curb to the outer edge of the sidewalk is at least six and one-half (6½) feet, street trees shall be provided to the satisfaction of the Director of City Planning, as provided in Section 17.124.110. Proposed street trees be selected from the City's Frequently Planted Tree Species List. Alternative species may be approved by the Director of City Planning. Selection of street tree species shall be based upon compatibility with the existing tree plantings on the street, the mature size of the tree, space available for the tree to grow, the presence of underground and overhead utility lines, utility poles, streetlights, driveway approaches and fire hydrants.

B. All landscape plans shall show proposed methods of irrigation. The methods shall ensure adequate irrigation of all plant materials for at least one growing season.

www.einwillerkuehl.com
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Oakland, CA 94607
510.891.1696
Einwiller Kuehl Inc.

EINWILLERKUEHL
LANDSCAPEARCHITECTURE

City of Oakland tree ordinance.

https://www.oaklandca.gov/resources/tree-services-fact-sheet-frequently-asked-questions#protected-trees-ordinance

Replacement plantings shall be required in order to prevent excessive loss of shade, erosion control, groundwater replenishment, visual screening and wildlife habitat in accordance with the following criteria:

1. 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.

2. Replacement tree species shall consist of Sequoia sempervirens (Coast Redwood), Quercus agrifolia (Coast Live Oak), Arbutus menziesii (Madrone), Aesculus californica (California Buckeye) or Umbellularia californica (California Bay Laurel).

3. Replacement trees shall be of twenty-four (24) inch box size, except that three fifteen (15) gallon size trees may be substituted for each twenty-four (24) inch box size tree where appropriate.

4.Minimum planting areas must be available on site as follows: For Sequoia sempervirens, three hundred fifteen square feet per tree;

5. In the event that replacement trees are required but cannot be planted due to site constraints, an in lieu fee as determined by the master fee schedule of the city may be substituted

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existing plaza is on garage structure.

garage sleeper beams below. Structural says any trees must be aligned to these beams and may still need additional reinforcing

proposed trees

bike racks must be within 50' of the front door.

proposed trees

existing underground utility vaults and streetlight

proposed underground utility covers and clear space around

dot hatch is extent of proposed underground vault

8. SMU City Center (525 12th St)_ECAP-Action-Item-Checklist-Final_2021_1105

Final Audit Report 2021-12-10

Created:	2021-12-10
By:	Rhonda McRae (rmcrae@stradasf.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAAb3w2keRbpNl5hwXn7olLzGsHiBLBe085

"8. SMU City Center (525 12th St)_ECAP-Action-Item-Checklist-Final_2021_1105" History

Document created by Rhonda McRae (rmcrae@stradasf.com)
2021-12-10 - 6:41:55 PM GMT

Document emailed to Jesse Blout (jblout@stradasf.com) for signature
2021-12-10 - 6:42:24 PM GMT

Email viewed by Jesse Blout (jblout@stradasf.com)
2021-12-10 - 7:00:18 PM GMT

Document e-signed by Jesse Blout (jblout@stradasf.com)
Signature Date: 2021-12-10 - 7:00:50 PM GMT - Time Source: server

Agreement completed.
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Appendix B
Non-CEQA Transportation Analysis/Transportation Tables

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FEHR PEERS

Draft Memorandum

Date: May 10, 2022

To: Elizabeth Kanner, ESA

From: Sam Tabibnia and Molly Riddle, Fehr & Peers

Subject: Samuel Merritt University City Center - Transportation Impact Review (non-CEQA)

OK21-0450

This memorandum summarizes the non-CEQA transportation assessment that Fehr & Peers completed for the proposed Samuel Merritt Health Sciences University (SMU) City Center Project in Oakland. The information provided in this memorandum is based on the City of Oakland's *Transportation Impact Review Guidelines* (TIRG) published in April 2017. Sections in this memorandum include:

1. Project Description (page 1)
2. Trip Generation (page 3)
3. Trip Distribution, Trip Assignment, and Study Intersection Selection (page 8)
4. Intersection Operations (page 9)
5. Site Access and Circulation Analysis (page 9)
6. Collision Analysis (page 22)
7. Conclusion and Summary of Recommendations (page 26)

1. Project Description

The Project is located on the northside of 11th Street midblock between Broadway and Clay Street in Downtown Oakland. The 0.56-acre site is currently vacant. The Project would construct a

single building providing approximately 226,300 square feet of space for use as the new main campus of SMU, which would relocate from its current location at the Alta Bates Summit Medical Center, about 1.3 miles north of the Project site. **Table 1** presents the estimated population at the proposed SMU City Center site based on data provided by SMU. Although SMU is expected to have a total enrollment of 1,375 students, the Project is expected to have about 564 students at the site on a typical weekday

Since SMU would continue to use a "hybrid" mode of curriculum delivery, some students would be on campus attending classes in person, while at the same time, many students would be accessing courses remotely. SMU anticipates the Project would have 36 classes on an average weekday with 50 percent of classes fully virtual and 50 percent (18 classes) in person at the Project site. Considering the average class size of 28 (ranging between 8 and 50 students), 18 in-person classes would result in approximately 504 students on campus on an average weekday, which represents approximately 37 percent of the 1,375-student population. Based on a survey of faculty members and feedback from department leaders, SMU anticipates 63 percent of faculty (260 faculty members) would be on campus on an average weekday. This accounts for the 50 percent virtual curriculum, and average weekday class load of one to three classes per full-time faculty member, and the fact that 30 to 40 percent of faculty would be part-time. This estimate also considers non-class on-campus visits for faculty to conduct research, prepare for courses, meet with students, and attend administrative meetings. SMU anticipates that 71 percent of the staff members (110 out of 155 staff) would be on campus on an average weekday. With a move to remote work plans (e.g., three days on campus, two days remote), some staff members will not be required to be present on campus five days per week. However, most staff, including administrators, support staff, and operations staff would need to remain on site.

Considering these factors and based on the current trends and student enrollment at the existing campus at the Alta Bates Summit Medical Center, Table 1 presents the expected average weekday on-site population. Although the average weekday onsite student headcount is anticipated to be approximately 37 percent of total enrollment, this analysis conservatively relies on 41 percent of total enrollment to account for possible fluctuations. Overall, the expected average weekday on-site population consists of approximately 934 people comprised of 564 students, 260 faculty, and 110 staff.

Table 1: SMU Health Sciences University Project Population Counts

Population Group	Total Headcount (Downtown Oakland Campus)	Expected Percent on Campus (Average Weekday)	Expected Headcount on Campus (Average Weekday)
Students	1,375	41%	564
Faculty	411	63%	260
Staff	155	71%	110
Total	**1,941**	**48%**	**934**

Source: Samuel Merritt University, 2021; Fehr & Peers, 2022.

The Project would not provide any on-site automobile parking spaces. Bicycle parking would be provided in the form of a secure bicycle room on the basement level of the building accommodating 98 bicycles and bicycle racks along the Project frontages on 11th and 12th Streets accommodating 64 bicycles. The Project would have pedestrian access on both 11th and 12th Streets.

The Project would maintain the existing driveway on 11th Street just west of the Project site. The driveway would continue to serve the existing City Center Garage loading dock for the 1150 Clay Street site just west of the Project, and loading docks for several City Center buildings to the east of the Project. The driveway would also provide access to the Project's loading docks. The Project would also maintain the existing pedestrian path connecting 11th and 12th Street between the Project site and 1111 Broadway.

Previously, the *1100 Clay Street – Modified Block T5/6 Project City Center EIR CEQA Analysis (2015 Addendum,* May 2015*)* evaluated the impacts of development at the Project site. The 2015 Addendum evaluated the impacts of three different development options at the site, a 300-room hotel (Option 1), a 262-unit residential building (Option 2), and a 205,800 square-foot office building (Option 3). The 2015 Addendum identified Option 3 as having the highest automobile trip generation.

2. Trip Generation

Automobile Trip Generation

Trip generation is the process of estimating the number of vehicles that would likely access the Project on a typical day. Since the Project site is currently vacant the trip generation only accounts for new trips generated by the Project. Typically, trip generation data published by the Institute of

Transportation Engineers (ITE) in the *Trip Generation Manual* is used to estimate the trip generation for development projects. Considering the unique uses of the Project, ITE data would not result in a reasonable estimate of the trips generated by the Project. Instead, 2017 survey data collected at the current SMU site at the Alta Bates Summit Medical Center are used to estimate the trip generation for the current SMU site and the latest US Census Transportation Planning Products Program (CTPP, 2012-2016 data) commute mode share data are used to adjust the estimates for the current SMU site and estimate the vehicle trip generation for the Project as described below.

The following assumptions based on the 2017 survey data collected as part of the Alta Bates Summit Medical Center TDM Monitoring are used to estimate trip generation rates for students, faculty, and staff at the current SMU site:

- About 71 percent of students, 94 percent of faculty, and 77 percent of the staff use an automobile to access the Project site (**Table 2** summarizes the commute mode shares at the current SMU site)
- The AM peak hour of trip generation at SMU is from 8:30 to 9:30 AM, when about 52 percent of students and 23 percent faculty and staff arrive and zero percent leave
- The PM peak hour of trip generation is from 4:00 to 5:00 PM, when about one percent of students arrive and 33 percent leave, and zero percent of faculty and staff arrive and 23 percent leave
- Carpool occupancy is about 2.4 persons per vehicle for students and 2.7 persons per vehicle for faculty and staff

In addition, it is estimated that other trips, such as visitors and deliveries, would be about 10 percent of the trips generated by student, faculty, and staff.

Table 2: Current (2017) SMU Commute Mode Share Summary[1]

Modes	Students	Faculty	Staff
Automobile			
Drive Alone	54%	92%	75%
Carpool	16%	1%	2%
Other Auto	>1%	1%	0%
Subtotal	*71%*	*94%*	*77%*
Transit			

Table 2: Current (2017) SMU Commute Mode Share Summary[1]

Modes	Students	Faculty	Staff
BART	15%	4%	17%
Bus	12%	1%	0%
Subtotal	*27%*	*5%*	*17%*
Bike	1%	0%	4%
Walk	1%	0%	3%
Other	>1%	>1%	>1%
Total	**100%**	**100%**	**100%**

Source: Based on the results of the 2017 Alta Bates Summit Medical Center TDM Monitoring summarized by Fehr & Peers, 2022.

Since the Project would be in a mixed-use area adjacent to frequent local and regional transit service with limited available parking, it is expected to have a lower automobile trip generation than the existing SMU site. CTPP data is used to adjust the trip generation rates developed for the current SMU site. **Table 3** compares the commute mode share data for workers in the Census Tract for the current SMU site at the Alta Bates Summit (Tract 4013) with the proposed SMU site at City Center (Tract 4031). Since the driving mode share for workers in the City Center Census Tract is about 68 percent of the driving mode share for workers in the Alta Bates Summit Census Tract, the trip generation estimated from the 2017 surveys at the current SMU site was adjusted by 68 percent.

Table 4 summarizes the total automobile trip generation for the Project based on the expected average weekday population at the site. The Project is estimated to generate about 934 daily, 187 AM peak hour, and 140 PM peak hour new automobile trips.

Table 3: Census Data Commute Mode Share Comparison

Modes	Census Tract 4013 (Current SMU Site at the Alta Bates Summit Medical Center)	Census Tract 4031 (Project Site in Downtown Oakland)
Automobile		
Drive Alone	72%	50%
Carpool	10%	5%

Table 3: Census Data Commute Mode Share Comparison

Modes	Census Tract 4013 (Current SMU Site at the Alta Bates Summit Medical Center)	Census Tract 4031 (Project Site in Downtown Oakland)
Other Auto	<1%	<1%
Subtotal	*82%*	*55%*
Transit		
BART	6%	32%
Bus	4%	5%
Subtotal	*10%*	*37%*
Bike	2%	3%
Walk	5%	3%
Other	1%	2%
Total	**100%**	**100%**

Source: Based on commute mode share data for workers per US Census CTPP (2012-2016) as summarized by Fehr & Peers, 2022.

Comparison with Approved Project

Table 5 compares the trip generation for the Project with the highest trip generating option (office) for the approved project which was evaluated in the 2015 Addendum. As shown in Table 5, the SMU Project would generate fewer daily and AM and PM peak hour trips than the approved project.

Table 4: Project Trip Generation Summary

Population	Population[1]	Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
			In	Out	Total	In	Out	Total
Students[2]	564	470	122	1	123	3	77	80
Faculty[3]	110	140	16	0	16	0	16	16

Staff[4]	260	270	31	0	31	0	31	31
Visitors/Others[5]		90	17	0	17	0	13	13
Total	**934**	**970**	**186**	**1**	**187**	**3**	**137**	**140**

Notes:
1. Based on estimated average weekday population provided by SMU (see Table 1 for details)
2. Trip generation for students based on the results of the 2017 survey at the current SMU site at Alta Bates Summit Campus adjusted by CTPP data:
   Daily = 0.84 trips per student
   AM Peak Hour = 0.22 trips per student (99% in, 1% out)
   PM Peak Hour = 0.21 trips per student (4% in, 96% out)
3. Trip generation for faculty based on the results of the 2017 survey at the current SMU site at Alta Bates Summit Campus adjusted by CTPP data:
   Daily = 1.28 trips per faculty
   AM Peak Hour = 0.15 trips per faculty (100% in, 0% out)
   PM Peak Hour = 0.15 trips per faculty (0% in, 100% out)
4. Trip generation for staff based on the results of the 2017 survey at the current SMU site at Alta Bates Summit Campus adjusted by CTPP data:
   Daily = 1.03 trips per staff
   AM Peak Hour = 0.12 trips per staff (100% in, 0% out)
   PM Peak Hour = 0.12 trips per staff (0% in, 100% out)
5. Visitor and other trips assumed to be 10 percent of the trips generated by student, faculty, and staff.

Source: Fehr & Peers, 2022.

Table 5: Automobile Trip Generation Comparison

Land Use	Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
		In	Out	Total	In	Out	Total
Project[1]	970	186	1	187	3	137	140
Approved Project (205,800 square feet of office)[2]	1,295	171	23	194	30	146	176
Difference	***-325***	***+15***	***-22***	***-7***	***-27***	***-19***	***-36***

Notes:
1. See Table 4 for details
2. Based on the *1100 Clay Street – Modified Block T5/6 Project City Center EIR CEQA Analysis* (May 2015), Table TRA-4.

Source: Fehr & Peers, 2022.

Non-Automobile Trip Generation

Table 6 presents the trip generation estimates for all travel modes for the Project based on CTPP data mode share estimates.

Table 6: Project Trip Generation by Travel Mode

Mode	Mode Share Adjustment Factors[1]	Daily	AM Peak Hour	PM Peak Hour
Passenger Vehicle	0.531	970	187	140
Transit	0.297	540	105	78
Bike	0.051	90	18	13
Walk	0.105	190	37	28
Total Trips		**1,790**	**347**	**259**

Notes:

1. Based on the City of Oakland's TIRG for an urban environment within 0.5 miles of a BART station.

Source: Fehr & Peers, 2022.

3. Trip Distribution, Trip Assignment, and Study Intersection Selection

The trip distribution and assignment process is used to estimate how the vehicle trips generated by the Project would be distributed across the roadway network. Based on existing travel patterns, locations of complementary land uses, and the street network in the Project area, Fehr & Peers determined directions of approach to and departure from the Project site. Since the Project would not include any on-site automobile parking, it is expected that the automobile trips generated by the Project would be dispersed to the various parking facilities in the Downtown area. However, to present more conservative results, this analysis assumes that all automobile trips generated by the Project would be to and from the Project site and the adjacent City Center Garage on 11th Street. **Figure 1** shows the resulting trip distribution.

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

- All intersections adjacent to the Project site.
- All signalized intersections, all-way stop-controlled intersections, or roundabouts where 100 or more peak hour trips are added by the Project.
- All signalized intersections with 50 or more Project-related peak hour trips and with existing Level of Service (LOS) D-E-F.
- Side-street stop-controlled intersections with 50 or more peak hour trips added by the Project to any individual movement other than the major-street through movement.

Following these criteria, the following four intersections are selected for evaluation:

1. 12th Street/Clay Street
2. 11th Street/Clay Street
3. 12th Street/Broadway
4. 11th Street/Broadway

These intersections should be evaluated because they are adjacent to the Project site. In addition, the Project would add more than 100 peak hour trips to intersections #2 and #4.

No recent counts are available for the four study intersections, therefore, Fehr & Peers retained a traffic count firm to collect peak period (7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM) intersection count data in February 2022. The counts include automobiles, heavy vehicles (trucks and buses), and bicycles by turning movement and pedestrians by approach, and were collected on a clear day, while Oakland schools were in normal session. The counts were conducted while shelter-in-place orders were in place due to the COVID-19 pandemic. Thus, the counts may not reflect typical conditions without the COVID-19 pandemic. **Appendix A** presents the existing traffic volume counts. For each study intersection, the peak hour (i.e., the hour with the highest traffic volumes) for the AM and PM peak periods were selected for evaluation.

4. Intersection Operations

The following scenarios are evaluated:

- **Existing Conditions**: Represents current conditions based on existing traffic volumes collected in February 2022.
- **Existing Plus Project Conditions**: Represents the existing conditions plus traffic generated after completion of the Project.
- **Existing Plus Project Conditions and Bike Facilities on 11th and 12th Streets**: Represents the existing conditions plus traffic generated after completion of the Project and implementation of Class 4 protected bike lanes on 11th and 12th Streets as identified in the 2019 Oakland Bike Plan (See the Bicycle Access and Bicycle Parking section on page 13 for details). Although the design for these bike facilities has not been completed, this analysis assumes that one through automobile lane on both 11 and 12th Streets would be eliminated to accommodate the proposed Class 4 protected bike lanes.

Figure 2 presents the Existing and **Figure 3** presents the Existing plus Project intersection lane configuration, traffic control, and peak hour traffic volumes at the study intersection. Based on these volumes and roadway configuration, Fehr & Peers calculated the LOS at the study intersection using the Synchro 11 software and the *Highway Capacity Manual 6th Edition* (HCM6) methodologies. **Appendix B** provides the detailed LOS calculation sheets. **Table 7** summarizes

the analysis results for the evaluated scenarios. The four study intersections are expected to continue to operate at LOS B during both the AM and the PM peak hours regardless of the Project. In addition, the implementation of the Class 4 protected bike lanes on 11th and 12th Streets is expected to have minimal effect on traffic operations at the four study intersections as they are expected to continue to operate at LOS B during both the AM and the PM peak hours.

Table 7: Intersection Level of Service Summary

Intersection	Traffic Control[1]	Peak Hour	Existing Conditions		Existing Plus Project		Existing Plus Project and Bicycle Facilities on 11th and 12th St.	
			Delay[2] (seconds)	LOS	Delay[2] (seconds)	LOS	Delay[2] (seconds)	LOS
1. 12th Street/ Clay Street	Signal	AM PM	11 12	B B	11 13	B B	12 14	B B
2. 11th Street/ Clay Street	Signal	AM PM	11 12	B B	12 12	B B	12 12	B B
3. 12th Street/ Broadway	Signal	AM PM	12 13	B B	13 14	B B	14 14	B B
4. 11th Street/ Broadway	Signal	AM PM	14 14	B B	14 14	B B	15 14	B B

Notes:
1. Signal = intersection controlled by traffic signal.
2. Average delay (seconds per vehicle) calculated using HCM6 methodologies.

Source: Fehr & Peers, 2022.

5. Access and Circulation Review

An evaluation of access and circulation for all travel modes, based on the site plan dated January 21, 2022, and a review of the surrounding conditions is summarized below.

Automobile Access and Circulation

The Project would not provide any on-site automobile parking. It is expected that most automobile traffic generated by the Project would use the existing City Center Garage, which is adjacent to the Project site, other off-street parking facilities in Downtown Oakland, or on-street parking. The existing driveway on 11th Street just west of the Project site would continue to serve

the existing City Center Garage and 1111 Broadway. It would also provide access to the Project's loading docks, located on the north side of the building on the basement level.

The existing driveway on 11th Street would remain at 28-feet wide and provide one inbound and one outbound lane. The Project driveway would provide adequate sight distance[1] between exiting motorists entering and exiting the driveway and pedestrians on the adjacent sidewalk on either side of the driveway. The driveway would also provide adequate sight distance between motorists exiting the driveway and cyclists and motorists traveling eastbound on 11th Street.

> **Recommendation 1:** While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:
>
> - Reduce the width of the existing driveway adjacent on 11th Street just west of the Project from 28 to 24 feet.

Automobile Parking Requirements

The *City of Oakland Planning Code* sets minimum and maximum parking requirements for the Project, which is in a Central Business District Commercial zone (CBD-C). Based on Section 17.116.070 of the *Planning Code,* the Project is not required to provide parking and no parking maximum is specified. The site plan shows the Project would provide zero off-street vehicle parking spaces. Since no minimums or maximums apply to the site, the proposed parking meets the City requirements.

Loading Evaluation and Requirements

The *City of Oakland Planning Code* Section 17.116.130 requires two off-street loading berths for Community Education Civic Activity uses between 150,000 and 299,999 square feet. The Project would include two commercial loading spaces, which satisfies the City's loading requirements. The two loading spaces would also meet requirements that loading spaces be a minimum of 33-feet long, 12-feet wide, and 14-feet high.

The Project loading area, located at the basement level in the northeast corner of the building, would be accessed via the existing driveway on 11th Street. Most trucks would enter the driveway head-in, turn around at the end of the driveway, and back into the loading docks. Based on the

[1] Adequate sight distance is defined as a clear line-of-sight between a motorist ten feet back from the sidewalk and a pedestrian 10 feet away on each side of the driveway.

current Project site plan and as shown in **Appendix C**, trucks that can be accommodated in the loading dock would have adequate space to turn around and access the loading docks.

On-Street Parking and Curb Use

The City of Oakland provides the following on-street loading designations:

- Commercial loading spaces with yellow curb paint, which allow loading and unloading of passengers and materials between 7:00 AM and 6:00 PM Monday through Saturday. Passenger loading and unloading operations are limited to three minutes; commercial loading is limited to 30 minutes for vehicles with commercial license plates.
- Passenger loading spaces with white curb paint, which allow loading and unloading of passengers between 7:00 AM and 6:00 PM Monday through Sunday. Passenger loading and unloading operations are generally limited to three minutes. In some places, such as adjacent to public assembly spaces, white curb parking restrictions are always in effect.

Adjacent to the Project site, on-street parking spaces are provided along both sides of 11th and 12th Street. These spaces are metered with a two-hour time limit between 8:00 AM and 6:00 PM on weekdays and Saturdays. Opposite of the Project site frontage, the south side of 11th Street includes a parking garage driveway and bus stops, with the remainder of the curb designated as No Parking Zone or Commercial Loading Zone. There are currently no on-street commercial loading (yellow curb) or passenger loading (white curb) spaces designated adjacent to the Project site.

Based on the Project site plan, modifications to the curbs adjacent are described below:

- 11th Street – A 10-foot red curb is provided east of the existing driveway followed by an 88-foot parking zone to the east which would accommodate four parking spaces. The first 22-foot parking area, adjacent to the existing driveway, would also be signed for trash staging. The parking zone would be followed by a 44-foot passenger loading zone (white curb), which would accommodate two passenger loading spaces. No accessible passenger loading spaces are designated. The easternmost section of the curb is proposed to accommodate a 66-foot short-term bicycle parking zone with on-street corals accommodating 36 spaces.

- 12th Street – The Project frontage along 12th Street would be designated for on-street parking. Along the east side of the Project frontage, a 71-foot passenger loading zone (white curb) would be provided which would accommodate three passenger loading spaces including one accessible space.

It is expected that the modifications to curb designations along 11th Street would result in the loss of four parking spaces along the north side of the street adjacent the Project site. Proposed modifications to 12th Street would result in the loss of one parking space.

> **Recommendation 2:** While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:
>
> - Allocate curb space on 11th street to accommodate at least one accessible passenger loading (white curb) space near the lobby entrance.

Bicycle Access and Bicycle Parking

Bicycle facilities currently provided near the Project site include:

- Class 2 buffered bike lanes on both sides of Clay Street
- Class 2 eastbound bike lane on the north side of 11th Street east of Broadway

The City's 2019 Oakland Bike Plan (*Let's Bike Oakland*, May 2019) proposes the following facilities in the vicinity of the Project:

- Eastbound Class 4 protected bike lane on 11th Street
- Westbound Class 4 protected bike lane on 12th Street

The City of Oakland has not started the design for the proposed Class 4 protected bike lanes on 11th and 12th Streets. However, it is likely that the protected bike lanes would be located along the north side of 11th Street and south side of 12th Street to minimize potential conflicts with the existing bus service which operates on the other side of the street. It is likely that at least one automobile lane on 11th and 12th Streets would be eliminated to accommodate the protected bike lanes. As described in the Intersection Operations section of this memorandum, the elimination of the automobile lanes on 11th and 12th Streets is not expected to affect traffic operations at the adjacent intersections.

The following two Bay Wheels bike-share stations are near the Project:

- On 14th Street just west of Broadway, about 0.1 miles north of the Project
- On 13th Street, just west of Franklin Street, about 0.2 miles east of the Project

Bicycle Parking Requirements

Chapter 17.117 of the *City of Oakland Planning 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 U-racks. Section 17.117.070 sets minimum and maximum bicycle parking requirements for the Project as described in **Table 8**.

Table 8: Bicycle Parking Requirements

Population	Expected Headcounts on Campus[1]	Long-Term Bicycle Parking[2]		Short-Term Bicycle Parking[3]	
		Spaces per Unit	Spaces	Spaces per Unit	Spaces
Students	564	1:10 Students	56	1:10 Students	56
Faculty & Staff	370	1:10 Staff	37	n/a	n/a
Minimum Required Bicycle Parking			***93***		***56***
Proposed Parking Spaces			***98***		***64***
Meets Minimum Parking Requirement?			***Yes***		***Yes***

Notes:
1. Expected headcounts on campus provided by Samuel Merritt University, 2021.
2. Per Oakland Planning Code Section 17.117.100 for Civic Activity – Colleges and Universities; minimum required: 1 space for each 10 employees plus 1 space for each 10 students of planned capacity, or 1 space for each 20,000 square feet of floor area, whichever is greater.
3. Per Oakland Planning Code Section 17.117.100 for Civic Activity – Colleges and Universities; minimum required: 1 space for each 10 students of planned capacity.

Source: Fehr & Peers, 2022.

The Project would provide a secure bicycle room that would accommodate 98 long-term bicycle storage spaces, exceeding the City Code requirements. The bicycle room would be in the southeast corner of the basement level of the building across a hallway from the elevators and stairwell leading to the ground-level lobby. The bicycle room would be accessed via lobby entrances on 11th and 12th Streets and use of elevators or stairs.

> **Recommendation 3:** While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:
>
> - Consider relocating some long-term bicycle parking to a more convenient location on the ground level within easy access of the lobby.
> - If no long-term bicycle parking can be provided on the ground level, ensure that at least one elevator providing access to the basement level can accommodate

individuals accompanied by bicycles, including recumbent or cargo bicycles which have an extended wheelbase.

Existing short-term bicycle parking located near the Project site includes one rack accommodating 18 bicycles positioned outside the City Center Garage elevator entrance on 12th Street, six racks accommodating 12 bicycles on the sidewalk on 12th Street just west of Broadway, and two racks accommodating four bicycles on the sidewalk on 11th Street just west of Broadway. The existing short-term bicycle parking racks are expected to remain with the Project.

The Project would provide new short-term bicycle parking for 64 bicycles in the form of racks located near the lobby entrances on 11th and 12th Streets. Eight short-term racks would be located adjacent the 12th Street lobby entrance. An additional six short-term racks would be located approximately 45-feet north of the 12th Street entrance along the west side of the plaza. 18 short-term racks would be located south of the 11th Street lobby entrance in a 66-foot long in-street bicycle parking zone. In total, the Project would accommodate short-term parking for 64 bicycles along the Project's frontages. All short-term bicycle parking would be located within 50 feet of the building entrance which would satisfy City Code requirements. The proposed short-term bicycle parking racks would not obstruct the pedestrian right-of-way.

The *City of Oakland Planning Code* requires showers and lockers for some new buildings larger than 150,000 square feet. Based on section 17.117.130 of the *Planning Code* the Project is not required to provide such facilities based on its civic land use. However, the Project would provide four showers and locker facilities on the basement level and two showers and locker facilities on the 7th level of the building, exceeding the City Code requirements.

Pedestrian Access and Circulation

The main lobby for the Project would be on the ground level of the building accessible from both the north and south sides of the Project. The north entrance would be accessible from the 12th Street sidewalk via a 90-foot-long pedestrian walkway which includes a bridge over the basement level driveway. The south entrance would be accessible directly from the 11th Street sidewalk. Elevators and stairs in the lobby would connect to the upper and lower levels of the building. Secondary stairs would be located on the west side of the building. After the completion of the Project, the sidewalks along 11th Street would be 12 feet wide with a minimum 5.5-foot pedestrian clear zone. The sidewalk along 12th Street would be 13.5 feet wide with a minimum 8.5-foot pedestrian clear zone.

Pedestrian facilities at the intersections adjacent to the site include:

- The 12th Street/Clay Street intersection is signalized and provides diagonal curb ramps at all but the southeast corner which provides directional curb ramps. Truncated domes are provided at all four corners of the intersection. All four intersection approaches provide crosswalks marked by white ladder striping and an advanced stop bar. Pedestrian countdown signal heads are provided in all directions of marked crossings.

- The 11th Street/Clay Street intersection is signalized and provides diagonal curb ramps at all four corners. Truncated domes are provided at all but the southwest corner of the intersection. All four intersection approaches provide crosswalks marked by white ladder striping and an advanced stop bar. Pedestrian countdown signal heads are provided in all directions of marked crossings.

- The 12th Street/Broadway intersection is signalized and provides diagonal curb ramps at all corners of the intersection. Truncated domes are provided at all but the northeast corner of the intersection. All four intersection approaches provide crosswalks marked by white zebra striping and an advanced stop bar. Pedestrian countdown signal heads are provided in all directions and pushbuttons are provided for crossing Broadway. The intersection also provides leading pedestrian intervals (LPI) for all pedestrian crossings.

- The 11th Street/Broadway intersection is signalized and provides diagonal curb ramps at all but the northeast corner which provides directional curb ramps. Truncated domes are provided at all four corners of the intersection. All four intersection approaches provide crosswalks marked by white zebra striping and an advanced stop bar. Pedestrian countdown signal heads are provided in all directions and pushbuttons are provided for crossing Broadway. The intersection also provides LPIs for all pedestrian crossings. Currently, an approximately five-foot median is provided on the south approach of the intersection. The median does not extend beyond the crosswalk. The City's 2017 Pedestrian Plan, "Oakland Walks!" recommends extending the median to provide a refuge island on the south side of the intersection.

- The 12th Street/Center Walk midblock intersection provides a protected midblock pedestrian crossing on 12th Street about 215 feet west of Broadway. It is signalized and provides perpendicular curb ramps with truncated domes on both sides of the crossing. The crosswalk has a different color pavement and is marked by transverse white lines. Pedestrian countdown signal heads and pushbuttons are provided in both directions.

The East Bay Bus Rapid Transit (BRT) Project, which was implemented along Broadway and 11th and 12th Streets east of Broadway, included feasible pedestrian improvements such as upgrading the diagonal curb ramps to directional curb ramps at intersections along the corridor including the intersections on Broadway at 11th and 12th Streets. In addition, the 1100 Broadway Project

was conditioned to upgrade the curb ramps on Broadway at 11th and 12th Streets that were not upgraded by the BRT Project, if found feasible. As of February 2022, only the curb ramps at the northeast corner of the 11th Street/Broadway intersection have been upgraded. Thus, this analysis assumes that upgrading the other corners at these two intersections is not feasible and they are not recommended as part of this analysis.

> **Recommendation 4:** While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:
>
> - Explore the feasibility and if deemed feasible by City staff, install the following at the 11th Street/Clay Street intersection:
>   - Provide a dual directional curb ramp with truncated domes consistent with ADA standards on the northeast corner of the intersection.
> - Explore the feasibility and if deemed feasible by City staff, install the following at the 11th Street/Broadway intersection:
>   - As recommended in the City's 2017 Pedestrian Plan, "Oakland Walks!", extend the median on the south side of the 11th Street/Broadway intersection to provide a refuge island.
> - Explore the feasibility and if deemed feasible by City staff, install the following at the 12th Street/Center Walk intersection:
>   - Upgrade the crossing to provide a crosswalk marked by continental striping and an advanced stop bar.

Transit Access

Transit service providers in the Project vicinity include BART and AC Transit as described below.

Bay Area Rapid Transit (BART)

BART provides regional rail service throughout the East Bay and across the Bay. The Project is located approximately 350 feet west of the 12th Street Oakland City Center BART Station. The nearest station portal is on the northwest corner of the 11th Street/Broadway intersection. The Project is located on the same block as this portal. Thus, the BART station can be accessed without crossing any streets. The Project would not modify access between the Project site and the BART Station portal.

Alameda-Contra Costa Transit District (AC Transit)

AC Transit is the primary bus service provider in 13 cities, including Oakland, and adjacent unincorporated areas in Alameda and Contra Costa Counties, with Transbay service to destinations in San Francisco, San Mateo, and Santa Clara Counties. The nearest bus stops to the Project site are located on the south side of 11th Street 100 feet east of Clay Street and just west of Broadway, and on the north side of 12th Street 85 feet east of Broadway and 100 feet east of Clay Street. **Table 9** summarizes the AC Transit stops in the Project vicinity and **Table 10** summarizes the related AC Transit Service.

Pedestrian access between the Project site and the bus stops on 12th Street is facilitated by a midblock signalized crossing just east of the Project site and at the signalized intersection with Clay Street. These crossings generally align with the pedestrian desire lines between the Project site and the bus stops.

Pedestrian access between the Project site and the bus stops on 11th Street is limited to use of the signalized crossings at intersections with Clay Street and Broadway. Considering the existing location of the 11th Street bus stops east of Clay Street and west of Broadway relative to the Project site, bus riders must walk in the opposite direction between the Project and the bus stops to use the nearest intersection to cross 11th Street. It is likely many bus riders would instead choose to walk more directly between the bus stops and the Project site, and jaywalk across 11th Street.

> **Recommendation 5:** While not required to address a CEQA impact, and at the discretion of City of Oakland staff and in consultation with AC Transit, the following shall be considered as part of the final design for the Project:
>
> - Consider consolidating the existing AC Transit stops on the south side of 11th Street located 120-feet east of Clay Street and on the corner of Broadway to a new location approximately 230 feet west of Broadway. If feasible, also consider the construction of a bus shelter, concrete bus pad, and other transit stop amenities at the potential new location.
> - Install a signalized midblock pedestrian crossing across 11th Street aligned with the existing pedestrian walkway on the east side of the Project site to improve access to the relocated bus stop. This crossing would also improve north-south pedestrian connectivity into the Civic Center due to its alignment with "Center Walk" and the existing 12th Street midblock crossing.

- Explore the feasibility of, and implement if found feasible, sidewalk widening on south side of 11th Street at the location of the proposed bus stop to provide a bus bulb with adequate space to accommodate a bus shelter and other amenities. Constructing the bus bulb would require elimination of parking and/or a travel lane on 11th Street and shall not preclude the future installation of Class 4 protected bike lanes as proposed in the 2019 Oakland Bike Plan.

Table 9: AC Transit Stops

Stop Location	Distance to Project Site[1]	Lines Served	Stop Amenities
11th Street, west of Clay Street	<0.1 miles	40	No amenities
11th Street, east of Clay Street	<0.1 miles	6, 19, 20, 29, 88	No amenities
11th Street, west of Broadway	<0.1 miles	19, 20, 29, 88	Shelter, bench, trash receptacle
11th Street, east of Broadway	<0.1 miles	1T	Shelter, boarding platform, ticket station, real-time transit information, map, bench, trash receptacle, lighting
12th Street, west of Broadway	<0.1 miles	19, 20, 29, 40, 88	Shelter, bench, trash receptacle
12th Street, west of Clay Street	<0.1 miles	19, 20, 29, 40, 88	No amenities
12th Street, east of Broadway	<0.1 miles	1T	Shelter, boarding platform, ticket station, real-time transit information, map, bench, trash receptacle, lighting
Broadway, southbound, south of 12th Street	<0.1 miles	6, 12, 18, 72, 72M, 72R, 96, 611	Shelter, bench, trash receptacle
Broadway, northbound, south of 12th Street	<0.1 miles	72, 72M, 72R	No amenities

Notes:
1. Distance shown is walking distance between bus stop and the Project.

Source: Fehr & Peers, 2022.

Table 10: AC Transit Service Summary

Line	Description	Weekday Hours of Operation	Weekday Headways[2]	Weekend Hours of Operation	Weekend Headways[2]
1T	Tempo service between Uptown Oakland and San Leandro BART via 11th/12th St, International Blvd., and E. 14th St.	24 hours per day	10-15 minutes (6:00 AM – 11:45 PM), 60 minutes (before 6:00 AM)	12:08 AM – 11:45 PM	10-15 minutes (6:00 AM –11:45 PM), 30 minutes (before 6:00 AM)
6	Downtown Oakland to Downtown Berkeley via Telegraph Av. and Southside Berkeley	5:00 AM – 12:40 AM	15-20 min	5:00 AM – 12:40 AM	15-20 min
12	Gilman St./6th St., Berkeley to Oakland Amtrak at Jack London Square via Gilman St., Hopkins St., MLK Way, 55th St., Temescal District, Piedmont Av., Grand Av., Broadway, and Downtown Oakland.	5:58 AM – 11:54 PM	30 minutes	5:58 AM – 11:58 PM	30 minutes
18	University Village, Albany, to Lake Merritt BART via Solano Av., Shattuck Av., Children's Hospital, MLK Jr. Way, Downtown Oakland and 7th/ 8th St.	5:55 AM – 12:56 AM	20 minutes	5:55 AM – 12:54 AM	20 minutes
19	Downtown Oakland to Fruitvale BART via the Webster/Posey tubes, Marina Village Pkwy., Atlantic Av., Buena Vista Av., Alameda Bridgeside Center, and Fruitvale Av.	6:45 AM – 9:45 PM	60 min	6:50 AM – 9:50 PM	60 min
20	Dimond District to Downtown Oakland via Fruitvale Av., Fruitvale BART, Park St., Alameda Towne Centre, Shoreline Dr., Grand St., Otis Dr., Westline Dr., Central Av. and Webster St.	5:10 AM – 10:20 PM	15-20 min	5:15 AM – 10:10 PM	30 min

Line	Description	Weekday Hours of Operation	Weekday Headways[2]	Weekend Hours of Operation	Weekend Headways[2]
29	Public Market Emeryville to Lakeshore Av. & Mandana Blvd., Oakland, via 65th St., Hollis St., Peralta St., West Oakland BART, 10th St., 11th/12th St., and Lakeshore Av., returning to Mandana Blvd. via Wala Vista Av.	6:30 AM – 10:30 PM	30 min	n/a	n/a
40	Downtown Oakland to Bay Fair BART via Foothill Blvd., Eastmont Transit Center and Bancroft Av.	6:10 AM – 12:30 AM	10 min	6:15 AM – 12:15 AM	30 min
72	Hilltop Mall to Jack London Square via Moyers Rd., Contra Costa College, San Pablo Av., El Cerrito del Norte BART, and Downtown Oakland.	4:50 AM – 12:40 AM	30-45 minutes	5:29 AM – 1:08 AM	30-45 minutes
72M	Point Richmond to Jack London Square via Garrard Blvd., Macdonald Av., El Cerrito del Norte BART, San Pablo Av., and Downtown Oakland	4:45 AM – 12:25 AM	30-35 minutes	4:53 AM – 1:44 AM	30-35 minutes
72R	San Pablo Rapid — Contra Costa College to Jack London Square via El Cerrito del Norte BART, San Pablo Av., and Downtown Oakland.	6:00 AM – 8:17 PM	10-15 minutes	6:55 AM – 7:59 PM	15 minutes
88	Downtown Berkeley to Lake Merritt BART via University Av., Sacramento St., Market St., and Downtown Oakland.	5:25 AM – 9:45 PM	20 min	5:25 AM – 9:45 PM	20 min
96	Alameda Point to Dimond District via Midway Av., Lincoln Av., Webster/Posey tubes, Downtown Oakland, E. 10th St., E. 12th St./ International Blvd., 14th Av. and Highland Hospital.	6:00 AM – 10:43 PM	30 minutes	6:00 AM – 10:49 PM	30 minutes

Notes:
1. Service description as of January 2022.

Source: Consolidated from AC Transit Route Schedules, 2022; Fehr & Peers, 2022.

6. Collision Analysis

A five-year history (January 1, 2016 to December 31, 2020) of collision data in the study area was obtained from the Statewide Integrated Traffic Records System (SWITRS) and evaluated for this collision analysis. **Table 11** summarizes the collision data by type and location, and **Table 12** summarizes the collision data by severity and location.

As shown in Table 11, 47 collisions were reported during this five-year timeframe along the four study intersections and the roadway segments adjacent to the Project site. The 12th Street/ Broadway intersection had the most collisions with 20, while 11th Street/Clay Street and 11th Street/Broadway both had nine collisions. The 12th Street/Clay Street intersection had only slightly fewer collisions. The most reported collision type within the study area are broadside collisions, representing 17 collisions (37 percent). Most of the collisions within the study area were due to drivers not stopping at a signal (38 percent), improper turning (19 percent), and pedestrian right-of-way violation (15 percent). Pedestrians were involved in twelve (26 percent) and cyclists were involved in two (four percent) of the reported collisions with motor vehicles. As shown in Table 12, 27 collisions (57 percent) resulted in injuries, and none resulted in fatalities.

The Highway Safety Manual (HSM, Predictive Method - Volume 2, Part C) provides a methodology to predict the number of collisions for intersections and street segments based on their specific characteristics, such as vehicle and pedestrian volume, number of lanes, signal phasing, on-street parking, and number of driveways. **Table 13** presents the predicted collision frequencies for the four study intersections and four study segments using the HSM Predictive Method for Urban and Suburban Arterials and compares the predicted collision frequencies with the actual reported collision frequencies. **Appendix D** provides the detailed predicted collision frequency calculation sheets based on the HSM methodology. Intersections or roadway segments with collision frequencies greater than the predicted frequency are identified as locations that should be evaluated in greater detail for collision trends and potential modifications.

As shown in Table 13, two study intersections, 11th Street/Clay Street and 12th Street/Broadway intersections, have a higher reported collision frequency than predicted by the HSM.

Table 11: Summary of Collisions by Type

Location	Head-on	Sideswipe	Rear-End	Broadside	Hit Object	Not Stated	Pedestrian-Involved	Other	Total
Intersections									
12th Street/Clay Street	0	2	2	2	0	1	1	0	8
11th Street/Clay Street	0	4	0	4	0	0	1	0	9
12th Street/Broadway	1	1	2	8	2	0	5	1	20
11th Street/Broadway	1	1	0	3	0	0	4	0	9
Roadway Segments									
12th Street (between Clay Street and Broadway)	0	0	0	0	0	0	1	0	1
11th Street (between Clay Street and Broadway)	0	0	0	0	0	0	0	0	0
Clay Street (between 11th and 12th Streets)	0	0	0	0	0	0	0	0	0
Broadway (between 11th and 12th Streets)	0	0	0	0	0	0	0	0	0
Total	***2***	***8***	***4***	***17***	***2***	***1***	***12***	***1***	***47***

Source: SWITRS five-year collision data reported from January 1, 2016 to December 31, 2020; Fehr & Peers, 2022.

Table 12: Summary of Collision Severity

Location	Property Damage Only Collisions	Injury Collisions	Fatality Collisions	Total	Person-Injuries			
					Bicycle	Pedestrian	Driver / Passenger	Total
Intersections								
12th Street/Clay Street	5	3	0	8	0	1	0	1
11th Street/Clay Street	6	3	0	9	0	1	0	1
12th Street/Broadway	7	13	0	20	1	5	0	6
11th Street/Broadway	2	7	0	9	1	4	0	5
Roadway Segment								
12th Street (between Clay Street and Broadway)	0	1	0	1	0	1	0	1
11th Street (between Clay Street and Broadway)	0	0	0	0	0	0	0	0
Clay Street (between 11th and 12th Streets)	0	0	0	0	0	0	0	0
Broadway (between 11th and 12th Streets)	0	0	0	0	0	0	0	0
Total	***20***	***27***	***0***	***47***	***2***	***12***	***0***	***14***

Source: SWITRS five-year collision data reported from January 1, 2016 to December 31, 2020; Fehr & Peers, 2022.

Table 13: Predicted and Actual Collision Frequencies

Location	Predicted Collision Frequency (per year)[1]	Actual Collision Frequency (per year)[2]	Difference	Higher Than Predicted?
Intersections				
12th Street/Clay Street[3]	1.8	1.6	-0.2	No
11th Street/Clay Street[3]	1.7	1.8	+0.1	Yes
12th Street/Broadway[3]	3.4	4.0	+0.6	Yes
11th Street/Broadway[3]	3.4	1.8	-1.6	No
Roadway Segments				
12th Street (between Clay Street and Broadway) [3]	0.3	0.2	-0.1	No
11th Street (between Clay Street and Broadway) [3]	0.4	0.0	-0.4	No
Clay Street (between 11th and 12th Streets)	0.1	0.0	-0.1	No
Broadway (between 11th and 12th Streets)	0.3	0.0	-0.3	No

Notes:
1. Based on the Highway Safety Manual Predictive Method (Volume 2, Part C).
2. Based on SWITRS five-year collision data reported from January 1, 2016 to December 31, 2020.
3. The HSM Predictive Method does not directly account for one-way roadway segments or intersections with one-way approaches. In this analysis, one-way crash frequencies on roadway segments are approximated to be equal to half of the crash frequency of a two-way divided road segment with double the one-way traffic volumes. Crash frequencies for intersections with one-way approaches are calculated as if the approaches are two-way.

Source: Fehr & Peers, 2022.

Most of the nine reported collisions at the 11th Street/Clay Street intersection during the five-year study period were due to signal violation (55 percent) or improper turning (33 percent). The nine collisions reported at the 11th Street/Clay Street intersection varied in location and type with no discernable trends. In January 2022, the signal timing parameters at the intersection were modified, including an increase in the yellow intervals for all approaches from 3.5 to four seconds, which can reduce signal violations. Since there are no discernable trends in the collision data at the intersection and considering the recent signal timing changes at the intersection, no modifications at the 11th Street/Clay Street intersection are recommended.

The 12th Street/Broadway intersection reported 20 collisions in the five-year period, including five pedestrian-involved collisions. Most of these collisions, including all the pedestrian-involved ones, occurred before the implementation of the Broadway Transit Lanes Project in 2020, which

converted one lane in each direction of Broadway between 11th and 20 Streets from mixed-flow to bus only, and included pedestrian safety improvements such as striping high-visibility crosswalks and providing LPIs for all pedestrian crossings which have a conflicting permissive right-turn traffic movement during a green signal phase. Considering the short time since the implementation of these improvements, comprehensive collision data after the implementation of the improvements is not available. However, considering the types of the reported collisions, the implementation of the recent improvements is anticipated to improve the visibility of pedestrians and reduce motor vehicle speeds, which are expected to reduce the collision rates at the intersection. Thus, no additional modifications related to roadway safety beyond the ones previously provided in this memorandum are recommended.

7. Conclusion and Summary of Recommendations

Based on our review of the Project site plan and conditions on the surrounding streets, the Project would have adequate automobile, bicycle, pedestrian, and transit access and circulation with the inclusion of the following recommendations:

Recommendation 6: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Reduce the width of the existing driveway adjacent on 11th Street just west of the Project from 28 to 24 feet.

Recommendation 2: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Allocate curb space on 11th street to accommodate at least one accessible passenger loading (white curb) space near the lobby entrance.

Recommendation 3: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Consider relocating some long-term bicycle parking to a more convenient location on the ground level within easy access of the lobby.

- If no long-term bicycle parking can be provided on the ground level, ensure that at least one elevator providing access to the basement level can accommodate individuals accompanied by bicycles, including recumbent or cargo bicycles which have an extended wheelbase.

Recommendation 4: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Explore the feasibility and if deemed feasible by City staff, install the following at the 11th Street/Clay Street intersection:
    - Provide a dual directional curb ramp with truncated domes consistent with ADA standards on the northeast corner of the intersection.
- Explore the feasibility and if deemed feasible by City staff, install the following at the 11th Street/Broadway intersection:
    - As recommended in the City's 2017 Pedestrian Plan, "Oakland Walks!", extend the median on the south side of the 11th Street/Broadway intersection to provide a refuge island.
- Explore the feasibility and if deemed feasible by City staff, install the following at the 12th Street/Center Walk intersection:
    - Upgrade the crossing to provide a crosswalk marked by continental striping and an advanced stop bar.

Recommendation 5: While not required to address a CEQA impact, and at the discretion of City of Oakland staff and in consultation with AC Transit, the following shall be considered as part of the final design for the Project:

- Consider consolidating the existing AC Transit stops on the south side of 11th Street located 120-feet east of Clay Street and on the corner of Broadway to a new location approximately 230 feet west of Broadway. If feasible, also consider the construction of a bus shelter, concrete bus pad, and other transit stop amenities at the potential new location.
- Install a signalized midblock pedestrian crossing across 11th Street aligned with the existing pedestrian walkway on the east side of the Project site to improve access to the relocated bus stop. This crossing would also improve north-south pedestrian connectivity into the Civic Center due to its alignment with "Center Walk" and the existing 12th Street midblock crossing.

- Explore the feasibility of, and implement if found feasible, sidewalk widening on south side of 11th Street at the location of the proposed bus stop to provide a bus bulb with adequate space to accommodate a bus shelter and other amenities. Constructing the bus bulb would require elimination of parking and/or a travel lane on 11th Street and shall not preclude the future installation of Class 4 protected bike lanes as proposed in the 2019 Oakland Bike Plan.

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

ATTACHMENTS

Figure 1 – Project Vehicle Trip Distribution

Figure 2 – Existing Peak Hour Intersection Volumes, Lane Configurations, and Traffic Controls

Figure 3 –Existing Plus Project Peak Hour Intersection Volumes, Lane Configurations, and Traffic Controls

Appendix A – Intersection Traffic Volume Counts

Appendix B – Intersection LOS Calculation Sheets

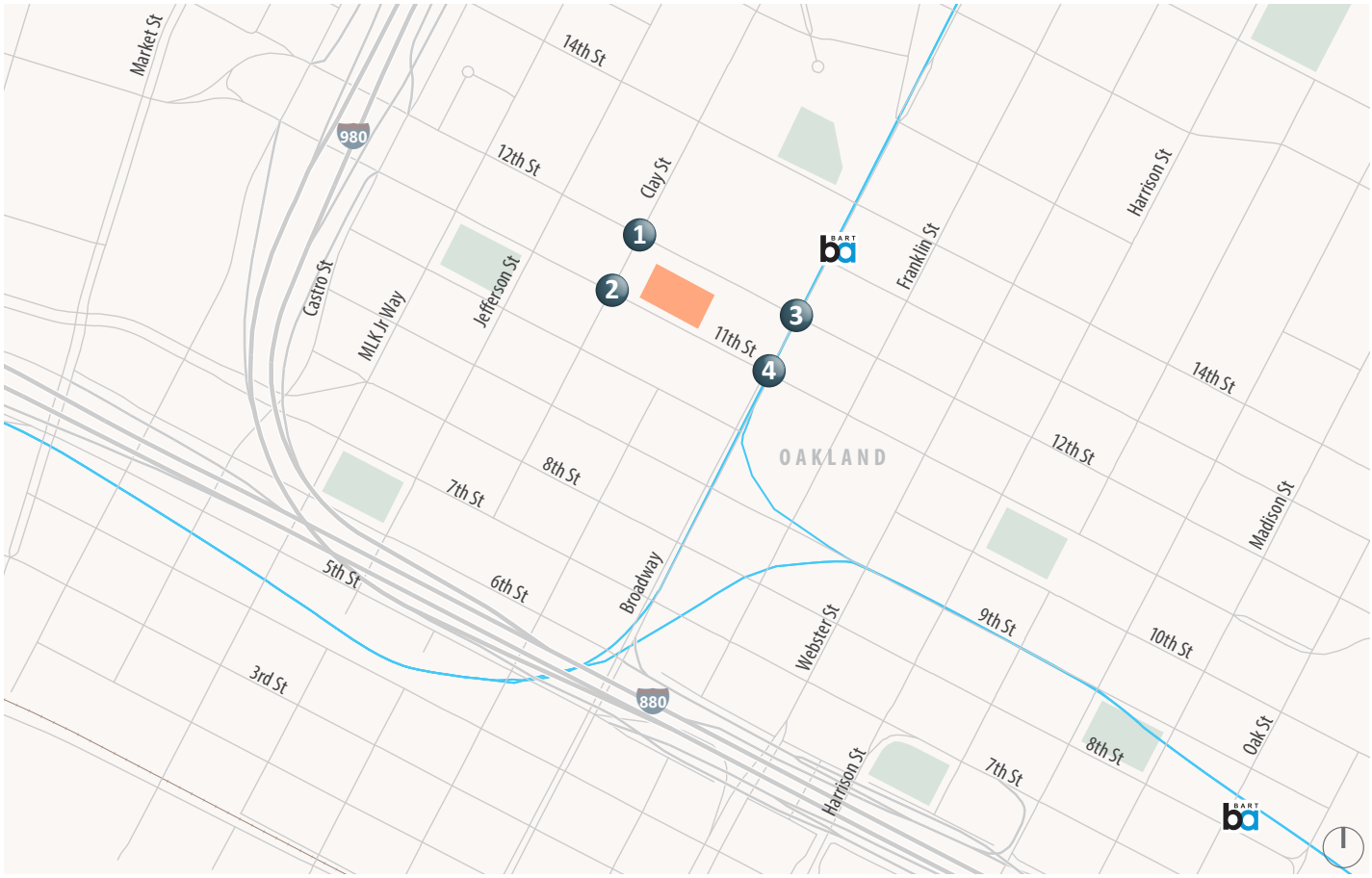
Appendix C – Truck Turning Exhibit

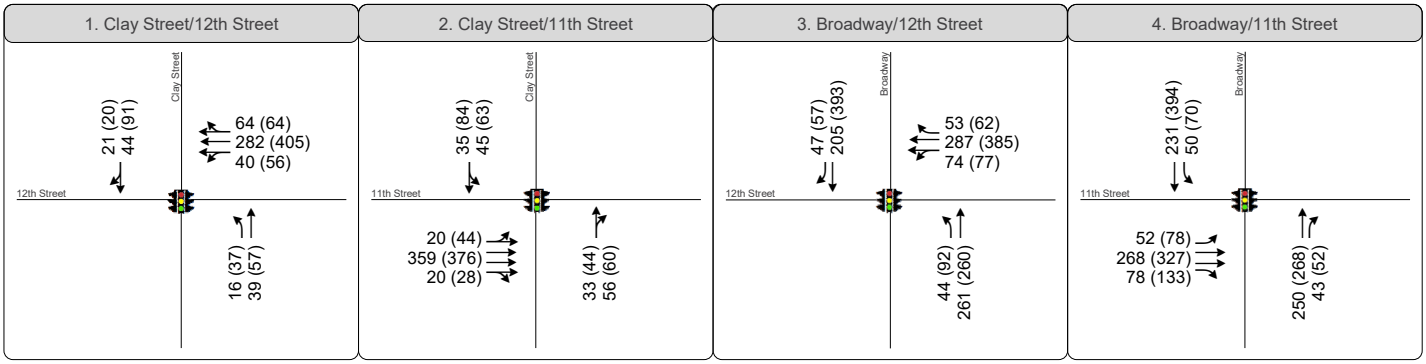
Appendix D – Predicted Collision Frequency Calculation Sheets

Figure 1

Project Vehicle Trip Distribution

OK21-0450_1_TripDistro





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

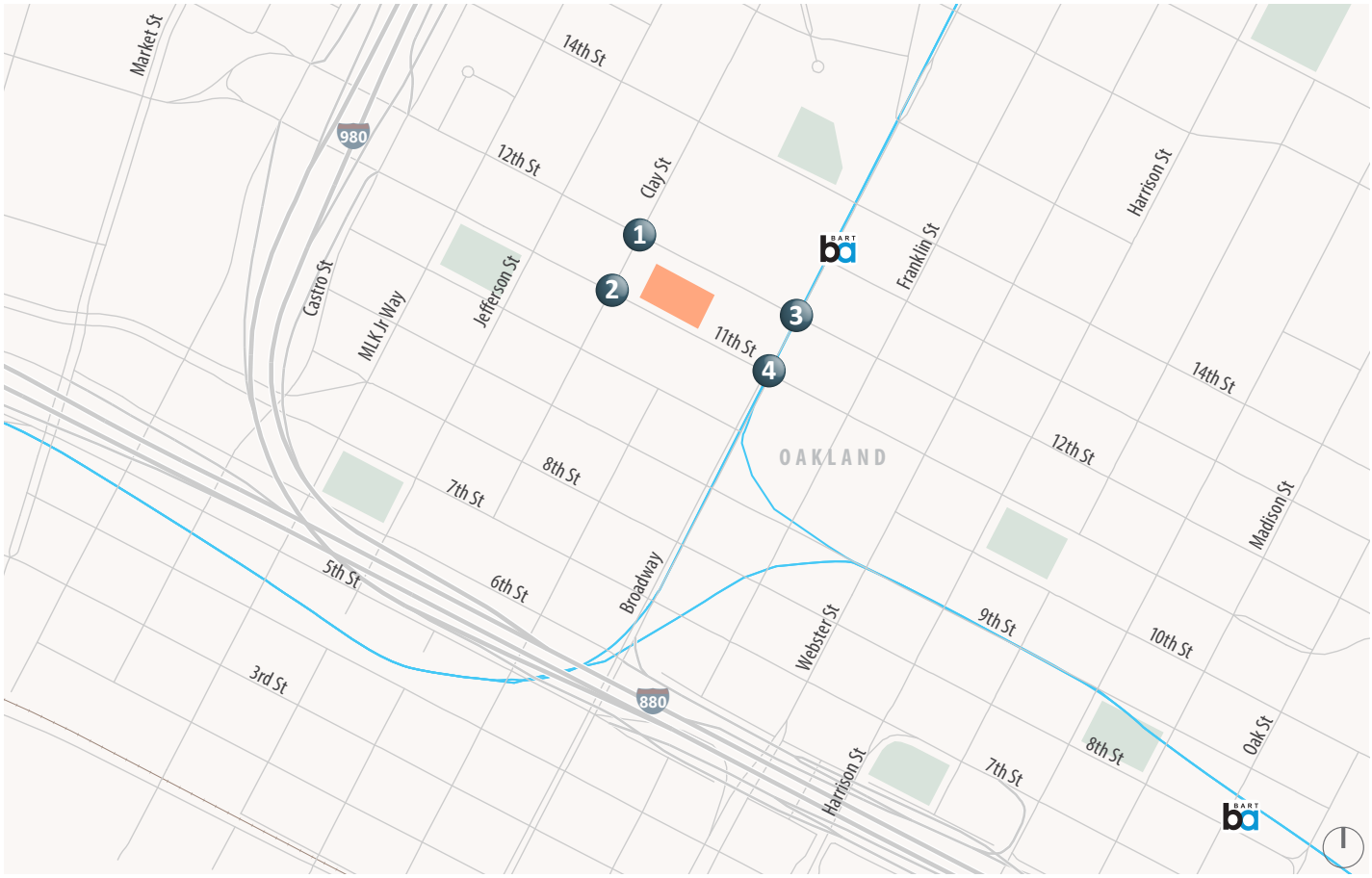
Signalized Intersection

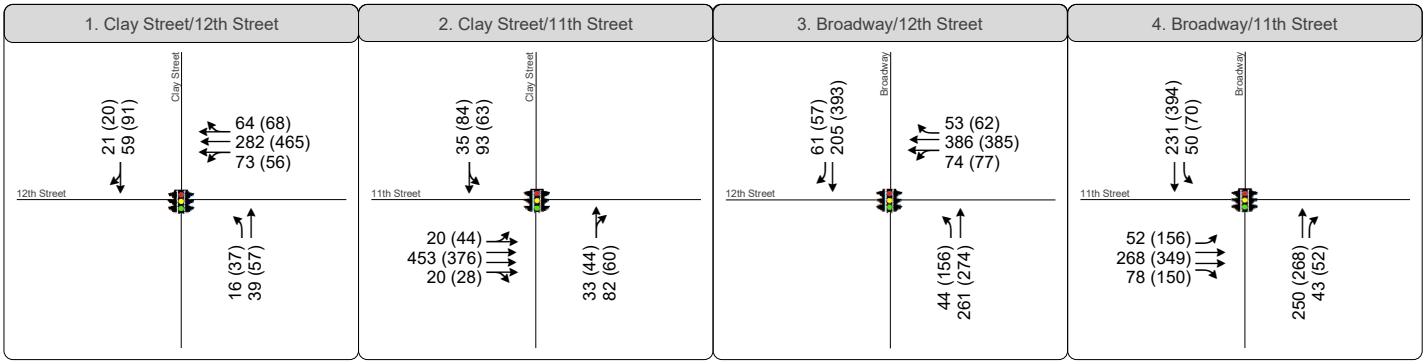
Project Site

Study Intersection

Figure 2

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





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

Signalized Intersection

Project Site

Study Intersection

Figure 3

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

Appendix A: Intersection Traffic Volume Counts

Prepared by National Data & Surveying Services

Clay St & 12th St

Peak Hour Turning Movement Count

ID: 22-080048-004
City: Oakland

Day: Tuesday
Date: 2/15/2022

PEAK HOURS

AM	08:00 AM - 09:00 AM
NOON	NONE
PM	04:30 PM - 05:30 PM

COUNT PERIODS

AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

SOUTHBOUND (Clay St)

AM	21	44	0	2	106	AM
NOON	0	0	0	0	0	NOON
PM	20	91	0	4	125	PM

EASTBOUND (12th St)

AM	NOON	PM	
319	0	462	⇦
0	0	0	↱ 0
0	0	0	↱ 0
0	0	0	→ 0
0	0	0	↳ 0
AM	NOON	PM	

WESTBOUND (12th St)

PM	NOON	AM	
64	0	65	0 ↰
405	0	282	3 ←
56	0	40	0 ↰
0	0	0	0 ↰
0	0	0	⇨
PM	NOON	AM	

NORTHBOUND (Clay St)

PM	147	0	37	57	0	PM
NOON	0	0	0	0	0	NOON
AM	84	0	16	39	0	AM

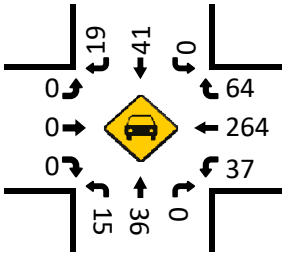
⇩	↰ 0	↰ 1	↑ 1	↱ 0

CONTROL

Signalized

TEV	509 AM	0 NOON	734 PM
PHF	0.83		0.93

Cars (AM)



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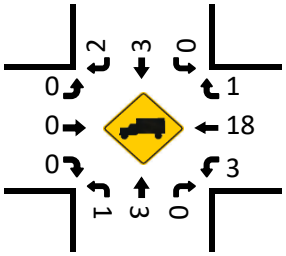

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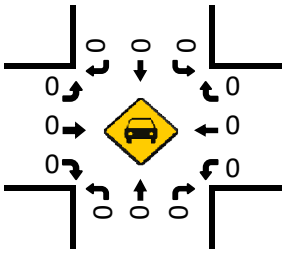

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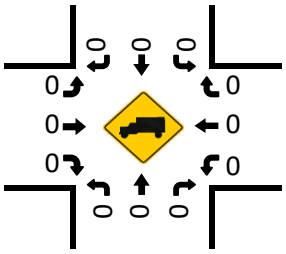
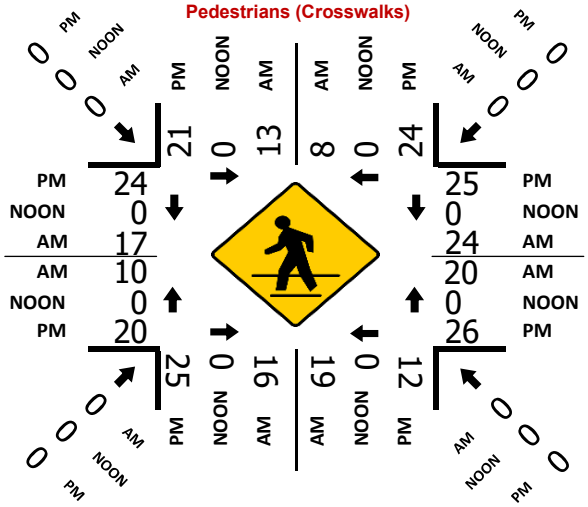


Pedestrians (Crosswalks)



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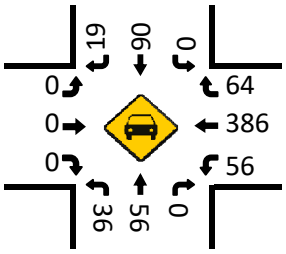

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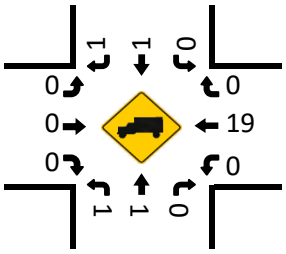


Prepared by National Data & Surveying Services

Clay St & 11th St

Peak Hour Turning Movement Count

ID: 22-080048-003
City: Oakland

Day: Tuesday
Date: 2/15/2022

PEAK HOURS	
AM	07:45 AM - 08:45 AM
NOON	NONE
PM	04:45 PM - 05:45 PM

COUNT PERIODS	
AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

SOUTHBOUND (Clay St)

AM	0	35	45	0	53	AM
NOON	0	0	0	0	0	NOON
PM	0	84	63	0	88	PM

EASTBOUND (11th St)

AM	NOON	PM	
0	0	0	
0	0	0	0
20	0	44	0
359	0	376	4
20	0	28	0
AM	NOON	PM	

WESTBOUND (11th St)

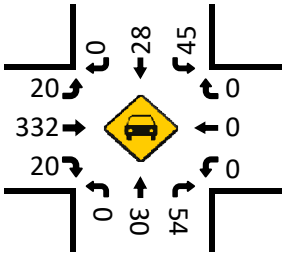
PM	NOON	AM	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
499	0	460	
PM	NOON	AM	

NORTHBOUND (Clay St)

PM	112	0	0	44	60	PM
NOON	0	0	0	0	0	NOON
AM	55	0	0	33	56	AM

CONTROL			
Signalized			
TEV	568 AM	0 NOON	699 PM
PHF	0.90		0.88

Cars (AM)



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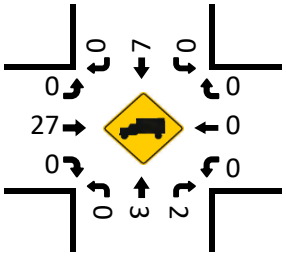

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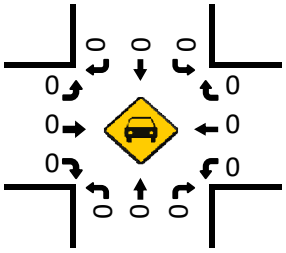
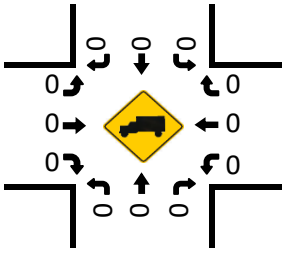
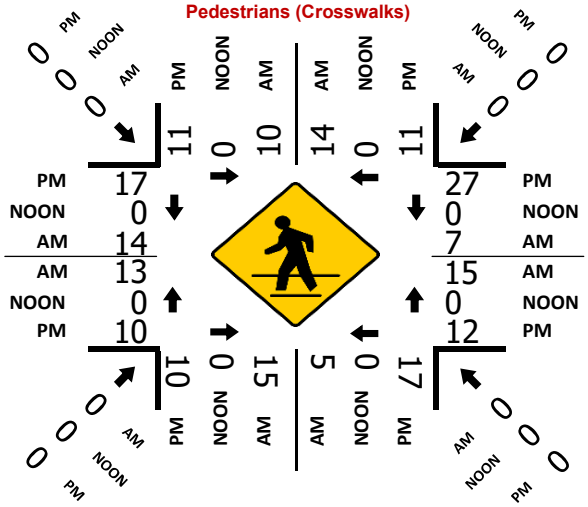


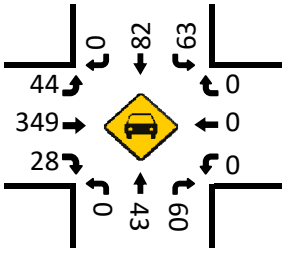
HT (NOON)



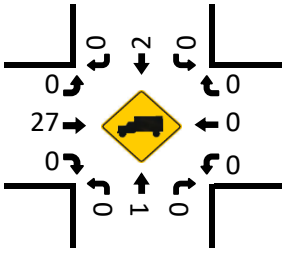
Pedestrians (Crosswalks)



Cars (PM)



HT (PM)



Prepared by National Data & Surveying Services

Broadway & 12th St

Peak Hour Turning Movement Count

ID: 22-080048-002
City: Oakland

Day: Tuesday
Date: 2/15/2022

PEAK HOURS

AM	07:45 AM - 08:45 AM
NOON	NONE
PM	04:30 PM - 05:30 PM

COUNT PERIODS

AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

CONTROL: Signalized

	AM	NOON	PM
TEV	971	0	1326
PHF	0.91		0.94

SOUTHBOUND (Broadway)

	Left	Thru	Right	U-Turn	Total	
AM	47	205	0	0	314	AM
NOON	0	0	0	0	0	NOON
PM	57	393	0	0	322	PM

EASTBOUND (12th St)

	Left	Thru	Right	U-Turn	
AM	378	0	534		AM
NOON	0	0	0	0	NOON
PM	0	0	0	0	PM

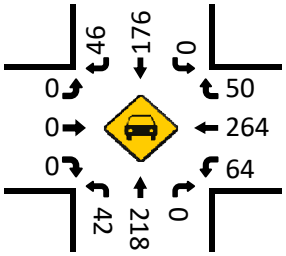
WESTBOUND (12th St)

	Left	Thru	Right	U-Turn	
PM	62	0	53		PM
NOON	385	0	287		NOON
AM	77	0	74		AM
	0	0	0	0	

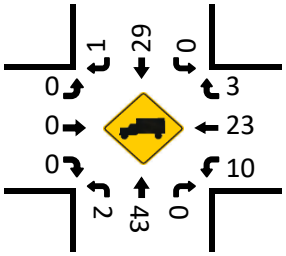
NORTHBOUND (Broadway)

	Left	Thru	Right	U-Turn	Total	
PM	470	0	92	260	0	PM
NOON	0	0	0	0	0	NOON
AM	279	0	44	261	0	AM

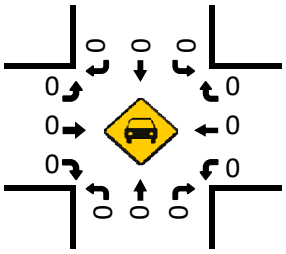
Cars (AM)



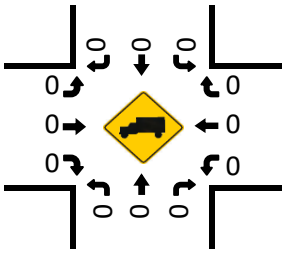
HT (AM)



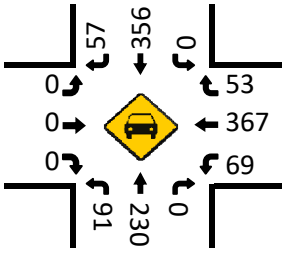
Cars (NOON)



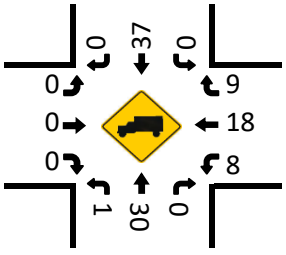
HT (NOON)



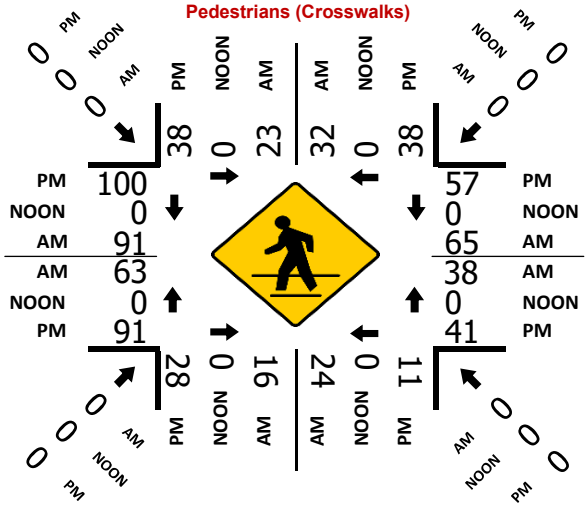
Cars (PM)



HT (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

Broadway & 11th St

Peak Hour Turning Movement Count

ID: 22-080048-001
City: Oakland

Day: Tuesday
Date: 2/15/2022

PEAK HOURS

AM	07:45 AM - 08:45 AM
NOON	NONE
PM	05:00 PM - 06:00 PM

COUNT PERIODS

AM	7:00 AM - 09:00 AM
NOON	NONE
PM	4:00 PM - 06:00 PM

SOUTHBOUND (Broadway)

AM	0	231	47	3	305	AM
NOON	0	0	0	0	0	NOON
PM	0	394	70	0	346	PM

EASTBOUND (11th St)

AM	NOON	PM	
0	0	0	
0	0	0	0
52	0	78	1
268	0	327	2
78	0	133	1
AM	NOON	PM	

WESTBOUND (11th St)

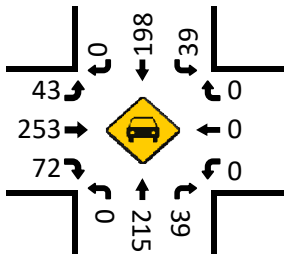
PM	NOON	AM	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
PM	NOON	AM	

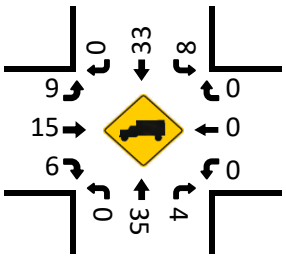
NORTHBOUND (Broadway)

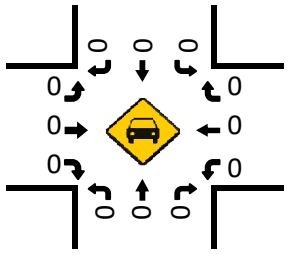
PM	528	1	0	268	52	PM
NOON	0	0	0	0	0	NOON
AM	309	0	0	250	43	AM

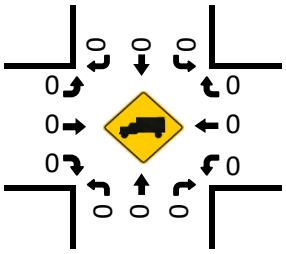
CONTROL: Signalized

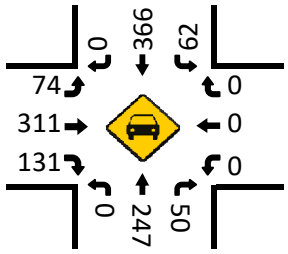
TEV	972 AM	0 NOON	1323 PM
PHF	0.90		0.89

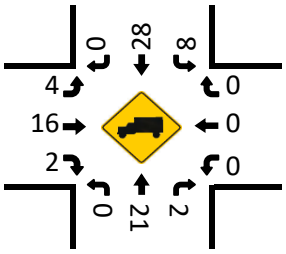


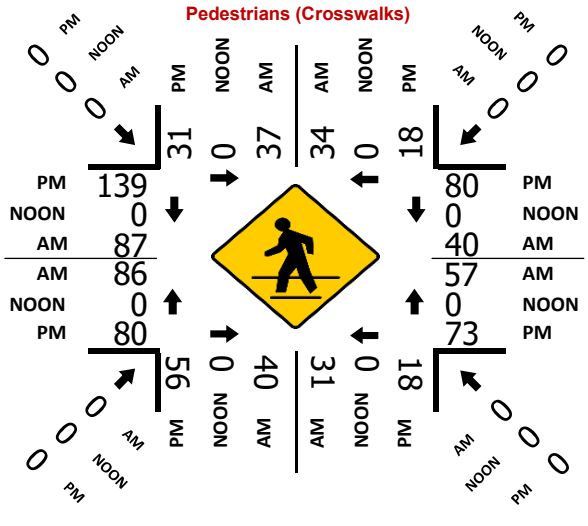




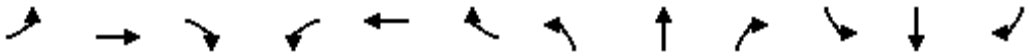








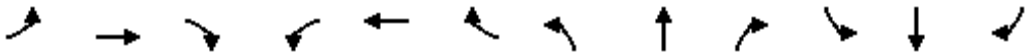
Appendix B: Intersection LOS Calculation Sheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	40	282	64	16	39	0	0	44	21
Future Volume (veh/h)	0	0	0	40	282	64	16	39	0	0	44	21
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.96	0.98		1.00	1.00		0.98
Parking Bus, Adj				0.88	1.00	0.88	1.00	1.00	1.00	1.00	1.00	0.88
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1811	1811	1811	1811	1811	0	0	1811	1811
Adj Flow Rate, veh/h				40	282	64	16	39	0	0	44	21
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				6	6	6	6	6	0	0	6	6
Cap, veh/h				194	1446	323	627	770	0	0	428	204
Arrive On Green				0.43	0.43	0.43	0.43	0.43	0.00	0.00	0.43	0.43
Sat Flow, veh/h				456	3403	760	1273	1811	0	0	1007	480
Grp Volume(v), veh/h				137	130	119	16	39	0	0	0	65
Grp Sat Flow(s),veh/h/ln				1562	1648	1409	1273	1811	0	0	0	1487
Q Serve(g_s), s				3.3	3.0	3.2	0.5	0.8	0.0	0.0	0.0	1.6
Cycle Q Clear(g_c), s				3.3	3.0	3.2	2.0	0.8	0.0	0.0	0.0	1.6
Prop In Lane				0.29		0.54	1.00		0.00	0.00		0.32
Lane Grp Cap(c), veh/h				664	700	599	627	770	0	0	0	632
V/C Ratio(X)				0.21	0.19	0.20	0.03	0.05	0.00	0.00	0.00	0.10
Avail Cap(c_a), veh/h				664	700	599	627	770	0	0	0	632
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.93	0.93	0.93	1.00	1.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				10.9	10.8	10.8	11.0	10.1	0.0	0.0	0.0	10.4
Incr Delay (d2), s/veh				0.7	0.5	0.7	0.1	0.1	0.0	0.0	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
%ile BackOfQ(50%),veh/ln				1.1	1.1	1.0	0.1	0.3	0.0	0.0	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				11.5	11.3	11.5	11.1	10.3	0.0	0.0	0.0	10.7
LnGrp LOS				B	B	B	B	B	A	A	A	B
Approach Vol, veh/h					386			55			65	
Approach Delay, s/veh					11.5			10.5			10.7	
Approach LOS					B			B			B	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		30.0		30.0				30.0				
Change Period (Y+Rc), s		4.5		4.5				4.5				
Max Green Setting (Gmax), s		25.5		25.5				25.5				
Max Q Clear Time (g_c+I1), s		5.3		4.0				3.6				
Green Ext Time (p_c), s		2.2		0.2				0.3				

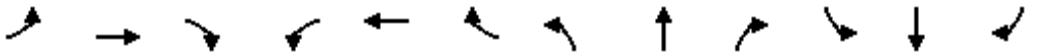
Intersection Summary		
HCM 6th Ctrl Delay		11.3
HCM 6th LOS		B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	359	20	0	0	0	0	33	56	45	35	0
Future Volume (veh/h)	20	359	20	0	0	0	0	33	56	45	35	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97				1.00		0.97	0.98		1.00
Parking Bus, Adj	0.88	1.00	0.98				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796				0	1796	1796	1796	1796	0
Adj Flow Rate, veh/h	20	359	20				0	33	56	45	35	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	7	7	7				0	7	7	7	7	0
Cap, veh/h	124	2381	133				0	245	416	400	285	0
Arrive On Green	0.42	0.42	0.42				0.00	0.42	0.42	0.42	0.42	0.00
Sat Flow, veh/h	296	5715	320				0	588	997	736	684	0
Grp Volume(v), veh/h	105	189	105				0	0	89	80	0	0
Grp Sat Flow(s),veh/h/ln	1557	1545	1684				0	0	1585	1420	0	0
Q Serve(g_s), s	2.5	2.3	2.3				0.0	0.0	2.1	0.1	0.0	0.0
Cycle Q Clear(g_c), s	2.5	2.3	2.3				0.0	0.0	2.1	2.2	0.0	0.0
Prop In Lane	0.19		0.19				0.00		0.63	0.56		0.00
Lane Grp Cap(c), veh/h	649	1287	702				0	0	660	685	0	0
V/C Ratio(X)	0.16	0.15	0.15				0.00	0.00	0.13	0.12	0.00	0.00
Avail Cap(c_a), veh/h	649	1287	702				0	0	660	685	0	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.9	10.9	10.9				0.0	0.0	10.8	10.7	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.2	0.5				0.0	0.0	0.4	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.7	0.9				0.0	0.0	0.7	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.5	11.1	11.3				0.0	0.0	11.2	11.0	0.0	0.0
LnGrp LOS	B	B	B				A	A	B	B	A	A
Approach Vol, veh/h		399						89			80	
Approach Delay, s/veh		11.3						11.2			11.0	
Approach LOS		B						B			B	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		30.0		30.0				30.0				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		25.0		25.0				25.0				
Max Q Clear Time (g_c+I1), s		4.5		4.1				4.2				
Green Ext Time (p_c), s		1.6		0.3				0.2				

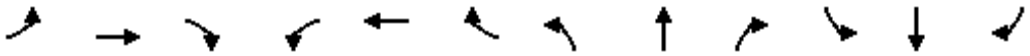
Intersection Summary			
HCM 6th Ctrl Delay		11.2	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	74	287	53	44	261	0	0	205	47
Future Volume (veh/h)	0	0	0	74	287	53	44	261	0	0	205	47
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.89	0.97		1.00	1.00		0.90
Parking Bus, Adj				1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1737	1737	1737	1737	1737	0	0	1737	1737
Adj Flow Rate, veh/h				74	287	53	44	261	0	0	205	47
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				11	11	11	11	11	0	0	11	11
Cap, veh/h				157	648	306	643	1097	0	0	940	717
Arrive On Green				0.24	0.24	0.24	0.07	1.00	0.00	0.00	0.54	0.54
Sat Flow, veh/h				655	2699	1272	1654	1737	0	0	1737	1326
Grp Volume(v), veh/h				192	169	53	44	261	0	0	205	47
Grp Sat Flow(s),veh/h/ln				1704	1650	1272	1654	1737	0	0	1737	1326
Q Serve(g_s), s				6.8	6.1	2.3	0.8	0.0	0.0	0.0	4.3	1.2
Cycle Q Clear(g_c), s				6.8	6.1	2.3	0.8	0.0	0.0	0.0	4.3	1.2
Prop In Lane				0.38		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				409	396	306	643	1097	0	0	940	717
V/C Ratio(X)				0.47	0.43	0.17	0.07	0.24	0.00	0.00	0.22	0.07
Avail Cap(c_a), veh/h				633	613	473	707	1097	0	0	940	717
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.98	0.98	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				22.8	22.5	21.1	5.8	0.0	0.0	0.0	8.4	7.6
Incr Delay (d2), s/veh				0.3	0.3	0.1	0.0	0.5	0.0	0.0	0.5	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.6	2.3	0.7	0.2	0.2	0.0	0.0	1.5	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				23.1	22.8	21.2	5.8	0.5	0.0	0.0	8.9	7.8
LnGrp LOS				C	C	C	A	A	A	A	A	A
Approach Vol, veh/h					414			305			252	
Approach Delay, s/veh					22.7			1.3			8.7	
Approach LOS					C			A			A	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		49.2			6.3	42.9		20.8				
Change Period (Y+Rc), s		5.0			4.0	5.0		4.0				
Max Green Setting (Gmax), s		35.0			5.0	26.0		26.0				
Max Q Clear Time (g_c+I1), s		2.0			2.8	6.3		8.8				
Green Ext Time (p_c), s		1.0			0.0	0.8		1.4				

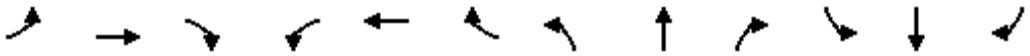
Intersection Summary												
HCM 6th Ctrl Delay			12.3									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	268	78	0	0	0	0	250	43	50	231	0
Future Volume (veh/h)	52	268	78	0	0	0	0	250	43	50	231	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.84				1.00		0.93	0.97		1.00
Parking Bus, Adj	0.88	1.00	1.00				1.00	1.00	0.84	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1737	1737	1737				0	1737	1737	1737	1737	0
Adj Flow Rate, veh/h	52	268	78				0	250	43	50	231	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	11	11	11				0	11	11	11	11	0
Cap, veh/h	323	737	276				0	707	466	679	1138	0
Arrive On Green	0.22	0.22	0.22				0.00	0.41	0.41	0.37	1.00	0.00
Sat Flow, veh/h	1447	3300	1238				0	1737	1143	1654	1737	0
Grp Volume(v), veh/h	52	268	78				0	250	43	50	231	0
Grp Sat Flow(s),veh/h/ln	1447	1650	1238				0	1737	1143	1654	1737	0
Q Serve(g_s), s	2.0	4.8	3.7				0.0	7.0	1.6	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.0	4.8	3.7				0.0	7.0	1.6	0.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	323	737	276				0	707	466	679	1138	0
V/C Ratio(X)	0.16	0.36	0.28				0.00	0.35	0.09	0.07	0.20	0.00
Avail Cap(c_a), veh/h	496	1132	424				0	707	466	679	1138	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	0.99	0.99	0.99				0.00	1.00	1.00	0.98	0.98	0.00
Uniform Delay (d), s/veh	21.9	23.0	22.5				0.0	14.4	12.8	8.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.2				0.0	1.4	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.8	1.0				0.0	2.8	0.4	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.0	23.1	22.7				0.0	15.8	13.2	8.2	0.0	0.0
LnGrp LOS	C	C	C				A	B	B	A	A	A
Approach Vol, veh/h		398						293			281	
Approach Delay, s/veh		22.9						15.4			1.5	
Approach LOS		C						B			A	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	17.4	33.0		19.6		50.4
Change Period (Y+Rc), s	4.5	4.5		4.0		4.5
Max Green Setting (Gmax), s	4.5	28.5		24.0		37.5
Max Q Clear Time (g_c+I1), s	2.0	9.0		6.8		2.0
Green Ext Time (p_c), s	0.0	1.0		1.3		0.9

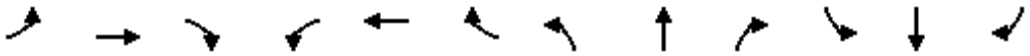
Intersection Summary	
HCM 6th Ctrl Delay	14.4
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	56	405	64	37	57	0	0	91	20
Future Volume (veh/h)	0	0	0	56	405	64	37	57	0	0	91	20
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.95	0.98		1.00	1.00		0.97
Parking Bus, Adj				0.88	1.00	0.88	1.00	1.00	1.00	1.00	1.00	0.88
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				56	405	64	37	57	0	0	91	20
Peak Hour Factor				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	0	0	3	3
Cap, veh/h				202	1551	246	603	808	0	0	558	123
Arrive On Green				0.42	0.42	0.42	0.44	0.44	0.00	0.00	0.44	0.44
Sat Flow, veh/h				482	3699	586	1240	1856	0	0	1281	282
Grp Volume(v), veh/h				186	178	161	37	57	0	0	0	111
Grp Sat Flow(s),veh/h/ln				1600	1689	1479	1240	1856	0	0	0	1563
Q Serve(g_s), s				4.7	4.2	4.4	1.2	1.1	0.0	0.0	0.0	2.7
Cycle Q Clear(g_c), s				4.7	4.2	4.4	3.8	1.1	0.0	0.0	0.0	2.7
Prop In Lane				0.30		0.40	1.00		0.00	0.00		0.18
Lane Grp Cap(c), veh/h				671	708	620	603	808	0	0	0	680
V/C Ratio(X)				0.28	0.25	0.26	0.06	0.07	0.00	0.00	0.00	0.16
Avail Cap(c_a), veh/h				671	708	620	603	808	0	0	0	680
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.89	0.89	0.89	0.99	0.99	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				11.8	11.7	11.7	11.8	10.2	0.0	0.0	0.0	10.6
Incr Delay (d2), s/veh				0.9	0.8	0.9	0.2	0.2	0.0	0.0	0.0	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.7	1.6	1.4	0.3	0.4	0.0	0.0	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				12.7	12.4	12.6	12.0	10.4	0.0	0.0	0.0	11.1
LnGrp LOS				B	B	B	B	B	A	A	A	B
Approach Vol, veh/h					525			94			111	
Approach Delay, s/veh					12.6			11.0			11.1	
Approach LOS					B			B			B	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		30.5		31.5				31.5				
Change Period (Y+Rc), s		4.5		4.5				4.5				
Max Green Setting (Gmax), s		25.5		27.0				27.0				
Max Q Clear Time (g_c+I1), s		6.7		5.8				4.7				
Green Ext Time (p_c), s		3.0		0.3				0.5				

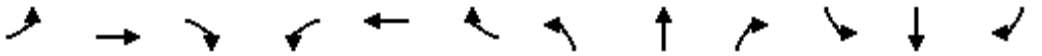
Intersection Summary												
HCM 6th Ctrl Delay			12.2									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	376	28	0	0	0	0	44	60	63	84	0
Future Volume (veh/h)	44	376	28	0	0	0	0	44	60	63	84	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97				1.00		0.95	0.96		1.00
Parking Bus, Adj	0.88	1.00	0.98				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841				0	1841	1841	1841	1841	0
Adj Flow Rate, veh/h	44	376	28				0	44	60	63	84	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4				0	4	4	4	4	0
Cap, veh/h	246	2274	169				0	285	389	327	404	0
Arrive On Green	0.42	0.42	0.42				0.00	0.42	0.42	0.42	0.42	0.00
Sat Flow, veh/h	591	5459	405				0	685	934	580	969	0
Grp Volume(v), veh/h	118	212	118				0	0	104	147	0	0
Grp Sat Flow(s),veh/h/ln	1581	1583	1708				0	0	1619	1549	0	0
Q Serve(g_s), s	2.8	2.5	2.6				0.0	0.0	2.4	0.5	0.0	0.0
Cycle Q Clear(g_c), s	2.8	2.5	2.6				0.0	0.0	2.4	3.1	0.0	0.0
Prop In Lane	0.37		0.24				0.00		0.58	0.43		0.00
Lane Grp Cap(c), veh/h	659	1319	711				0	0	674	731	0	0
V/C Ratio(X)	0.18	0.16	0.17				0.00	0.00	0.15	0.20	0.00	0.00
Avail Cap(c_a), veh/h	659	1319	711				0	0	674	731	0	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.0	10.9	11.0				0.0	0.0	10.9	11.1	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.3	0.5				0.0	0.0	0.5	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.8	1.0				0.0	0.0	0.8	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.6	11.2	11.5				0.0	0.0	11.4	11.7	0.0	0.0
LnGrp LOS	B	B	B				A	A	B	B	A	A
Approach Vol, veh/h		448						104			147	
Approach Delay, s/veh		11.4						11.4			11.7	
Approach LOS		B						B			B	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		30.0		30.0				30.0				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		25.0		25.0				25.0				
Max Q Clear Time (g_c+I1), s		4.8		4.4				5.1				
Green Ext Time (p_c), s		1.8		0.3				0.5				

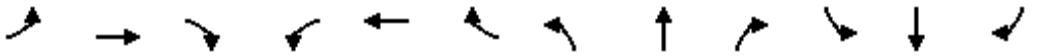
Intersection Summary			
HCM 6th Ctrl Delay		11.5	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	77	385	62	92	260	0	0	393	57
Future Volume (veh/h)	0	0	0	77	385	62	92	260	0	0	393	57
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.86	0.99		1.00	1.00		0.88
Parking Bus, Adj				1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1781	1781	1781	1781	1781	0	0	1781	1781
Adj Flow Rate, veh/h				77	385	62	92	260	0	0	393	57
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				8	8	8	8	8	0	0	8	8
Cap, veh/h				152	805	353	488	1058	0	0	871	652
Arrive On Green				0.28	0.28	0.28	0.10	1.00	0.00	0.00	0.49	0.49
Sat Flow, veh/h				548	2898	1272	1697	1781	0	0	1781	1333
Grp Volume(v), veh/h				246	216	62	92	260	0	0	393	57
Grp Sat Flow(s),veh/h/ln				1754	1692	1272	1697	1781	0	0	1781	1333
Q Serve(g_s), s				8.3	7.4	2.6	1.8	0.0	0.0	0.0	10.1	1.6
Cycle Q Clear(g_c), s				8.3	7.4	2.6	1.8	0.0	0.0	0.0	10.1	1.6
Prop In Lane				0.31		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				487	470	353	488	1058	0	0	871	652
V/C Ratio(X)				0.51	0.46	0.18	0.19	0.25	0.00	0.00	0.45	0.09
Avail Cap(c_a), veh/h				677	653	491	553	1058	0	0	871	652
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.97	0.97	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				21.2	20.9	19.2	7.8	0.0	0.0	0.0	11.7	9.5
Incr Delay (d2), s/veh				0.3	0.3	0.1	0.1	0.5	0.0	0.0	1.7	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.2	2.8	0.7	0.5	0.2	0.0	0.0	4.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				21.5	21.2	19.3	7.8	0.5	0.0	0.0	13.4	9.8
LnGrp LOS				C	C	B	A	A	A	A	B	A
Approach Vol, veh/h					524			352			450	
Approach Delay, s/veh					21.1			2.4			13.0	
Approach LOS					C			A			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		46.6			7.3	39.2		23.4				
Change Period (Y+Rc), s		5.0			4.0	5.0		4.0				
Max Green Setting (Gmax), s		34.0			6.0	24.0		27.0				
Max Q Clear Time (g_c+I1), s		2.0			3.8	12.1		10.3				
Green Ext Time (p_c), s		1.0			0.0	1.4		1.8				

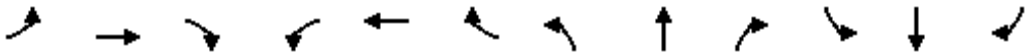
Intersection Summary												
HCM 6th Ctrl Delay			13.4									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	327	133	0	0	0	0	268	52	70	394	0
Future Volume (veh/h)	78	327	133	0	0	0	0	268	52	70	394	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.85				1.00		0.88	0.95		1.00
Parking Bus, Adj	0.88	1.00	1.00				1.00	1.00	0.84	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1781				0	1781	1781	1781	1781	0
Adj Flow Rate, veh/h	78	327	133				0	268	52	70	394	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	8	8	8				0	8	8	8	8	0
Cap, veh/h	355	808	305				0	700	438	658	1140	0
Arrive On Green	0.24	0.24	0.24				0.00	0.39	0.39	0.37	1.00	0.00
Sat Flow, veh/h	1485	3385	1276				0	1781	1115	1697	1781	0
Grp Volume(v), veh/h	78	327	133				0	268	52	70	394	0
Grp Sat Flow(s),veh/h/ln	1485	1692	1276				0	1781	1115	1697	1781	0
Q Serve(g_s), s	3.0	5.7	6.2				0.0	7.5	2.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.0	5.7	6.2				0.0	7.5	2.1	0.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	355	808	305				0	700	438	658	1140	0
V/C Ratio(X)	0.22	0.40	0.44				0.00	0.38	0.12	0.11	0.35	0.00
Avail Cap(c_a), veh/h	530	1209	456				0	700	438	658	1140	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	0.99	0.99	0.99				0.00	1.00	1.00	0.89	0.89	0.00
Uniform Delay (d), s/veh	21.4	22.4	22.6				0.0	15.2	13.5	9.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.4				0.0	1.6	0.6	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.2	1.8				0.0	3.1	0.6	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.5	22.6	23.0				0.0	16.8	14.1	9.1	0.1	0.0
LnGrp LOS	C	C	C				A	B	B	A	A	A
Approach Vol, veh/h		538						320			464	
Approach Delay, s/veh		22.5						16.3			1.4	
Approach LOS		C						B			A	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	17.3	32.0		20.7		49.3						
Change Period (Y+Rc), s	4.5	4.5		4.0		4.5						
Max Green Setting (Gmax), s	4.5	27.5		25.0		36.5						
Max Q Clear Time (g_c+I1), s	2.0	9.5		8.2		2.0						
Green Ext Time (p_c), s	0.0	1.0		1.7		1.7						

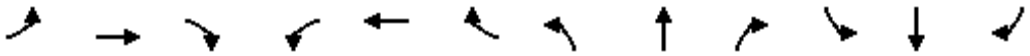
Intersection Summary												
HCM 6th Ctrl Delay			13.6									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	73	282	64	16	39	0	0	59	21
Future Volume (veh/h)	0	0	0	73	282	64	16	39	0	0	59	21
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.96	0.98		1.00	1.00		0.98
Parking Bus, Adj				0.88	1.00	0.88	1.00	1.00	1.00	1.00	1.00	0.88
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1811	1811	1811	1811	1811	0	0	1811	1811
Adj Flow Rate, veh/h				73	282	64	16	39	0	0	59	21
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				6	6	6	6	6	0	0	6	6
Cap, veh/h				324	1338	300	613	770	0	0	472	168
Arrive On Green				0.43	0.43	0.43	0.43	0.43	0.00	0.00	0.43	0.43
Sat Flow, veh/h				763	3149	705	1256	1811	0	0	1110	395
Grp Volume(v), veh/h				148	142	129	16	39	0	0	0	80
Grp Sat Flow(s),veh/h/ln				1547	1648	1422	1256	1811	0	0	0	1505
Q Serve(g_s), s				3.7	3.2	3.4	0.5	0.8	0.0	0.0	0.0	1.9
Cycle Q Clear(g_c), s				3.7	3.2	3.4	2.4	0.8	0.0	0.0	0.0	1.9
Prop In Lane				0.49		0.50	1.00		0.00	0.00		0.26
Lane Grp Cap(c), veh/h				657	700	604	613	770	0	0	0	639
V/C Ratio(X)				0.23	0.20	0.21	0.03	0.05	0.00	0.00	0.00	0.13
Avail Cap(c_a), veh/h				657	700	604	613	770	0	0	0	639
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.88	0.88	0.88	0.99	0.99	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				11.0	10.9	10.9	11.2	10.1	0.0	0.0	0.0	10.5
Incr Delay (d2), s/veh				0.7	0.6	0.7	0.1	0.1	0.0	0.0	0.0	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.2	1.1	1.1	0.1	0.3	0.0	0.0	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				11.7	11.4	11.6	11.3	10.3	0.0	0.0	0.0	10.9
LnGrp LOS				B	B	B	B	B	A	A	A	B
Approach Vol, veh/h					419			55			80	
Approach Delay, s/veh					11.6			10.6			10.9	
Approach LOS					B			B			B	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		30.0		30.0				30.0				
Change Period (Y+Rc), s		4.5		4.5				4.5				
Max Green Setting (Gmax), s		25.5		25.5				25.5				
Max Q Clear Time (g_c+I1), s		5.7		4.4				3.9				
Green Ext Time (p_c), s		2.4		0.2				0.3				

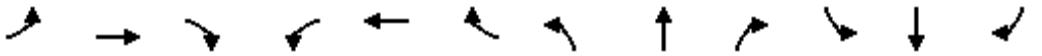
Intersection Summary												
HCM 6th Ctrl Delay			11.4									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	453	20	0	0	0	0	33	82	93	35	0
Future Volume (veh/h)	20	453	20	0	0	0	0	33	82	93	35	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97				1.00		0.97	0.98		1.00
Parking Bus, Adj	0.88	1.00	0.98				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796				0	1796	1796	1796	1796	0
Adj Flow Rate, veh/h	20	453	20				0	33	82	93	35	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	7	7	7				0	7	7	7	7	0
Cap, veh/h	100	2436	109				0	187	464	459	156	0
Arrive On Green	0.42	0.42	0.42				0.00	0.42	0.42	0.42	0.42	0.00
Sat Flow, veh/h	240	5846	261				0	448	1113	854	375	0
Grp Volume(v), veh/h	130	233	130				0	0	115	128	0	0
Grp Sat Flow(s),veh/h/ln	1560	1545	1697				0	0	1560	1229	0	0
Q Serve(g_s), s	3.2	2.9	2.9				0.0	0.0	2.8	2.9	0.0	0.0
Cycle Q Clear(g_c), s	3.2	2.9	2.9				0.0	0.0	2.8	5.7	0.0	0.0
Prop In Lane	0.15		0.15				0.00		0.71	0.73		0.00
Lane Grp Cap(c), veh/h	650	1287	707				0	0	650	616	0	0
V/C Ratio(X)	0.20	0.18	0.18				0.00	0.00	0.18	0.21	0.00	0.00
Avail Cap(c_a), veh/h	650	1287	707				0	0	650	616	0	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.1	11.0	11.1				0.0	0.0	11.0	12.1	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.3	0.6				0.0	0.0	0.6	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.9	1.1				0.0	0.0	1.0	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.8	11.3	11.6				0.0	0.0	11.6	12.9	0.0	0.0
LnGrp LOS	B	B	B				A	A	B	B	A	A
Approach Vol, veh/h		493						115			128	
Approach Delay, s/veh		11.5						11.6			12.9	
Approach LOS		B						B			B	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		30.0		30.0				30.0				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		25.0		25.0				25.0				
Max Q Clear Time (g_c+I1), s		5.2		4.8				7.7				
Green Ext Time (p_c), s		1.9		0.4				0.4				

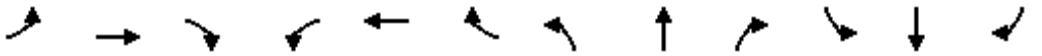
Intersection Summary												
HCM 6th Ctrl Delay			11.8									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	74	386	53	44	261	0	0	205	61
Future Volume (veh/h)	0	0	0	74	386	53	44	261	0	0	205	61
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.89	0.97		1.00	1.00		0.90
Parking Bus, Adj				1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1737	1737	1737	1737	1737	0	0	1737	1737
Adj Flow Rate, veh/h				74	386	53	44	261	0	0	205	61
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				11	11	11	11	11	0	0	11	11
Cap, veh/h				134	736	332	616	1064	0	0	908	690
Arrive On Green				0.26	0.26	0.26	0.07	1.00	0.00	0.00	0.52	0.52
Sat Flow, veh/h				516	2845	1284	1654	1737	0	0	1737	1321
Grp Volume(v), veh/h				245	215	53	44	261	0	0	205	61
Grp Sat Flow(s),veh/h/ln				1711	1650	1284	1654	1737	0	0	1737	1321
Q Serve(g_s), s				8.7	7.8	2.2	0.8	0.0	0.0	0.0	4.5	1.6
Cycle Q Clear(g_c), s				8.7	7.8	2.2	0.8	0.0	0.0	0.0	4.5	1.6
Prop In Lane				0.30		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				443	427	332	616	1064	0	0	908	690
V/C Ratio(X)				0.55	0.50	0.16	0.07	0.25	0.00	0.00	0.23	0.09
Avail Cap(c_a), veh/h				636	613	477	680	1064	0	0	908	690
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.98	0.98	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				22.4	22.1	20.1	6.3	0.0	0.0	0.0	9.0	8.4
Incr Delay (d2), s/veh				0.4	0.3	0.1	0.0	0.5	0.0	0.0	0.6	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.3	2.9	0.6	0.2	0.2	0.0	0.0	1.6	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				22.8	22.4	20.1	6.3	0.5	0.0	0.0	9.6	8.6
LnGrp LOS				C	C	C	A	A	A	A	A	A
Approach Vol, veh/h					513			305			266	
Approach Delay, s/veh					22.4			1.4			9.4	
Approach LOS					C			A			A	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	47.9		6.3	41.6		22.1						
Change Period (Y+Rc), s	5.0		4.0	5.0		4.0						
Max Green Setting (Gmax), s	35.0		5.0	26.0		26.0						
Max Q Clear Time (g_c+I1), s	2.0		2.8	6.5		10.7						
Green Ext Time (p_c), s	1.0		0.0	0.8		1.7						

Intersection Summary		
HCM 6th Ctrl Delay	13.3	
HCM 6th LOS	B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	268	78	0	0	0	0	250	43	50	231	0
Future Volume (veh/h)	52	268	78	0	0	0	0	250	43	50	231	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.84				1.00		0.93	0.97		1.00
Parking Bus, Adj	0.88	1.00	1.00				1.00	1.00	0.84	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1737	1737	1737				0	1737	1737	1737	1737	0
Adj Flow Rate, veh/h	52	268	78				0	250	43	50	231	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	11	11	11				0	11	11	11	11	0
Cap, veh/h	323	737	276				0	707	466	679	1138	0
Arrive On Green	0.22	0.22	0.22				0.00	0.41	0.41	0.37	1.00	0.00
Sat Flow, veh/h	1447	3300	1238				0	1737	1143	1654	1737	0
Grp Volume(v), veh/h	52	268	78				0	250	43	50	231	0
Grp Sat Flow(s),veh/h/ln	1447	1650	1238				0	1737	1143	1654	1737	0
Q Serve(g_s), s	2.0	4.8	3.7				0.0	7.0	1.6	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.0	4.8	3.7				0.0	7.0	1.6	0.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	323	737	276				0	707	466	679	1138	0
V/C Ratio(X)	0.16	0.36	0.28				0.00	0.35	0.09	0.07	0.20	0.00
Avail Cap(c_a), veh/h	496	1132	424				0	707	466	679	1138	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	0.99	0.99	0.99				0.00	1.00	1.00	0.98	0.98	0.00
Uniform Delay (d), s/veh	21.9	23.0	22.5				0.0	14.4	12.8	8.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.2				0.0	1.4	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.8	1.0				0.0	2.8	0.4	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.0	23.1	22.7				0.0	15.8	13.2	8.2	0.0	0.0
LnGrp LOS	C	C	C				A	B	B	A	A	A
Approach Vol, veh/h		398						293			281	
Approach Delay, s/veh		22.9						15.4			1.5	
Approach LOS		C						B			A	

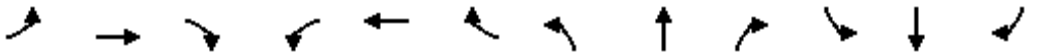
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	17.4	33.0		19.6		50.4
Change Period (Y+Rc), s	4.5	4.5		4.0		4.5
Max Green Setting (Gmax), s	4.5	28.5		24.0		37.5
Max Q Clear Time (g_c+I1), s	2.0	9.0		6.8		2.0
Green Ext Time (p_c), s	0.0	1.0		1.3		0.9

Intersection Summary	
HCM 6th Ctrl Delay	14.4
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	56	465	68	37	57	0	0	91	20
Future Volume (veh/h)	0	0	0	56	465	68	37	57	0	0	91	20
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.95	0.98		1.00	1.00		0.97
Parking Bus, Adj				0.88	1.00	0.88	1.00	1.00	1.00	1.00	1.00	0.88
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				56	465	68	37	57	0	0	91	20
Peak Hour Factor				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	0	0	3	3
Cap, veh/h				180	1589	234	603	808	0	0	558	123
Arrive On Green				0.42	0.42	0.42	0.44	0.44	0.00	0.00	0.44	0.44
Sat Flow, veh/h				430	3788	559	1240	1856	0	0	1281	282
Grp Volume(v), veh/h				209	199	181	37	57	0	0	0	111
Grp Sat Flow(s),veh/h/ln				1602	1689	1486	1240	1856	0	0	0	1563
Q Serve(g_s), s				5.4	4.8	5.0	1.2	1.1	0.0	0.0	0.0	2.7
Cycle Q Clear(g_c), s				5.4	4.8	5.0	3.8	1.1	0.0	0.0	0.0	2.7
Prop In Lane				0.27		0.38	1.00		0.00	0.00		0.18
Lane Grp Cap(c), veh/h				672	708	623	603	808	0	0	0	680
V/C Ratio(X)				0.31	0.28	0.29	0.06	0.07	0.00	0.00	0.00	0.16
Avail Cap(c_a), veh/h				672	708	623	603	808	0	0	0	680
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.89	0.89	0.89	0.99	0.99	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				12.0	11.9	11.9	11.8	10.2	0.0	0.0	0.0	10.6
Incr Delay (d2), s/veh				1.1	0.9	1.0	0.2	0.2	0.0	0.0	0.0	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.9	1.8	1.6	0.3	0.4	0.0	0.0	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				13.1	12.7	12.9	12.0	10.4	0.0	0.0	0.0	11.1
LnGrp LOS				B	B	B	B	B	A	A	A	B
Approach Vol, veh/h					589			94			111	
Approach Delay, s/veh					12.9			11.0			11.1	
Approach LOS					B			B			B	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		30.5		31.5				31.5				
Change Period (Y+Rc), s		4.5		4.5				4.5				
Max Green Setting (Gmax), s		25.5		27.0				27.0				
Max Q Clear Time (g_c+I1), s		7.4		5.8				4.7				
Green Ext Time (p_c), s		3.4		0.3				0.5				

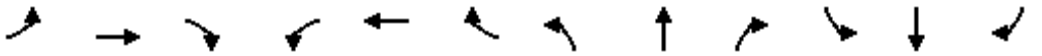
Intersection Summary												
HCM 6th Ctrl Delay			12.5									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	376	28	0	0	0	0	44	60	63	84	0
Future Volume (veh/h)	44	376	28	0	0	0	0	44	60	63	84	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97				1.00		0.95	0.96		1.00
Parking Bus, Adj	0.88	1.00	0.98				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841				0	1841	1841	1841	1841	0
Adj Flow Rate, veh/h	44	376	28				0	44	60	63	84	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4				0	4	4	4	4	0
Cap, veh/h	246	2274	169				0	285	389	327	404	0
Arrive On Green	0.42	0.42	0.42				0.00	0.42	0.42	0.42	0.42	0.00
Sat Flow, veh/h	591	5459	405				0	685	934	580	969	0
Grp Volume(v), veh/h	118	212	118				0	0	104	147	0	0
Grp Sat Flow(s),veh/h/ln	1581	1583	1708				0	0	1619	1549	0	0
Q Serve(g_s), s	2.8	2.5	2.6				0.0	0.0	2.4	0.5	0.0	0.0
Cycle Q Clear(g_c), s	2.8	2.5	2.6				0.0	0.0	2.4	3.1	0.0	0.0
Prop In Lane	0.37		0.24				0.00		0.58	0.43		0.00
Lane Grp Cap(c), veh/h	659	1319	711				0	0	674	731	0	0
V/C Ratio(X)	0.18	0.16	0.17				0.00	0.00	0.15	0.20	0.00	0.00
Avail Cap(c_a), veh/h	659	1319	711				0	0	674	731	0	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.0	10.9	11.0				0.0	0.0	10.9	11.1	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.3	0.5				0.0	0.0	0.5	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.8	1.0				0.0	0.0	0.8	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.6	11.2	11.5				0.0	0.0	11.4	11.7	0.0	0.0
LnGrp LOS	B	B	B				A	A	B	B	A	A
Approach Vol, veh/h		448						104			147	
Approach Delay, s/veh		11.4						11.4			11.7	
Approach LOS		B						B			B	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		30.0		30.0				30.0				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		25.0		25.0				25.0				
Max Q Clear Time (g_c+I1), s		4.8		4.4				5.1				
Green Ext Time (p_c), s		1.8		0.3				0.5				

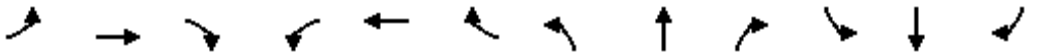
Intersection Summary			
HCM 6th Ctrl Delay		11.5	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	77	385	62	156	274	0	0	393	57
Future Volume (veh/h)	0	0	0	77	385	62	156	274	0	0	393	57
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.86	0.99		1.00	1.00		0.88
Parking Bus, Adj				1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1781	1781	1781	1781	1781	0	0	1781	1781
Adj Flow Rate, veh/h				77	385	62	156	274	0	0	393	57
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				8	8	8	8	8	0	0	8	8
Cap, veh/h				152	805	353	501	1058	0	0	830	617
Arrive On Green				0.28	0.28	0.28	0.14	1.00	0.00	0.00	0.47	0.47
Sat Flow, veh/h				548	2898	1272	1697	1781	0	0	1781	1324
Grp Volume(v), veh/h				246	216	62	156	274	0	0	393	57
Grp Sat Flow(s),veh/h/ln				1754	1692	1272	1697	1781	0	0	1781	1324
Q Serve(g_s), s				8.3	7.4	2.6	3.2	0.0	0.0	0.0	10.6	1.7
Cycle Q Clear(g_c), s				8.3	7.4	2.6	3.2	0.0	0.0	0.0	10.6	1.7
Prop In Lane				0.31		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				487	470	353	501	1058	0	0	830	617
V/C Ratio(X)				0.51	0.46	0.18	0.31	0.26	0.00	0.00	0.47	0.09
Avail Cap(c_a), veh/h				677	653	491	527	1058	0	0	830	617
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	0.94	0.94	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				21.2	20.9	19.2	8.0	0.0	0.0	0.0	12.8	10.4
Incr Delay (d2), s/veh				0.3	0.3	0.1	0.1	0.6	0.0	0.0	1.9	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.2	2.8	0.7	0.9	0.2	0.0	0.0	4.2	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				21.5	21.2	19.3	8.1	0.6	0.0	0.0	14.7	10.7
LnGrp LOS				C	C	B	A	A	A	A	B	B
Approach Vol, veh/h					524			430			450	
Approach Delay, s/veh					21.1			3.3			14.2	
Approach LOS					C			A			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		46.6			8.9	37.6		23.4				
Change Period (Y+Rc), s		5.0			4.0	5.0		4.0				
Max Green Setting (Gmax), s		34.0			6.0	24.0		27.0				
Max Q Clear Time (g_c+I1), s		2.0			5.2	12.6		10.3				
Green Ext Time (p_c), s		1.1			0.0	1.4		1.8				

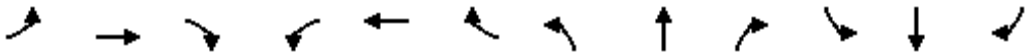
Intersection Summary												
HCM 6th Ctrl Delay			13.5									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	156	349	150	0	0	0	0	268	52	70	394	0
Future Volume (veh/h)	156	349	150	0	0	0	0	268	52	70	394	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.85				1.00		0.88	0.95		1.00
Parking Bus, Adj	0.88	1.00	1.00				1.00	1.00	0.84	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1781				0	1781	1781	1781	1781	0
Adj Flow Rate, veh/h	156	349	150				0	268	52	70	394	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	8	8	8				0	8	8	8	8	0
Cap, veh/h	365	832	315				0	700	438	646	1127	0
Arrive On Green	0.25	0.25	0.25				0.00	0.39	0.39	0.35	1.00	0.00
Sat Flow, veh/h	1485	3385	1282				0	1781	1115	1697	1781	0
Grp Volume(v), veh/h	156	349	150				0	268	52	70	394	0
Grp Sat Flow(s),veh/h/ln	1485	1692	1282				0	1781	1115	1697	1781	0
Q Serve(g_s), s	6.2	6.1	7.0				0.0	7.5	2.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.2	6.1	7.0				0.0	7.5	2.1	0.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	365	832	315				0	700	438	646	1127	0
V/C Ratio(X)	0.43	0.42	0.48				0.00	0.38	0.12	0.11	0.35	0.00
Avail Cap(c_a), veh/h	530	1209	458				0	700	438	646	1127	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	0.99	0.99	0.99				0.00	1.00	1.00	0.88	0.88	0.00
Uniform Delay (d), s/veh	22.2	22.2	22.5				0.0	15.2	13.5	9.4	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.1	0.4				0.0	1.6	0.6	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	2.3	2.0				0.0	3.1	0.6	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	22.3	23.0				0.0	16.8	14.1	9.4	0.1	0.0
LnGrp LOS	C	C	C				A	B	B	A	A	A
Approach Vol, veh/h		655						320			464	
Approach Delay, s/veh		22.5						16.3			1.5	
Approach LOS		C						B			A	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	16.8	32.0		21.2		48.8						
Change Period (Y+Rc), s	4.5	4.5		4.0		4.5						
Max Green Setting (Gmax), s	4.5	27.5		25.0		36.5						
Max Q Clear Time (g_c+I1), s	2.0	9.5		9.0		2.0						
Green Ext Time (p_c), s	0.0	1.0		1.9		1.7						

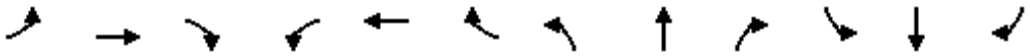
Intersection Summary												
HCM 6th Ctrl Delay			14.4									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	73	282	64	16	39	0	0	59	21
Future Volume (veh/h)	0	0	0	73	282	64	16	39	0	0	59	21
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.96	0.98		1.00	1.00		0.98
Parking Bus, Adj				0.88	1.00	0.88	1.00	1.00	1.00	1.00	1.00	0.88
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1811	1811	1811	1811	1811	0	0	1811	1811
Adj Flow Rate, veh/h				73	282	64	16	39	0	0	59	21
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				6	6	6	6	6	0	0	6	6
Cap, veh/h				217	867	205	613	770	0	0	472	168
Arrive On Green				0.43	0.43	0.43	0.43	0.43	0.00	0.00	0.43	0.43
Sat Flow, veh/h				509	2041	482	1256	1811	0	0	1110	395
Grp Volume(v), veh/h				223	0	196	16	39	0	0	0	80
Grp Sat Flow(s),veh/h/ln				1559	0	1473	1256	1811	0	0	0	1505
Q Serve(g_s), s				5.8	0.0	5.3	0.5	0.8	0.0	0.0	0.0	1.9
Cycle Q Clear(g_c), s				5.8	0.0	5.3	2.4	0.8	0.0	0.0	0.0	1.9
Prop In Lane				0.33		0.33	1.00		0.00	0.00		0.26
Lane Grp Cap(c), veh/h				663	0	626	613	770	0	0	0	639
V/C Ratio(X)				0.34	0.00	0.31	0.03	0.05	0.00	0.00	0.00	0.13
Avail Cap(c_a), veh/h				663	0	626	613	770	0	0	0	639
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.84	0.00	0.84	0.99	0.99	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				11.6	0.0	11.4	11.2	10.1	0.0	0.0	0.0	10.5
Incr Delay (d2), s/veh				1.2	0.0	1.1	0.1	0.1	0.0	0.0	0.0	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.0	0.0	1.7	0.1	0.3	0.0	0.0	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				12.7	0.0	12.5	11.3	10.3	0.0	0.0	0.0	10.9
LnGrp LOS				B	A	B	B	B	A	A	A	B
Approach Vol, veh/h					419			55			80	
Approach Delay, s/veh					12.6			10.6			10.9	
Approach LOS					B			B			B	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		30.0		30.0				30.0				
Change Period (Y+Rc), s		4.5		4.5				4.5				
Max Green Setting (Gmax), s		25.5		25.5				25.5				
Max Q Clear Time (g_c+I1), s		7.8		4.4				3.9				
Green Ext Time (p_c), s		2.4		0.2				0.3				

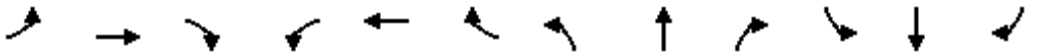
Intersection Summary												
HCM 6th Ctrl Delay			12.2									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	453	20	0	0	0	0	33	82	93	35	0
Future Volume (veh/h)	20	453	20	0	0	0	0	33	82	93	35	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97				1.00		0.97	0.98		1.00
Parking Bus, Adj	0.88	1.00	0.98				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1796	1796	1796				0	1796	1796	1796	1796	0
Adj Flow Rate, veh/h	20	453	20				0	33	82	93	35	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	7	7	7				0	7	7	7	7	0
Cap, veh/h	78	1881	85				0	187	464	459	156	0
Arrive On Green	0.42	0.42	0.42				0.00	0.42	0.42	0.42	0.42	0.00
Sat Flow, veh/h	187	4515	204				0	448	1113	854	375	0
Grp Volume(v), veh/h	167	159	168				0	0	115	128	0	0
Grp Sat Flow(s),veh/h/ln	1562	1635	1709				0	0	1560	1229	0	0
Q Serve(g_s), s	4.2	3.8	3.8				0.0	0.0	2.8	2.9	0.0	0.0
Cycle Q Clear(g_c), s	4.2	3.8	3.8				0.0	0.0	2.8	5.7	0.0	0.0
Prop In Lane	0.12		0.12				0.00		0.71	0.73		0.00
Lane Grp Cap(c), veh/h	651	681	712				0	0	650	616	0	0
V/C Ratio(X)	0.26	0.23	0.24				0.00	0.00	0.18	0.21	0.00	0.00
Avail Cap(c_a), veh/h	651	681	712				0	0	650	616	0	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.4	11.3	11.3				0.0	0.0	11.0	12.1	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.8	0.8				0.0	0.0	0.6	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	1.3	1.4				0.0	0.0	1.0	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.4	12.1	12.1				0.0	0.0	11.6	12.9	0.0	0.0
LnGrp LOS	B	B	B				A	A	B	B	A	A
Approach Vol, veh/h		493						115			128	
Approach Delay, s/veh		12.2						11.6			12.9	
Approach LOS		B						B			B	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		30.0		30.0				30.0				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		25.0		25.0				25.0				
Max Q Clear Time (g_c+I1), s		6.2		4.8				7.7				
Green Ext Time (p_c), s		1.8		0.4				0.4				

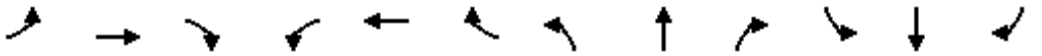
Intersection Summary			
HCM 6th Ctrl Delay		12.2	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	74	386	53	44	261	0	0	205	61
Future Volume (veh/h)	0	0	0	74	386	53	44	261	0	0	205	61
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.90	0.97		1.00	1.00		0.90
Parking Bus, Adj				1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1737	1737	1737	1737	1737	0	0	1737	1737
Adj Flow Rate, veh/h				74	386	53	44	261	0	0	205	61
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				11	11	11	11	11	0	0	11	11
Cap, veh/h				123	669	96	604	1046	0	0	889	675
Arrive On Green				0.27	0.27	0.27	0.07	1.00	0.00	0.00	0.51	0.51
Sat Flow, veh/h				458	2484	356	1654	1737	0	0	1737	1318
Grp Volume(v), veh/h				277	0	236	44	261	0	0	205	61
Grp Sat Flow(s),veh/h/ln				1714	0	1583	1654	1737	0	0	1737	1318
Q Serve(g_s), s				9.9	0.0	8.9	0.8	0.0	0.0	0.0	4.6	1.7
Cycle Q Clear(g_c), s				9.9	0.0	8.9	0.8	0.0	0.0	0.0	4.6	1.7
Prop In Lane				0.27		0.22	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				462	0	427	604	1046	0	0	889	675
V/C Ratio(X)				0.60	0.00	0.55	0.07	0.25	0.00	0.00	0.23	0.09
Avail Cap(c_a), veh/h				637	0	588	667	1046	0	0	889	675
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.98	0.98	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				22.3	0.0	21.9	6.6	0.0	0.0	0.0	9.5	8.7
Incr Delay (d2), s/veh				0.5	0.0	0.4	0.0	0.6	0.0	0.0	0.6	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.8	0.0	3.2	0.2	0.2	0.0	0.0	1.7	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				22.8	0.0	22.4	6.6	0.6	0.0	0.0	10.1	9.0
LnGrp LOS				C	A	C	A	A	A	A	B	A
Approach Vol, veh/h					513			305			266	
Approach Delay, s/veh					22.6			1.4			9.8	
Approach LOS					C			A			A	

Timer - Assigned Phs	2		5	6		8						
Phs Duration (G+Y+Rc), s	47.1		6.3	40.8		22.9						
Change Period (Y+Rc), s	5.0		4.0	5.0		4.0						
Max Green Setting (Gmax), s	35.0		5.0	26.0		26.0						
Max Q Clear Time (g_c+I1), s	2.0		2.8	6.6		11.9						
Green Ext Time (p_c), s	1.0		0.0	0.8		1.8						

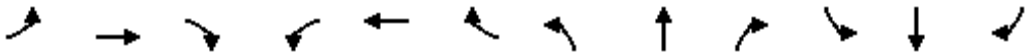
Intersection Summary		
HCM 6th Ctrl Delay		13.5
HCM 6th LOS		B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	268	78	0	0	0	0	250	43	50	231	0
Future Volume (veh/h)	52	268	78	0	0	0	0	250	43	50	231	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.85				1.00		0.93	0.97		1.00
Parking Bus, Adj	0.88	1.00	1.00				1.00	1.00	0.84	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1737	1737	1737				0	1737	1737	1737	1737	0
Adj Flow Rate, veh/h	52	268	78				0	250	43	50	231	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	11	11	11				0	11	11	11	11	0
Cap, veh/h	114	623	293				0	707	466	660	1119	0
Arrive On Green	0.23	0.23	0.23				0.00	0.41	0.41	0.35	1.00	0.00
Sat Flow, veh/h	486	2660	1249				0	1737	1143	1654	1737	0
Grp Volume(v), veh/h	160	160	78				0	250	43	50	231	0
Grp Sat Flow(s),veh/h/ln	1496	1650	1249				0	1737	1143	1654	1737	0
Q Serve(g_s), s	6.4	5.7	3.6				0.0	7.0	1.6	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.4	5.7	3.6				0.0	7.0	1.6	0.0	0.0	0.0
Prop In Lane	0.32		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	350	387	293				0	707	466	660	1119	0
V/C Ratio(X)	0.46	0.41	0.27				0.00	0.35	0.09	0.08	0.21	0.00
Avail Cap(c_a), veh/h	513	566	428				0	707	466	660	1119	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	0.98	0.98	0.98				0.00	1.00	1.00	0.98	0.98	0.00
Uniform Delay (d), s/veh	23.0	22.7	21.9				0.0	14.4	12.8	8.7	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.3	0.2				0.0	1.4	0.4	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	2.2	1.0				0.0	2.8	0.4	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.3	23.0	22.1				0.0	15.8	13.2	8.7	0.0	0.0
LnGrp LOS	C	C	C				A	B	B	A	A	A
Approach Vol, veh/h		398						293			281	
Approach Delay, s/veh		22.9						15.4			1.6	
Approach LOS		C						B			A	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	16.6	33.0		20.4		49.6						
Change Period (Y+Rc), s	4.5	4.5		4.0		4.5						
Max Green Setting (Gmax), s	4.5	28.5		24.0		37.5						
Max Q Clear Time (g_c+I1), s	2.0	9.0		8.4		2.0						
Green Ext Time (p_c), s	0.0	1.0		1.2		0.9						

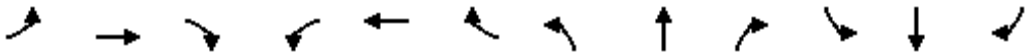
Intersection Summary												
HCM 6th Ctrl Delay			14.5									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	56	465	68	37	57	0	0	91	20
Future Volume (veh/h)	0	0	0	56	465	68	37	57	0	0	91	20
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.95	0.98		1.00	1.00		0.97
Parking Bus, Adj				0.88	1.00	0.88	1.00	1.00	1.00	1.00	1.00	0.88
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				56	465	68	37	57	0	0	91	20
Peak Hour Factor				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	0	0	3	3
Cap, veh/h				120	1037	159	603	808	0	0	558	123
Arrive On Green				0.42	0.42	0.42	0.44	0.44	0.00	0.00	0.44	0.44
Sat Flow, veh/h				286	2474	379	1240	1856	0	0	1281	282
Grp Volume(v), veh/h				315	0	274	37	57	0	0	0	111
Grp Sat Flow(s),veh/h/ln				1609	0	1530	1240	1856	0	0	0	1563
Q Serve(g_s), s				8.8	0.0	7.9	1.2	1.1	0.0	0.0	0.0	2.7
Cycle Q Clear(g_c), s				8.8	0.0	7.9	3.8	1.1	0.0	0.0	0.0	2.7
Prop In Lane				0.18		0.25	1.00		0.00	0.00		0.18
Lane Grp Cap(c), veh/h				675	0	642	603	808	0	0	0	680
V/C Ratio(X)				0.47	0.00	0.43	0.06	0.07	0.00	0.00	0.00	0.16
Avail Cap(c_a), veh/h				675	0	642	603	808	0	0	0	680
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.85	0.00	0.85	0.99	0.99	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh				13.0	0.0	12.7	11.8	10.2	0.0	0.0	0.0	10.6
Incr Delay (d2), s/veh				2.0	0.0	1.8	0.2	0.2	0.0	0.0	0.0	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.1	0.0	2.7	0.3	0.4	0.0	0.0	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				15.0	0.0	14.5	12.0	10.4	0.0	0.0	0.0	11.1
LnGrp LOS				B	A	B	B	B	A	A	A	B
Approach Vol, veh/h					589			94			111	
Approach Delay, s/veh					14.7			11.0			11.1	
Approach LOS					B			B			B	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		30.5		31.5				31.5				
Change Period (Y+Rc), s		4.5		4.5				4.5				
Max Green Setting (Gmax), s		25.5		27.0				27.0				
Max Q Clear Time (g_c+I1), s		10.8		5.8				4.7				
Green Ext Time (p_c), s		3.2		0.3				0.5				

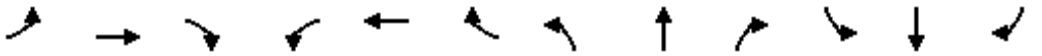
Intersection Summary												
HCM 6th Ctrl Delay			13.8									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	376	28	0	0	0	0	44	60	63	84	0
Future Volume (veh/h)	44	376	28	0	0	0	0	44	60	63	84	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97				1.00		0.95	0.96		1.00
Parking Bus, Adj	0.88	1.00	0.98				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841				0	1841	1841	1841	1841	0
Adj Flow Rate, veh/h	44	376	28				0	44	60	63	84	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	4	4				0	4	4	4	4	0
Cap, veh/h	192	1754	133				0	285	389	327	404	0
Arrive On Green	0.42	0.42	0.42				0.00	0.42	0.42	0.42	0.42	0.00
Sat Flow, veh/h	461	4210	318				0	685	934	580	969	0
Grp Volume(v), veh/h	152	145	152				0	0	104	147	0	0
Grp Sat Flow(s),veh/h/ln	1588	1675	1727				0	0	1619	1549	0	0
Q Serve(g_s), s	3.7	3.3	3.4				0.0	0.0	2.4	0.5	0.0	0.0
Cycle Q Clear(g_c), s	3.7	3.3	3.4				0.0	0.0	2.4	3.1	0.0	0.0
Prop In Lane	0.29		0.18				0.00		0.58	0.43		0.00
Lane Grp Cap(c), veh/h	661	698	719				0	0	674	731	0	0
V/C Ratio(X)	0.23	0.21	0.21				0.00	0.00	0.15	0.20	0.00	0.00
Avail Cap(c_a), veh/h	661	698	719				0	0	674	731	0	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.3	11.2	11.2				0.0	0.0	10.9	11.1	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.7	0.7				0.0	0.0	0.5	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.2	1.3				0.0	0.0	0.8	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.1	11.8	11.9				0.0	0.0	11.4	11.7	0.0	0.0
LnGrp LOS	B	B	B				A	A	B	B	A	A
Approach Vol, veh/h		448						104			147	
Approach Delay, s/veh		11.9						11.4			11.7	
Approach LOS		B						B			B	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		30.0		30.0				30.0				
Change Period (Y+Rc), s		5.0		5.0				5.0				
Max Green Setting (Gmax), s		25.0		25.0				25.0				
Max Q Clear Time (g_c+I1), s		5.7		4.4				5.1				
Green Ext Time (p_c), s		1.6		0.3				0.5				

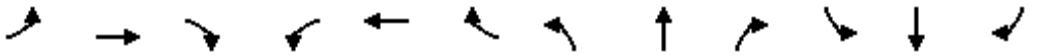
Intersection Summary			
HCM 6th Ctrl Delay		11.8	
HCM 6th LOS		B	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	77	385	62	156	274	0	0	393	57
Future Volume (veh/h)	0	0	0	77	385	62	156	274	0	0	393	57
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.87	0.99		1.00	1.00		0.87
Parking Bus, Adj				1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1781	1781	1781	1781	1781	0	0	1781	1781
Adj Flow Rate, veh/h				77	385	62	156	274	0	0	393	57
Peak Hour Factor				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %				8	8	8	8	8	0	0	8	8
Cap, veh/h				137	709	119	490	1039	0	0	810	600
Arrive On Green				0.29	0.29	0.29	0.14	1.00	0.00	0.00	0.45	0.45
Sat Flow, veh/h				474	2460	413	1697	1781	0	0	1781	1319
Grp Volume(v), veh/h				285	0	239	156	274	0	0	393	57
Grp Sat Flow(s),veh/h/ln				1758	0	1590	1697	1781	0	0	1781	1319
Q Serve(g_s), s				9.7	0.0	8.8	3.2	0.0	0.0	0.0	10.8	1.7
Cycle Q Clear(g_c), s				9.7	0.0	8.8	3.2	0.0	0.0	0.0	10.8	1.7
Prop In Lane				0.27		0.26	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				506	0	458	490	1039	0	0	810	600
V/C Ratio(X)				0.56	0.00	0.52	0.32	0.26	0.00	0.00	0.49	0.09
Avail Cap(c_a), veh/h				678	0	613	514	1039	0	0	810	600
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.97	0.97	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				21.2	0.0	20.9	8.4	0.0	0.0	0.0	13.3	10.9
Incr Delay (d2), s/veh				0.4	0.0	0.3	0.1	0.6	0.0	0.0	2.1	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.8	0.0	3.1	0.9	0.2	0.0	0.0	4.4	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				21.6	0.0	21.2	8.5	0.6	0.0	0.0	15.4	11.2
LnGrp LOS				C	A	C	A	A	A	A	B	B
Approach Vol, veh/h					524			430			450	
Approach Delay, s/veh					21.4			3.5			14.9	
Approach LOS					C			A			B	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		45.8			9.0	36.8		24.2				
Change Period (Y+Rc), s		5.0			4.0	5.0		4.0				
Max Green Setting (Gmax), s		34.0			6.0	24.0		27.0				
Max Q Clear Time (g_c+I1), s		2.0			5.2	12.8		11.7				
Green Ext Time (p_c), s		1.1			0.0	1.3		1.9				

Intersection Summary												
HCM 6th Ctrl Delay			13.8									
HCM 6th LOS			B									

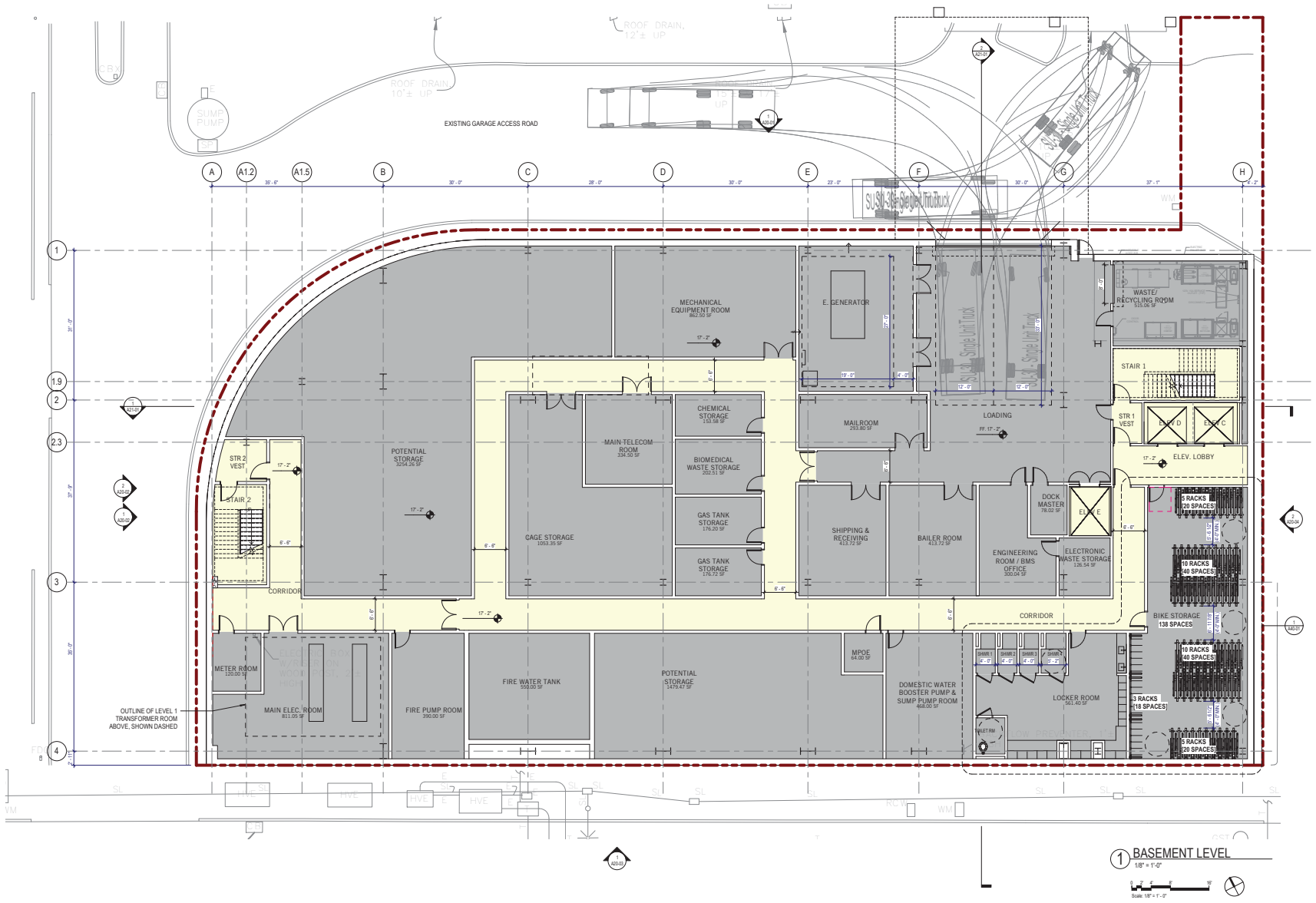


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	156	349	150	0	0	0	0	268	52	70	394	0
Future Volume (veh/h)	156	349	150	0	0	0	0	268	52	70	394	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.86				1.00		0.88	0.95		1.00
Parking Bus, Adj	0.88	1.00	1.00				1.00	1.00	0.84	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1781	1781	1781				0	1781	1781	1781	1781	0
Adj Flow Rate, veh/h	156	349	150				0	268	52	70	394	0
Peak Hour Factor	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	8	8	8				0	8	8	8	8	0
Cap, veh/h	252	607	349				0	700	438	608	1087	0
Arrive On Green	0.27	0.27	0.27				0.00	0.39	0.39	0.31	1.00	0.00
Sat Flow, veh/h	941	2263	1301				0	1781	1115	1697	1781	0
Grp Volume(v), veh/h	251	254	150				0	268	52	70	394	0
Grp Sat Flow(s),veh/h/ln	1512	1692	1301				0	1781	1115	1697	1781	0
Q Serve(g_s), s	10.2	9.1	6.7				0.0	7.5	2.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	10.2	9.1	6.7				0.0	7.5	2.1	0.0	0.0	0.0
Prop In Lane	0.62		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	405	454	349				0	700	438	608	1087	0
V/C Ratio(X)	0.62	0.56	0.43				0.00	0.38	0.12	0.12	0.36	0.00
Avail Cap(c_a), veh/h	540	604	465				0	700	438	608	1087	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	0.98	0.98	0.98				0.00	1.00	1.00	0.87	0.87	0.00
Uniform Delay (d), s/veh	22.5	22.1	21.2				0.0	15.2	13.5	10.6	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.4	0.3				0.0	1.6	0.6	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	3.4	2.0				0.0	3.1	0.6	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.0	22.5	21.5				0.0	16.8	14.1	10.6	0.1	0.0
LnGrp LOS	C	C	C				A	B	B	B	A	A
Approach Vol, veh/h		655						320			464	
Approach Delay, s/veh		22.5						16.3			1.7	
Approach LOS		C						B			A	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	15.2	32.0		22.8		47.2
Change Period (Y+Rc), s	4.5	4.5		4.0		4.5
Max Green Setting (Gmax), s	4.5	27.5		25.0		36.5
Max Q Clear Time (g_c+I1), s	2.0	9.5		12.2		2.0
Green Ext Time (p_c), s	0.0	1.0		2.0		1.7

Intersection Summary	
HCM 6th Ctrl Delay	14.4
HCM 6th LOS	B

Appendix C: Truck Turning Exhibits



1 BASEMENT LEVEL
1/8" = 1'-0"

Scale: 1/8" = 1' - 0"

TOTAL PARKING SPACES: 21

REGULAR SPACES: 11
COMPACT SPACES: 2
EV REGULAR SPACES: 2
CLEAN AIR VEHICLES: 3

REGULAR VAN SPACE: 1
EV ADA SPACES: 1
EV VAN SPACES: 1

NOTES:
WITH LIMITED NUMBER OF PARKING SPACES, SUGGEST THAT DYNAMIC WAYFINDING (STALL COUNTERS) BE EMPLOYED SO THAT AVAILABILITY OR 'LOT FULL' INFORMATION IS APPARENT PRIOR TO ENTRY. THIS WILL ELIMINATE THE REQUIREMENT OF A TURN AROUND SPACE AT THE NORTH-WEST CORNER, +1 STALL (COMPACT).

SPACE TYPE LEGEND

- ACADEMIC: CLASSROOMS
- ACADEMIC: SPECIALTY LABS
- AMENITIES
- CIRCULATION
- COLLABORATION
- SUPPORT
- WORKSPACE

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STRADA INVESTMENT GROUP
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CONTRACTOR

PROJECT

SMU CITY CENTER

CONDITIONAL USE PERMIT 1/21/2022

KEYPLAN

ISSUE CHART

NOT FOR CONSTRUCTION

Job Number 492129.000

TITLE

OVERALL FLOOR PLAN - BASEMENT

SHEET NUMBER

A10-00

1/21/2022 1:54:11 PM Autodesk Docs://SMU Oakland Campus/ARCH_SMU_Oakland_CS.rvt

Appendix D: Predicted Collision Frequency Calculation Sheets

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections

General Information		Location Information	
Analyst	Molly Riddle	Roadway	
Agency or Company	Fehr & Peers	Intersection	12th Street & Clay Street
Date Performed	02/23/22	Jurisdiction	City of Oakland, CA
		Analysis Year	2022

Input Data		Base Conditions	Site Conditions
Intersection type (3ST, 3SG, 4ST, 4SG)		--	4SG
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ = 67,700 (veh/day)	--	6,560
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ = 33,400 (veh/day)	--	3,200
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	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)		--	Not Applicable
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]		0	0
Intersection red light cameras (present/not present)		Not Present	Not Present
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only			2,350
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	20
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	10

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)
0.90	0.99	1.00	1.00	0.91	1.00	0.81

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	1.310	1.000	1.310	0.81	1.00	1.063
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	0.370	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.294	0.385	0.81	1.00	0.313
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	0.888	$(5)_{TOTAL}-(5)_{FI}$ = 0.706	0.925	0.81	1.00	0.750

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	0.313	1.000	0.750	1.063
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.141	0.483	0.362	0.503
Head-on collision	0.049	0.015	0.030	0.023	0.038
Angle collision	0.347	0.109	0.244	0.183	0.292
Sideswipe	0.099	0.031	0.032	0.024	0.055
Other multiple-vehicle collision	0.055	0.017	0.211	0.158	0.176

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	0.128	1.000	0.128	0.81	1.00	0.104
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.044	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.340	0.044	0.81	1.00	0.035
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.085	$(5)_{TOTAL}-(5)_{FI}$ = 0.660	0.085	0.81	1.00	0.069

Worksheet 2F -- Single-Vehicle Collisions by Collision Type for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(6)
Collision Type	**Proportion of Collision Type$_{(FI)}$**	**Predicted N $_{bisv\ (FI)}$ (crashes/year)**	**Proportion of Collision Type $_{(PDO)}$**	**Predicted N $_{bisv\ (PDO)}$ (crashes/year)**	**Predicted N $_{bisv\ (TOTAL)}$ (crashes/year)**
	from Table 12-13	(9)$_{FI}$ from Worksheet 2E	from Table 12-13	(9)$_{PDO}$ from Worksheet 2E	(9)$_{PDO}$ from Worksheet 2E
Total	1.000	0.035	1.000	0.069	0.104
		(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	0.026	0.870	0.060	0.086
Collision with other object	0.072	0.003	0.070	0.005	0.007
Other single-vehicle collision	0.040	0.001	0.023	0.002	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)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

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	1.56	6.47

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	0.088	6.47	1.00	0.570
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.570

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	1.063	0.104	1.167	0.015	0.018
Fatal and injury (FI)	--	--	--	--	0.018

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

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)	0.141	0.362	0.503
Head-on collisions (from Worksheet 2D)	0.015	0.023	0.038
Angle collisions (from Worksheet 2D)	0.109	0.183	0.292
Sideswipe (from Worksheet 2D)	0.031	0.024	0.055
Other multiple-vehicle collision (from Worksheet 2D)	0.017	0.158	0.176
Subtotal	0.313	0.750	1.063
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)	0.026	0.060	0.086
Collision with other object (from Worksheet 2F)	0.003	0.005	0.007
Other single-vehicle collision (from Worksheet 2F)	0.001	0.002	0.003
Single-vehicle noncollision (from Worksheet 2F)	0.005	0.002	0.007
Collision with pedestrian (from Worksheet 2G or 2I)	0.570	0.000	0.570
Collision with bicycle (from Worksheet 2J)	0.018	0.000	0.018
Subtotal	0.623	0.069	0.692
Total	0.936	0.819	1.755

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	1.8
Fatal and injury (FI)	0.9
Property damage only (PDO)	0.8

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections

General Information		Location Information	
Analyst	Molly Riddle	Roadway	
Agency or Company	Fehr & Peers	Intersection	11th Street & Clay Street
Date Performed	02/23/22	Jurisdiction	City of Oakland, CA
		Analysis Year	2022

Input Data		Base Conditions	Site Conditions
Intersection type (3ST, 3SG, 4ST, 4SG)		--	4SG
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ = 67,700 (veh/day)	--	6,300
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ = 33,400 (veh/day)	--	3,000
Intersection lighting (present/not present)		Not Present	Present
Calibration factor, C_i		1.00	1.00
Data for unsignalized intersections only:		--	--
Number of major-road approaches with left-turn lanes (0,1,2)		0	0
Number of major-road approaches with right-turn lanes (0,1,2)		0	0
Data for signalized intersections only:		--	--
Number of approaches with left-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		0	0
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		0	0
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]		--	0
Type of left-turn signal phasing for Leg #1		Permissive	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)		--	Not Applicable
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]		0	0
Intersection red light cameras (present/not present)		Not Present	Not Present
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only			1,530
Maximum number of lanes crossed by a pedestrian (n_{lanesx})		--	4
Number of bus stops within 300 m (1,000 ft) of the intersection		0	20
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	10

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	0.99	1.00	1.00	0.91	1.00	0.90

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	1.236	1.000	1.236	0.90	1.00	1.115
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	0.348	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.293	0.362	0.90	1.00	0.327
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	0.839	$(5)_{TOTAL}-(5)_{FI}$ = 0.707	0.874	0.90	1.00	0.788

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	0.327	1.000	0.788	1.115
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.147	0.483	0.381	0.528
Head-on collision	0.049	0.016	0.030	0.024	0.040
Angle collision	0.347	0.113	0.244	0.192	0.306
Sideswipe	0.099	0.032	0.032	0.025	0.058
Other multiple-vehicle collision	0.055	0.018	0.211	0.166	0.184

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	0.123	1.000	0.123	0.90	1.00	0.110
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.042	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.343	0.042	0.90	1.00	0.038
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.081	$(5)_{TOTAL}-(5)_{FI}$ = 0.657	0.081	0.90	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	0.038	1.000	0.073	0.110
		(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	0.063	0.091
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	0.002	0.008

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

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	1.56	6.47

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	0.074	6.47	1.00	0.477
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	0.477

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	1.115	0.110	1.225	0.015	0.018
Fatal and injury (FI)	--	--	--	--	0.018

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

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)	0.147	0.381	0.528
Head-on collisions (from Worksheet 2D)	0.016	0.024	0.040
Angle collisions (from Worksheet 2D)	0.113	0.192	0.306
Sideswipe (from Worksheet 2D)	0.032	0.025	0.058
Other multiple-vehicle collision (from Worksheet 2D)	0.018	0.166	0.184
Subtotal	0.327	0.788	1.115
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	0.063	0.091
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	0.002	0.008
Collision with pedestrian (from Worksheet 2G or 2I)	0.477	0.000	0.477
Collision with bicycle (from Worksheet 2J)	0.018	0.000	0.018
Subtotal	0.533	0.073	0.606
Total	0.860	0.861	1.721

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	1.7
Fatal and injury (FI)	0.9
Property damage only (PDO)	0.9

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections

General Information		Location Information	
Analyst	Molly Riddle	Roadway	
Agency or Company	Fehr & Peers	Intersection	12th Street & Broadway
Date Performed	02/23/22	Jurisdiction	City of Oakland, CA
		Analysis Year	2022

Input Data		Base Conditions	Site Conditions
Intersection type (3ST, 3SG, 4ST, 4SG)		--	4SG
AADT $_{major}$ (veh/day)	$AADT_{MAX}$ = 67,700 (veh/day)	--	10,600
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ = 33,400 (veh/day)	--	7,040
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	1
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		0	2
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]		--	1
Type of left-turn signal phasing for Leg #1		Permissive	Protected
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)		--	Not Applicable
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]		0	0
Intersection red light cameras (present/not present)		Not Present	Not Present
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only			5,370
Maximum number of lanes crossed by a pedestrian (n_{lanesx})		--	7
Number of bus stops within 300 m (1,000 ft) of the intersection		0	20
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	10

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)
0.90	0.93	0.92	1.00	0.91	1.00	0.70

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	2.625	1.000	2.625	0.70	1.00	1.845
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	0.776	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.307	0.806	0.70	1.00	0.566
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	1.751	$(5)_{TOTAL}-(5)_{FI}$ = 0.693	1.819	0.70	1.00	1.279

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	0.566	1.000	1.279	1.845
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.255	0.483	0.618	0.873
Head-on collision	0.049	0.028	0.030	0.038	0.066
Angle collision	0.347	0.197	0.244	0.312	0.509
Sideswipe	0.099	0.056	0.032	0.041	0.097
Other multiple-vehicle collision	0.055	0.031	0.211	0.270	0.301

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	0.220	1.000	0.220	0.70	1.00	0.154
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.068	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.310	0.068	0.70	1.00	0.048
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.150	$(5)_{TOTAL}-(5)_{FI}$ = 0.690	0.152	0.70	1.00	0.107

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	0.048	1.000	0.107	0.154
		(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	0.036	0.870	0.093	0.128
Collision with other object	0.072	0.003	0.070	0.007	0.011
Other single-vehicle collision	0.040	0.002	0.023	0.002	0.004
Single-vehicle noncollision	0.141	0.007	0.034	0.004	0.010

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

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	1.56	6.47

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	0.206	6.47	1.00	1.333
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	1.333

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	1.845	0.154	2.000	0.015	0.030
Fatal and injury (FI)	--	--	--	--	0.030

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

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)	0.255	0.618	0.873
Head-on collisions (from Worksheet 2D)	0.028	0.038	0.066
Angle collisions (from Worksheet 2D)	0.197	0.312	0.509
Sideswipe (from Worksheet 2D)	0.056	0.041	0.097
Other multiple-vehicle collision (from Worksheet 2D)	0.031	0.270	0.301
Subtotal	0.566	1.279	1.845
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)	0.036	0.093	0.128
Collision with other object (from Worksheet 2F)	0.003	0.007	0.011
Other single-vehicle collision (from Worksheet 2F)	0.002	0.002	0.004
Single-vehicle noncollision (from Worksheet 2F)	0.007	0.004	0.010
Collision with pedestrian (from Worksheet 2G or 2I)	1.333	0.000	1.333
Collision with bicycle (from Worksheet 2J)	0.030	0.000	0.030
Subtotal	1.411	0.107	1.517
Total	1.977	1.385	3.363

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	3.4
Fatal and injury (FI)	2.0
Property damage only (PDO)	1.4

Worksheet 2A -- General Information and Input Data for Urban and Suburban Arterial Intersections

General Information		Location Information	
Analyst	Molly Riddle	Roadway	
Agency or Company	Fehr & Peers	Intersection	11th Street & Broadway
Date Performed	02/23/22	Jurisdiction	City of 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)	--	11,030
AADT $_{minor}$ (veh/day)	$AADT_{MAX}$ = 33,400 (veh/day)	--	6,560
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	1
Number of approaches with right-turn lanes (0,1,2,3,4) [for 3SG, use maximum value of 3]		0	2
Number of approaches with left-turn signal phasing [for 3SG, use maximum value of 3]		--	1
Type of left-turn signal phasing for Leg #1		Permissive	Protected
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)		--	Not Applicable
Number of approaches with right-turn-on-red prohibited [for 3SG, use maximum value of 3]		0	0
Intersection red light cameras (present/not present)		Not Present	Not Present
Sum of all pedestrian crossing volumes (PedVol) -- Signalized intersections only			6,580
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	20
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	10

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)
0.90	0.93	0.92	1.00	0.91	1.00	0.70

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	2.695	1.000	2.695	0.70	1.00	1.894
Fatal and Injury (FI)	-13.14	1.18	0.22	0.33	0.800	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.309	0.832	0.70	1.00	0.585
Property Damage Only (PDO)	-11.02	1.02	0.24	0.44	1.793	$(5)_{TOTAL}-(5)_{FI}$ = 0.691	1.863	0.70	1.00	1.310

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	0.585	1.000	1.310	1.894
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.450	0.263	0.483	0.633	0.896
Head-on collision	0.049	0.029	0.030	0.039	0.068
Angle collision	0.347	0.203	0.244	0.320	0.522
Sideswipe	0.099	0.058	0.032	0.042	0.100
Other multiple-vehicle collision	0.055	0.032	0.211	0.276	0.309

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	0.221	1.000	0.221	0.70	1.00	0.156
Fatal and Injury (FI)	-9.25	0.43	0.29	0.09	0.067	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.307	0.068	0.70	1.00	0.048
Property Damage Only (PDO)	-11.34	0.78	0.25	0.44	0.152	$(5)_{TOTAL}-(5)_{FI}$ = 0.693	0.154	0.70	1.00	0.108

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	0.048	1.000	0.108	0.156
		(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	0.036	0.870	0.094	0.129
Collision with other object	0.072	0.003	0.070	0.008	0.011
Other single-vehicle collision	0.040	0.002	0.023	0.002	0.004
Single-vehicle noncollision	0.141	0.007	0.034	0.004	0.010

Worksheet 2G -- Vehicle-Pedestrian Collisions for Urban and Suburban Arterial Stop-Controlled Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{pedi}**	**Predicted N_{pedi}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-16	(4)*(5)
Total	--	--	--	--	--
Fatal and injury (FI)	--	--	--	--	--

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-30

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	1.56	6.47

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	0.202	6.47	1.00	1.309
Fatal and Injury (FI)	--	--	--	--	--	--	--	--	1.00	1.309

Worksheet 2J -- Vehicle-Bicycle Collisions for Urban and Suburban Arterial Intersections

(1)	(2)	(3)	(4)	(5)	(7)*
Crash Severity Level	**Predicted N_{bimv}**	**Predicted N_{bisv}**	**Predicted N_{bi}**	**f_{bikei}**	**Predicted N_{bikei}**
	(9) from Worksheet 2C	(9) from Worksheet 2E	(2) + (3)	from Table 12-17	(4)*(5)
Total	1.894	0.156	2.050	0.015	0.031
Fatal and injury (FI)	--	--	--	--	0.031

* Column 6 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-31

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)	0.263	0.633	0.896
Head-on collisions (from Worksheet 2D)	0.029	0.039	0.068
Angle collisions (from Worksheet 2D)	0.203	0.320	0.522
Sideswipe (from Worksheet 2D)	0.058	0.042	0.100
Other multiple-vehicle collision (from Worksheet 2D)	0.032	0.276	0.309
Subtotal	0.585	1.310	1.894
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)	0.036	0.094	0.129
Collision with other object (from Worksheet 2F)	0.003	0.008	0.011
Other single-vehicle collision (from Worksheet 2F)	0.002	0.002	0.004
Single-vehicle noncollision (from Worksheet 2F)	0.007	0.004	0.010
Collision with pedestrian (from Worksheet 2G or 2I)	1.309	0.000	1.309
Collision with bicycle (from Worksheet 2J)	0.031	0.000	0.031
Subtotal	1.387	0.108	1.495
Total	1.972	1.418	3.390

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	3.4
Fatal and injury (FI)	2.0
Property damage only (PDO)	1.4

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

General Information		Location Information	
Analyst	Molly Riddle	Roadway	12th Street
Agency or Company	Fehr & Peers	Roadway Section	Broadway to Clay Street
Date Performed	02/23/22	Jurisdiction	City of Oakland
		Analysis Year	2022

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.15
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	14,020
Type of on-street parking (none/parallel/angle)		None	Parallel (Comm/Ind)
Proportion of curb length with on-street parking		--	0.9
Median width (ft) - for divided only		15	100
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	75
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	12
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)
1.64	1.17	0.92	0.91	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	-12.34	1.36	1.32	0.286	1.000	0.286	1.62	1.00	0.462
Fatal and Injury (FI)	-12.76	1.28	1.31	0.088	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.288	0.082	1.62	1.00	0.133
Property Damage Only (PDO)	-12.81	1.38	1.34	0.216	$(5)_{TOTAL}-(5)_{FI}$ = 0.712	0.204	1.62	1.00	0.329

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	0.133	1.000	0.329	0.462
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.111	0.662	0.218	0.329
Head-on collision	0.020	0.003	0.007	0.002	0.005
Angle collision	0.040	0.005	0.036	0.012	0.017
Sideswipe, same direction	0.050	0.007	0.223	0.073	0.080
Sideswipe, opposite direction	0.010	0.001	0.001	0.000	0.002
Other multiple-vehicle collision	0.048	0.006	0.071	0.023	0.030

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	-5.05	0.47	0.86	0.085	1.000	0.085	1.62	1.00	0.138
Fatal and Injury (FI)	-8.71	0.66	0.28	0.013	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ 0.159	0.014	1.62	1.00	0.022
Property Damage Only (PDO)	-5.04	0.45	1.06	0.071	$(5)_{TOTAL}-(5)_{FI}$ 0.841	0.072	1.62	1.00	0.116

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	0.022	1.000	0.116	0.138
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.007	0.007
Collision with fixed object	0.500	0.011	0.813	0.094	0.105
Collision with other object	0.028	0.001	0.016	0.002	0.002
Other single-vehicle collision	0.471	0.010	0.108	0.013	0.023

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	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

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)	--	0.284	0.000	1.62	1.00	0.000
Property damage only (PDO)	--	0.716	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)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.462	0.138	0.000	0.600	0.067	0.040
Fatal and injury (FI)	--	--	--	--	--	0.040

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

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

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.462	0.138	0.000	0.600	0.013	0.008
Fatal and injury (FI)	--	--	--	--	--	0.008

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

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)	0.111	0.218	0.329
Head-on collisions (from Worksheet 1D)	0.003	0.002	0.005
Angle collisions (from Worksheet 1D)	0.005	0.012	0.017
Sideswipe, same direction (from Worksheet 1D)	0.007	0.073	0.080
Sideswipe, opposite direction (from Worksheet 1D)	0.001	0.000	0.002
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.006	0.023	0.030
Subtotal	0.133	0.329	0.462
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.007	0.007
Collision with fixed object (from Worksheet 1F)	0.011	0.094	0.105
Collision with other object (from Worksheet 1F)	0.001	0.002	0.002
Other single-vehicle collision (from Worksheet 1F)	0.010	0.013	0.023
Collision with pedestrian (from Worksheet 1I)	0.040	0.000	0.040
Collision with bicycle (from Worksheet 1J)	0.008	0.000	0.008
Subtotal	0.070	0.116	0.186
Total	0.203	0.445	0.648

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	0.6	0.15	4.3
Fatal and injury (FI)	0.2	0.15	1.4
Property damage only (PDO)	0.4	0.15	3.0

Worksheet 1A -- General Information and Input Data for Urban and Suburban Roadway Segments					
General Information			**Location Information**		
Analyst	Molly Riddle		Roadway	11th Street	
Agency or Company	Fehr & Peers		Roadway Section	Clay Street to Broadway	
Date Performed	02/23/22		Jurisdiction	City of Oakland, CA	
			Analysis Year	2022	
Input Data			**Base Conditions**	**Site Conditions**	
Roadway type (2U, 3T, 4U, 4D, ST)			--	4D	
Length of segment, L (mi)			--	0.15	
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)		--	13,790	
Type of on-street parking (none/parallel/angle)			None	Parallel (Comm/Ind)	
Proportion of curb length with on-street parking			--	0.8	
Median width (ft) - for divided only			15	100	
Lighting (present / not present)			Not Present	Present	
Auto speed enforcement (present / not present)			Not Present	Not Present	
Major commercial driveways (number)			--	4	
Minor commercial driveways (number)			--	1	
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	75	
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]			30	12	
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)
1.57	1.17	0.92	0.91	1.00	1.55

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	-12.34	1.36	1.32	0.280	1.000	0.280	1.55	1.00	0.432
Fatal and Injury (FI)	-12.76	1.28	1.31	0.086	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.288	0.081	1.55	1.00	0.125
Property Damage Only (PDO)	-12.81	1.38	1.34	0.212	$(5)_{TOTAL}-(5)_{FI}$ = 0.712	0.199	1.55	1.00	0.308

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	0.125	1.000	0.308	0.432
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.104	0.662	0.204	0.307
Head-on collision	0.020	0.002	0.007	0.002	0.005
Angle collision	0.040	0.005	0.036	0.011	0.016
Sideswipe, same direction	0.050	0.006	0.223	0.069	0.075
Sideswipe, opposite direction	0.010	0.001	0.001	0.000	0.002
Other multiple-vehicle collision	0.048	0.006	0.071	0.022	0.028

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	-5.05	0.47	0.86	0.085	1.000	0.085	1.55	1.00	0.131
Fatal and Injury (FI)	-8.71	0.66	0.28	0.013	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.159	0.013	1.55	1.00	0.021
Property Damage Only (PDO)	-5.04	0.45	1.06	0.071	$(5)_{TOTAL}-(5)_{FI}$ = 0.841	0.071	1.55	1.00	0.110

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	0.021	1.000	0.110	0.131
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.007	0.007
Collision with fixed object	0.500	0.010	0.813	0.090	0.100
Collision with other object	0.028	0.001	0.016	0.002	0.002
Other single-vehicle collision	0.471	0.010	0.108	0.012	0.022

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	4	0.033	1.106	0.120	
Minor commercial	1	0.011	1.106	0.010	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.130	1.39

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	0.130	1.000	0.130	1.55	1.00	0.201
Fatal and injury (FI)	--	0.284	0.037	1.55	1.00	0.057
Property damage only (PDO)	--	0.716	0.093	1.55	1.00	0.144

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

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.432	0.131	0.201	0.765	0.067	0.051
Fatal and injury (FI)	--	--	--	--	--	0.051

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

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

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.432	0.131	0.201	0.765	0.013	0.010
Fatal and injury (FI)	--	--	--	--	--	0.010

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

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)	0.104	0.204	0.307
Head-on collisions (from Worksheet 1D)	0.002	0.002	0.005
Angle collisions (from Worksheet 1D)	0.005	0.011	0.016
Sideswipe, same direction (from Worksheet 1D)	0.006	0.069	0.075
Sideswipe, opposite direction (from Worksheet 1D)	0.001	0.000	0.002
Driveway-related collisions (from Worksheet 1H)	0.057	0.144	0.201
Other multiple-vehicle collision (from Worksheet 1D)	0.006	0.022	0.028
Subtotal	0.182	0.452	0.634
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.007	0.007
Collision with fixed object (from Worksheet 1F)	0.010	0.090	0.100
Collision with other object (from Worksheet 1F)	0.001	0.002	0.002
Other single-vehicle collision (from Worksheet 1F)	0.010	0.012	0.022
Collision with pedestrian (from Worksheet 1I)	0.051	0.000	0.051
Collision with bicycle (from Worksheet 1J)	0.010	0.000	0.010
Subtotal	0.082	0.110	0.192
Total	0.264	0.562	0.826

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	0.8	0.15	5.5
Fatal and injury (FI)	0.3	0.15	1.8
Property damage only (PDO)	0.6	0.15	3.7

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

General Information		Location Information	
Analyst	Molly Riddle	Roadway	Clay Street
Agency or Company	Fehr & Peers	Roadway Section	11th Street to 12th Street
Date Performed	02/23/22	Jurisdiction	City of Oakland
		Analysis Year	2022

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	2U
Length of segment, L (mi)		--	0.05
AADT (veh/day)	$AADT_{MAX}$ = 32,600 (veh/day)	--	3,170
Type of on-street parking (none/parallel/angle)		None	Parallel (Comm/Ind)
Proportion of curb length with on-street parking		--	0.7
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	75
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	10
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)
1.75	1.32	1.00	0.93	1.00	2.16

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	0.009	1.000	0.009	2.16	1.00	0.020
Fatal and Injury (FI)	-16.22	1.66	0.65	0.003	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.301	0.003	2.16	1.00	0.006
Property Damage Only (PDO)	-15.62	1.69	0.87	0.007	$(5)_{TOTAL}-(5)_{FI}$ = 0.699	0.007	2.16	1.00	0.014

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	0.006	1.000	0.014	0.020
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.730	0.004	0.778	0.011	0.015
Head-on collision	0.068	0.000	0.004	0.000	0.000
Angle collision	0.085	0.001	0.079	0.001	0.002
Sideswipe, same direction	0.015	0.000	0.031	0.000	0.001
Sideswipe, opposite direction	0.073	0.000	0.055	0.001	0.001
Other multiple-vehicle collision	0.029	0.000	0.053	0.001	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	0.019	1.000	0.019	2.16	1.00	0.042
Fatal and Injury (FI)	-3.96	0.23	0.50	0.006	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.320	0.006	2.16	1.00	0.013
Property Damage Only (PDO)	-6.51	0.64	0.87	0.013	$(5)_{TOTAL}-(5)_{FI}$ = 0.680	0.013	2.16	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	0.013	1.000	0.028	0.042
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(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	0.021	0.031
Collision with other object	0.010	0.000	0.013	0.000	0.001
Other single-vehicle collision	0.241	0.003	0.162	0.005	0.008

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	0	0.172	1.000	0.000	
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	--	--	--	0.000	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	0.000	1.000	0.000	2.16	1.00	0.000
Fatal and injury (FI)	--	0.323	0.000	2.16	1.00	0.000
Property damage only (PDO)	--	0.677	0.000	2.16	1.00	0.000

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

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.020	0.042	0.000	0.062	0.036	0.002
Fatal and injury (FI)	--	--	--	--	--	0.002

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

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

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.020	0.042	0.000	0.062	0.018	0.001
Fatal and injury (FI)	--	--	--	--	--	0.001

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

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)	0.004	0.011	0.015
Head-on collisions (from Worksheet 1D)	0.000	0.000	0.000
Angle collisions (from Worksheet 1D)	0.001	0.001	0.002
Sideswipe, same direction (from Worksheet 1D)	0.000	0.000	0.001
Sideswipe, opposite direction (from Worksheet 1D)	0.000	0.001	0.001
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.000	0.001	0.001
Subtotal	0.006	0.014	0.020
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.002	0.002
Collision with fixed object (from Worksheet 1F)	0.010	0.021	0.031
Collision with other object (from Worksheet 1F)	0.000	0.000	0.001
Other single-vehicle collision (from Worksheet 1F)	0.003	0.005	0.008
Collision with pedestrian (from Worksheet 1I)	0.002	0.000	0.002
Collision with bicycle (from Worksheet 1J)	0.001	0.000	0.001
Subtotal	0.017	0.028	0.045
Total	0.023	0.042	0.065

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	0.1	0.05	1.3
Fatal and injury (FI)	0.0	0.05	0.5
Property damage only (PDO)	0.0	0.05	0.8

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

General Information		Location Information	
Analyst	Molly Riddle	Roadway	Broadway
Agency or Company	Fehr & Peers	Roadway Section	11th Street to 12th Street
Date Performed	02/23/22	Jurisdiction	City of Oakland
		Analysis Year	2022

Input Data		Base Conditions	Site Conditions
Roadway type (2U, 3T, 4U, 4D, ST)		--	4D
Length of segment, L (mi)		--	0.15
AADT (veh/day)	$AADT_{MAX}$ = 66,000 (veh/day)	--	10,190
Type of on-street parking (none/parallel/angle)		None	Parallel (Comm/Ind)
Proportion of curb length with on-street parking		--	0.9
Median width (ft) - for divided only		15	100
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	75
Offset to roadside fixed objects (ft) [If greater than 30 or Not Present, input 30]		30	12
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)
1.64	1.17	0.92	0.91	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	-12.34	1.36	1.32	0.185	1.000	0.185	1.62	1.00	0.300
Fatal and Injury (FI)	-12.76	1.28	1.31	0.058	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.295	0.055	1.62	1.00	0.088
Property Damage Only (PDO)	-12.81	1.38	1.34	0.139	$(5)_{TOTAL}-(5)_{FI}$ = 0.705	0.131	1.62	1.00	0.211

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	0.088	1.000	0.211	0.300
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Rear-end collision	0.832	0.073	0.662	0.140	0.213
Head-on collision	0.020	0.002	0.007	0.001	0.003
Angle collision	0.040	0.004	0.036	0.008	0.011
Sideswipe, same direction	0.050	0.004	0.223	0.047	0.052
Sideswipe, opposite direction	0.010	0.001	0.001	0.000	0.001
Other multiple-vehicle collision	0.048	0.004	0.071	0.015	0.019

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	-5.05	0.47	0.86	0.074	1.000	0.074	1.62	1.00	0.119
Fatal and Injury (FI)	-8.71	0.66	0.28	0.011	$(4)_{FI}/((4)_{FI}+(4)_{PDO})$ = 0.150	0.011	1.62	1.00	0.018
Property Damage Only (PDO)	-5.04	0.45	1.06	0.062	$(5)_{TOTAL}-(5)_{FI}$ = 0.850	0.063	1.62	1.00	0.101

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	0.018	1.000	0.101	0.119
		$(2)*(3)_{FI}$		$(4)*(5)_{PDO}$	(3)+(5)
Collision with animal	0.001	0.000	0.063	0.006	0.006
Collision with fixed object	0.500	0.009	0.813	0.082	0.091
Collision with other object	0.028	0.001	0.016	0.002	0.002
Other single-vehicle collision	0.471	0.008	0.108	0.011	0.019

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	0.033	1.106	0.000	
Minor commercial	0	0.011	1.106	0.000	
Major industrial/institutional	0	0.036	1.106	0.000	
Minor industrial/institutional	0	0.005	1.106	0.000	--
Major residential	0	0.018	1.106	0.000	
Minor residential	0	0.003	1.106	0.000	
Other	0	0.005	1.106	0.000	
Total	--	--	--	0.000	1.39

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)	--	0.284	0.000	1.62	1.00	0.000
Property damage only (PDO)	--	0.716	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)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{pedr}**	**Predicted N_{pedr}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-8	(5)*(6)
Total	0.300	0.119	0.000	0.418	0.067	0.028
Fatal and injury (FI)	--	--	--	--	--	0.028

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-19

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

(1)	(2)	(3)	(4)	(5)	(6)	(8)*
Crash Severity Level	**Predicted N_{brmv}**	**Predicted N_{brsv}**	**Predicted N_{brdwy}**	**Predicted N_{br}**	**f_{biker}**	**Predicted N_{biker}**
	(9) from Worksheet 1C	(9) from Worksheet 1E	(7) from Worksheet 1H	(2)+(3)+(4)	from Table 12-9	(5)*(6)
Total	0.300	0.119	0.000	0.418	0.013	0.005
Fatal and injury (FI)	--	--	--	--	--	0.005

* Column 7 has been removed due to redundant application of calibration factors and inconsistency with HSM Equation 12-20

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)	0.073	0.140	0.213
Head-on collisions (from Worksheet 1D)	0.002	0.001	0.003
Angle collisions (from Worksheet 1D)	0.004	0.008	0.011
Sideswipe, same direction (from Worksheet 1D)	0.004	0.047	0.052
Sideswipe, opposite direction (from Worksheet 1D)	0.001	0.000	0.001
Driveway-related collisions (from Worksheet 1H)	0.000	0.000	0.000
Other multiple-vehicle collision (from Worksheet 1D)	0.004	0.015	0.019
Subtotal	0.088	0.211	0.300
SINGLE-VEHICLE			
Collision with animal (from Worksheet 1F)	0.000	0.006	0.006
Collision with fixed object (from Worksheet 1F)	0.009	0.082	0.091
Collision with other object (from Worksheet 1F)	0.001	0.002	0.002
Other single-vehicle collision (from Worksheet 1F)	0.008	0.011	0.019
Collision with pedestrian (from Worksheet 1I)	0.028	0.000	0.028
Collision with bicycle (from Worksheet 1J)	0.005	0.000	0.005
Subtotal	0.051	0.101	0.152
Total	0.140	0.312	0.452

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	0.5	0.15	3.0
Fatal and injury (FI)	0.1	0.15	0.9
Property damage only (PDO)	0.3	0.15	2.1

Appendix C
Transportation and Parking Demand Management Plan

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FEHR PEERS

Draft Memorandum

Date: May 10, 2022

To: Elizabeth Kanner, ESA

From: Sam Tabibnia and Molly Riddle, Fehr and Peers

Subject: Samuel Merritt University City Center - Transportation Demand Management Plan

OK21-0450

Transportation and Parking Demand Management (TDM) plans are a requirement of the City of Oakland's Standard Conditions of Approval (Department of Planning and Building, Bureau of Planning, Revised December 16, 2021 – Condition #78) for all land use projects generating more than 50 net new peak hour vehicle trips as described in the City of Oakland's Transportation Impact Review Guidelines (TIRG) dated April 2017.

The proposed Samuel Merritt Health Sciences University (SMU) City Center Project will generate over 100 peak hour trips, which triggers the requirement for the applicant to develop a TDM with a 20 percent vehicle trip reduction (VTR) goal.

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 Transportation Characteristics

The Project is located on the northside of 11th Street midblock between Broadway and Clay Street in Downtown Oakland. The 0.56-acre site is currently vacant. The Project would construct a single building providing approximately 226,300 square feet of space for use as the new main campus of SMU, which would relocate from its current location at the Alta Bates Summit Medical

Center, about 1.3 miles north of the Project site. The Project would use an existing driveway for access to loading berths but would not provide on-site parking.

The Project is in Downtown Oakland, a high-density, mixed-use, transit-rich, pedestrian-friendly area with limited parking supply. The Project is within 0.1 miles of the 12th Street BART Station, and within walking distance of numerous bus routes, including AC Transit's Bus Rapid Transit (BRT) Line 1T, trunk lines 6 and 40 along 11th Street, 12th Street and Broadway, trunk lines 51A and 72/72M/72R along Broadway, as well as several local and night buses. Although no dedicated bicycle facilities are provided adjacent to the site, the City's 2019 Oakland Bike Plan (*Let's Bike Oakland*, May 2019) proposes Class 4 protected bike lanes along 11th and 12th Streets.

The Project's location is expected to result in a relatively high rate of pedestrian, bicycle, and transit trips. As a result of the availability of various destinations within walking and biking distance of the site and the available walking and biking infrastructure and transit service in the Project area, the Project site has a WalkScore of 98/100 (Walker's Paradise), BikeScore of 90 (Biker's Paradise), and TransitScore of 82 (Excellent Transit).[1] This means that it is extremely accessible to various alternative modes of transportation that enable students, faculty, staff, and visitors to use non-automobile alternatives to the automobile in accessing the Project site.

Commute Mode Share and Trip Generation

Since the Project would be in a mixed-use area adjacent to frequent local and regional transit service with limited available parking, it is expected to have a lower automobile trip generation than the existing SMU site. **Table 1** compares the commute mode share data for workers in the Census Tract for the current SMU site at the Alta Bates Summit (Tract 4013) with the proposed SMU site at City Center (Tract 4031).

Table 2 shows the Project trip generation by travel mode as summarized in the *Project non-CEQA Transportation Impact Review (TIR)* Memorandum. As described in the TIR, the trip generation accounts for the decrease in use of automobile travel modes compared to the current site due to the Project location in a more non-automobile accessible area and the expected number of faculty, staff, and students who would work or study remotely.

[1] Walkscore. Downtown Oakland, CA. https://www.walkscore.com/CA/Oakland/Downtown. Accessed on February 8, 2022.

Table 1: Census Data Commute Mode Share Comparison

Modes	Census Tract 4013 (Current SMU Site at the Alta Bates Summit Medical Center)	Census Tract 4031 (Project Site)
Automobile		
Drive Alone	72%	50%
Carpool	10%	5%
Other Auto	<1%	<1%
Subtotal	*82%*	*55%*
Transit		
BART	6%	32%
Bus	4%	5%
Subtotal	*10%*	*37%*
Bike	2%	3%
Walk	5%	3%
Other	1%	2%
Total	**100%**	**100%**

Source: Based on commute mode share data for workers per US Census CTPP (2012-2016) as summarized by Fehr & Peers, 2021.

Table 2: Project Trip Generation by Travel Mode

Mode	Mode Share Adjustment Factors[1]	Daily	AM Peak Hour	PM Peak Hour
Passenger Vehicle	0.531	970	187	140
Transit	0.297	540	105	78
Bike	0.051	90	18	13
Walk	0.105	190	37	28
Total Trips		**1,790**	**347**	**259**

Notes:

1. Based on the City of Oakland's TIRG for an urban environment within 0.5 miles of a BART station.

Source: Fehr & Peers, 2021.

Existing TDM Strategies

At its current location at the Alta Bates Summit Medical Center, SMU employs the following TDM strategies targeting faculty, staff and students:

- *Remote Study and Work Options:* Students are offered the opportunity to take some classes online and many of the programs SMU plan to add in the next few years will be fully online programs. SMU expects to continue to offer about 50 percent of the classes online. Since online classes would mostly consist of larger lecture-based classes, about 41 percent of the students are expected to be on campus on a typical weekday. On-campus students would mostly consist of students attending in-person simulations and lab work that can only be done in person. Some faculty teach remotely or are clinical instructors who only teach off campus at a variety of clinical sites. These remote learning and working options are expected to result in decreased on-campus population despite a growth in SMU programming.

- *Pre-Tax Commuter Benefits:* SMU offers commuter benefits to faculty and staff. Each month, users may set aside up to $280 pre-tax dollars for mass transit. Commuter benefits include reimbursement for the following expenses:

    - Mass transit (bus, train, ferry, etc.) used to get to work
    - Parking at or near public transportation used to get to work
    - Vanpool used to get to work

- *No Parking Subsidies:* SMU does not currently provide parking subsidies for faculty, staff and students and does not plan to do so for the proposed SMU site.

SMU plans to continue employing these strategies following the relocation to Downtown Oakland.

Mandatory TDM Strategies

This section describes the mandatory strategies that shall be implemented at the Project as well as Project features that would reduce the automobile trips generated by the Project. These strategies shall be directly implemented by the Project Applicant and building management. **Table 3** lists the mandatory strategies that are part of the City's TIRG and their applicability to the Project.

Table 3: Mandatory TDM Program Components as Required by the Oakland TIRG

TDM Strategy	Required When	Required for 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, although a bus stop is not located along the Project frontage, the Project may provide a bus boarding bulb as part of relocating bus stops on 11th Street (TIR Recommendation 5).**
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, although a bus stop lacking a shelter is not located along the Project frontage, the Project may provide a bus shelter as part of relocating bus stops on 11th Street (TIR Recommendation 5).**
Concrete Bus Pad	• A bus stop is located along the project frontage and a concrete bus pad does not already exist	**Yes, although a bus stop is not located along the Project frontage, the Project may provide a concrete bus pad as part of relocating bus stops on 11th Street (TIR Recommendation 5).**
Curb Extensions or bulb-outs	• Identified as an improvement within site analysis	No, the site analysis did not identify new curb extensions or bulb-outs.
Implementation of 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	No, the Project would not generate 500 or more daily bicycle trips
Implementation of 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	No, the Project would not generate 400 or more peak period transit trips.

TDM Strategy	Required When	Required for Project?
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 adjacent to the site**
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	**Yes, the Project would provide an extended median on the south side of the 11th Street/ Broadway intersection (TIR Recommendation 4).**
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.	**Yes, although the Project does not provide more than 10,000 square feet of ground floor retail, it would provide an in-street bicycle corral along its frontage on 11th Street.**
Intersection improvements	• Identified as an improvement within site analysis	**Yes, the Project would provide crossing improvements at the 11th Street/Clay Street and 11th Street/Broadway intersections (TIR Recommendation 4)**

TDM Strategy	Required When	Required for Project?
New sidewalk, curb ramps, curb and gutter meeting current City and ADA standards	• Always required	**Yes, the Project would upgrade the sidewalks along Project frontage.**
No monthly permits and establish minimum price floor for public parking	• If proposed parking ratio exceeds 1:1000 sf (commercial)	No, the Project would not provide off-street parking.
Parking garage is designed with retrofit capability	• Optional if proposed parking ratio exceeds 1:1.25 (residential) or 1:1000 sf (commercial)	No, the Project would not provide an off-street parking garage.
Parking space reserved for car share	• A project is located within downtown. One car share space preserved for buildings between 50 – 200 units, then one car share space per 200 units.	No, the Project would not provide off-street parking.
Paving, lane striping or restriping (vehicle and bicycle), and signs to midpoint of street section	• Typically required	**Yes, the Project would update the paving and striping along the Project frontage to the midpoint of the street section**
Pedestrian crossing improvements, pedestrian supportive signal changes	• Identified as an improvement within site analysis • Identified as an improvement within operations analysis	**Yes, the Project would upgrade intersection crossings that do not meet current City standards and a new midblock crossing on 11th Street (TIR Recommendation 4 and 5).**
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, the Project would provide transit information system, such as TransitScreen, in the building lobby**

TDM Strategy	Required When	Required for Project?
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 the bus stop on 11th Street, west of Broadway to 230 feet west of Broadway in combination with consolidating the 11th Street bus stops (TIR Recommendation 5).**
Signal upgrades	• 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	No, Project does not meet land use requirements or abut an intersection with a qualifying signal.
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	No, not identified as a needed improvement.
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	No, Project does not meet land use requirements and no transit improvements are identified.
Unbundled parking	• If proposed parking ratio exceeds 1:1.25 (residential)	No, Project will not provide on-site parking.

Sources: City of Oakland Transportation Impact Review Guidelines, 2017; Fehr & Peers, 2022.

Table 4 lists the mandatory TDM strategies, and the effectiveness of each strategy primarily on reducing VTR based on the Alameda County Transportation Commission (CTC) VMT Reduction Calculator Tool,[2] which is a tool that accounts for the particular location of a development project and quantifies the effects of various strategies in reducing VMT based on research compiled in *Quantifying Greenhouse Gas Mitigation Measures* (California Air Pollution Control Officers Association (CAPCOA), December 2021). This report is a resource for local agencies to quantify the benefit, in terms of reduced travel demand, of implementing various TDM strategies.

[2] See https://www.alamedactc.org/planning/sb743-vmt/ for more information.

Table 4: Mandatory TDM Program Components

TDM Strategy	Description	Estimated Vehicle Trip Reduction[1]
A. Infrastructure Improvements	Various improvements	N/A[2]
B. Remote Study and Work Options (Existing)	Where feasible, provide the opportunity for faculty and staff to work flexible schedules and students to engage in remote studies.	0%[3]
C. Pre-Tax Commuter Benefit (Existing)	Provide faculty and staff with pre-tax commuter benefits up to $280 per month.	2-6%[4]
D. Subsidized or Discounted Transit Program	Provide subsidized, discounted or free transit passes for all students and full-time employees.	
E. No New Parking	Project would provide no on-site parking spaces, less than the estimated automobile mode share for the Project.	6-15%[5]
F. No Parking Subsidies	Project shall not subsidize the cost of parking for any faculty, staff, or students.	
G. Carpooling and Ride-Matching Assistance	Assist Project students, faculty and staff in forming carpools.	<1%
H. Bicycle Amenities and Monitoring	Provide bicycle parking above the minimum requirement, including showers, long-term bicycle storage and personal lockers, and monitor usage	0-2%
I. Guaranteed Ride Home	Encourage faculty and staff to register for the Guaranteed Ride Home (GRH) program.	N/A[2]
J. TDM Coordinator	Coordinator responsible for implementing and managing the TDM Plan	N/A[2]
K. TDM Marketing and Education	Active marketing of carpooling, BART, AC Transit, bike sharing, and other non-auto modes	1-4%
	Estimated Trip Reduction	**10-25%**

Notes
1. Based on the results of the Alameda CTC VMT Reduction Calculator Tool. Although the focus of the Tool is reductions to VMT, 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.
2. 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.
3. The Project trip generation (presented in Table 2) accounts for the expected remote study and work. Therefore, no VTR credit is assumed for this measure.
4. This strategy assumes that all students and full-time employees would receive a transit subsidy of $3.50 per weekday (value to transit user).
5. The 15 percent VTR is based on CAPCOA report and assumed a 60 percent increase in the cost of parking in downtown compared to the existing SMU site and a very limited parking supply in downtown. The six percent VTR assumes less sensitivity to cost (people parking farther where cost is lower) and more parking available downtown.

Source: Fehr & Peers, 2022.

The mandatory strategies in Table 4 are targeted at both employees (faculty and staff) and students. 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. Operational TDM strategies are most effective for persons that commute to and from a site on a regular basis, especially during weekday peak commute periods when transit service peaks and is most conveniently available. Thus, the mandatory strategies can be applicable to both employees (faculty and staff) and students.

As described earlier, the estimated trip generation presented in Table 2, account for the reduction in automobile trips expected from relocating the Project from the Alta Bates Medica Center to Downtown Oakland as well as the number of faculty and staff who would work remotely and the number of students who would attend classes and study remotely. Thus, the VTR range presented in Table 4 represent the estimated reduction in automobile trip generation beyond the trip generation shown in Table 2.

The VTR ranges in Table 4 represent conservative assumptions about potential trip reduction at the low end of the range. Due to the Project location in an area that has 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.

A more detailed description of the TDM measures that comprise the mandatory TDM Plan is provided below:

A. *Infrastructure Improvements* – the following infrastructure improvements in the Project vicinity, which were identified in the site plan evaluation completed as part of the Project TIR, would improve the bicycling, walking, and transit systems in the area and further encourage the use of these modes:

   Recommendation 1: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

   - Reduce the width of the existing driveway adjacent on 11th Street just west of the Project from 28 to 24 feet.

Recommendation 2: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Allocate curb space on 11th street to accommodate at least one accessible passenger loading (white curb) space near the lobby entrance.

Recommendation 3: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Consider relocating some long-term bicycle parking to a more convenient location on the ground level within easy access of the lobby.
- If no long-term bicycle parking can be provided on the ground level, ensure that at least one elevator providing access to the basement level can accommodate individuals accompanied by bicycles, including recumbent or cargo bicycles which have an extended wheelbase.

Recommendation 4: While not required to address a CEQA impact, and at the discretion of City of Oakland staff, the following shall be considered as part of the final design for the Project:

- Explore the feasibility and if deemed feasible by City staff, install the following at the 11th Street/Clay Street intersection:
    - Provide a dual directional curb ramp with truncated domes consistent with ADA standards on the northeast corner of the intersection.
- Explore the feasibility and if deemed feasible by City staff, install the following at the 11th Street/Broadway intersection:
    - As recommended in the City's 2017 Pedestrian Plan, "Oakland Walks!", extend the median on the south side of the 11th Street/Broadway intersection to provide a refuge island.
- Explore the feasibility and if deemed feasible by City staff, install the following at the 12th Street/Center Walk intersection:
    - Upgrade the crossing to provide a crosswalk marked by continental striping and an advanced stop bar.

Recommendation 5: While not required to address a CEQA impact, and at the discretion of City of Oakland staff and in consultation with AC Transit, the following shall be considered as part of the final design for the Project:

- Consider consolidating the existing AC Transit stops on the south side of 11th Street located 120-feet east of Clay Street and on the corner of Broadway to a new location approximately 230 feet west of Broadway. If feasible, also consider the construction of a bus shelter, concrete bus pad, and other transit stop amenities at the potential new location.
- Install a signalized midblock pedestrian crossing across 11th Street aligned with the existing pedestrian walkway on the east side of the Project site to improve access to the relocated bus stop. This crossing would also improve north-south pedestrian connectivity into the Civic Center due to its alignment with "Center Walk" and the existing 12th Street midblock crossing.
- Explore the feasibility of, and implement if found feasible, sidewalk widening on south side of 11th Street at the location of the proposed bus stop to provide a bus bulb with adequate space to accommodate a bus shelter and other amenities. Constructing the bus bulb would require elimination of parking and/or a travel lane on 11th Street and shall not preclude the future installation of Class 4 protected bike lanes as proposed in the 2019 Oakland Bike Plan.

B. *Remote Study and Work Options* (Existing) – Where feasible, continue to offer faculty and staff alternative work schedules, flexible hours, and or telecommuting opportunities and provide students opportunities to engage in remote learning. Such measures can eliminate employee and/or student trips or shift them to non-peak periods. Since the Project trip generation, summarized in Table 2 and described in the Project TIR Memorandum, is based on the estimated on-site population and accounts for the expected remote study and work. Therefore, no VTR credit is taken for this measure.

C. *Pre-tax Commuter Benefits* (Existing) – Continue to provide employees the option to enroll in the pre-tax commuter benefits program. This strategy allows employees to deduct monthly transit passes or other amount using up to $280 pre-tax dollars. This can help to lower payroll taxes and allows employees to save on transit.

D. *Subsidized or Discounted Transit Program* – Provide free or reduced cost transit for faculty, staff, and students to increase transit mode share. Options include:

1. 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 full-

time employees to use public transit. Note that as of 2022, IRS allows up to $280 per employee per month.[3]

2. Participate in AC Transit's EasyPass program, which enables institutions to purchase annual bus passes for their employees and/or students in bulk at a deep discount. The passes allow unlimited rides on all AC Transit buses for all participants. For more information, see www.actransit.org/rider-info/easypass. One option can be to implement a mandatory fee on all students to fund the EasyPass for all students. For example, in 2019, students at UC Berkeley voted for a $95 per semester fee for all students to fund several transportation options for students, including the EasyPass for all students.

Based on the CAPCOA report, a transit fare subsidy of about $3.50 per employee per weekday (value to rider and not cost to employer) available to all site faculty, staff, and students would translate to an approximately two to six percent VTR.

E. *No New Parking* – The Project would increase the day population in Downtown Oakland without increasing the parking supply. As shown in Table 2, the Project is estimated to generate 130 to 170 vehicle trips during the AM and PM peak hours; however, the Project would not provide on-site parking. There are several parking facilities in the Project vicinity that are open to the public and can be used by the faculty, staff, and students. Since most of these public parking facilities operated at or near capacity on most weekdays prior to the COVID-19 pandemic and the Project would increase demand at a greater rate than parking supply, it is expected that the Project would result in a higher rate of commuters to Downtown Oakland using non-automobile travel modes.

F. *No Parking Subsidies* – The Project shall not subsidize the cost of parking for any faculty, staff, or students. Considering that the cost of off-street parking in Downtown Oakland is higher than at the current SMU site (Currently, parking at the City Center Garage, adjacent to the Project is $16.00 per hour and $40.00 per day,[4] compared to $10.00 per hour and $28.00 per day at the current SMU location at the Alta Bates Summit Medical Center[5]), it is expected to result in a higher rate of commuters using non-automobile travel modes.

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[3] Department of the Treasury Internal Revenue Service, Publication 15-B, *Employer's Tax Guide to Fringe Benefits 2022*, page 20 (https://www.irs.gov/pub/irs-pdf/p15b.pdf)

[4] Oakland City Center, Oakland City Center Parking Rates, https://oaklandcitycenter.com/parking/, accessed on February 24, 2022.

[5] Samuel Merritt University, Access Services, https://www.samuelmerritt.edu/faculty-and-staff/facilities/access, accessed on February 24, 2022.

G. *Carpooling and Ride-Matching Assistance* – SMU shall provide personalized ride-matching assistance to pair faculty, staff and students interested in forming commute carpools. As an enhancement, SMU may consider using specific services such as ZimRide, ComoVee, or 511.org RideShare.

H. *Bicycle Amenities and Monitoring* – The Project would include long-term on-site parking in a secure bicycle room with an adjacent locker room and shower facility and short-term parking in the form of bike racks along the Project frontages. The Project shall monitor the usage of these facilities and provide additional bicycle parking, if necessary.

I. *Guaranteed Ride home* – Encourage faculty and staff to register for the Guaranteed Ride Home (GRH) program. Employees may be hesitant to commute by any other means, besides driving alone, since they lose the flexibility of leaving work in case of an emergency. GRH programs encourage alternative modes of transportation by offering free rides home in the case of an illness or crisis, if the employee is required to work unscheduled overtime, if a carpool or vanpool is unexpectedly unavailable, or if a bicycle problem arises. The Alameda County Transportation Commission offers a GRH service for all registered permanent employees who are employed within Alameda County, live within 100 miles of their worksite, and do not drive alone to work. The GRH program is offered at no cost to the employer, and employers are not required to register for their employees to enroll and use the program.

J. *TDM Coordinator* – The Project shall designate a staff person as their TDM coordinator to coordinate, monitor and publicize TDM activities.

K. *TDM Marketing and Education* – Site management shall regularly provide students, faculty, and staff information about transportation options. This information shall be provided as part of student and employee orientations, prospective student visits, and 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 faculty, staff and students with wayfinding to nearby transit stops and transit-accessible destinations and are particularly useful for those without access to portable mapping applications.

    - *Real-time Transit Information System* – The Project should consider installing real-time transit information, such as TransitScreen, in a visible location in the main building lobby to provide faculty, staff, students, and visitors 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 faculty, staff and students of nearby car sharing locations and applicable membership information.
- *Ridesharing* – Provide faculty, staff and students with phone numbers and contact information for ride sharing options including Uber, Lyft, and Oakland taxicab services.
- *Carpooling* – Provide faculty, staff and students 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/Scooters* – Educate faculty, staff and students about nearby bike sharing station locations (nearest Bay Wheels bikeshare station is about 0.1 miles north of the Project site on the north side of 14th Street west of Broadway) and membership information (Bike Share for All provides discounted bike-share membership for low-income individuals[6]) and dock-less bikeshare/scooters.

Additional TDM Strategies

The project should consider the implementation of some or all the following additional strategies to limit automobile use and encourage non-automotive travel. If the mandatory TDM strategies do not meet the required goals, the implementation of some or all these measures may become necessary.

L. *Increased Transit Subsidy* – Increase the transit subsidy provided to faculty, staff, and/or students.
M. *Bike-Share/Scooter-Share Membership* – Encourage increased usage of bike-share and/or scooter-share by fully or partially paying for student, employees' yearly membership fee and insurance associated with bike-sharing.

[6] See https://www.lyft.com/bikes/bay-wheels/bike-share-for-all for more information.

N. *Provide a Bike-Share Station* - Coordinate with City of Oakland, and/or other regional agencies to facilitate the installation of a BayWheels bikeshare station along the Project frontage.

O. *Personalized Trip Planning* – In the form of in-person assistance or as a web tool, this provides employees and students with a customized menu of options for commuting. Trip planning reduces the barriers employees see to making a walk, bike, or transit trip to the site. Transit trip making tools, such as those available from Google or 511.org, could be promoted to inform employees of transit options to/from work. Providing a map of preferred walking routes to destinations within one mile of the site and a map of bicycling routes within five miles of the site would be a proactive strategy to encourage those individuals to use alternatives to driving. Carpooling can be encouraged by conducting surveys and/or mapping exercises and connecting students and/or employees who are traveling from similar origins. The Project can make regular presentations to employees and students upon request or at set times.

Monitoring, Evaluation and Enforcement

Since the Project would generate more than 100 peak hour trips, this TDM program requires regular periodic evaluation of the program to determine if the program goals in reducing automobile trips are satisfied and to assess the effectiveness of the various strategies implemented. The Project shall submit an annual compliance report for the first five years following completion of the Project for review and approval by the City. The Project shall conduct a travel mode survey of the Project faculty, staff, and students. Additionally, the Project shall monitor and report on the number of remote and on-campus students, faculty, and staff on a typical weekday and the percentage of classes that are offered remotely and on-campus on an annual basis. The annual report shall document the status and effectiveness of the TDM program, including the number of remote and on-campus populations, the results of the travel mode surveys, and the estimated VTR achieved by the Project based on the travel mode surveys.

If deemed necessary, the City may elect to have a peer review consultant, paid for by the Project, review the annual report. If timely reports are not submitted and/or the annual reports indicate that the Project has failed to implement the TDM Plan, the Project will be considered in violation of the Conditions of Approval and the City may initiate enforcement action as provided for in the Project Conditions of Approval. The Project shall not be considered in violation of this Condition if the TDM Plan is implemented but the VTR goal is not achieved.

If in two successive years the project's TDM goals are not satisfied, Project shall implement additional TDM measures. 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, 510.835.1943) with questions or comments.