Modified 1640 Broadway Mixed Use Development Project

CEQA Analysis

December 2015

<u>Prepared for:</u>

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

Prepared by:

Lamphier-Gregory
1944 Embarcadero
Oakland, CA 94606

Table of Contents

Attachments

Tables

Figures

Appendices

I. General Project Information

1. Project Title:	Modified 1640 Broadway Mixed Use Development Project
2. Lead Agency Name and Address:	City of Oakland Bureau of Planning 250 Frank H. Ogawa Plaza, Suite 2114 Oakland, CA 94612
3. Contact Person and Phone Number:	Mike Rivera, Planner II 250 Frank H. Ogawa Plaza, Suite 2114 Oakland, CA 94612 (510) 238-6417 mrivera@oaklandnet.com
4. Project Location:	1640 Broadway (southeast corner of Broadway and 17th St.) Assessor's Parcel Nos. 8-622-1-3, 8-622-1-4 and 8-622-1-5
5. Project Sponsor's Name and Address:	1640 Broadway Associates LLC 650B Freemont Avenue Los Altos, CA 94024 Attn: Joe Hernon (415) 705-9922
6. Existing General Plan Designations:	Central Business District
7. Existing Zoning:	Central Business District Pedestrian Retail (CBD-P)
8. Requested Permits:	Include, without limitation, extension of, and modifications to, existing Regular Design Review, Conditional Use Permit, minor variances and vesting tentative parcel map.

II. Executive Summary

The proposed Modified 1640 Broadway Mixed-use Project ("proposed Project" or "Modified Project") would be developed on a 22,230 square foot site on the southeast corner of Broadway and 17th Street in downtown Oakland (Assessor's Parcel Numbers 008-662-001-03, 008-662-001-04 and 008-662-001-05).

The City certified an Environmental Impact Report (EIR) for 1640 Broadway Mixed-use Project on October 4, 2000, pursuant to the California Environmental Quality Act (CEQA). The "Original Project" analyzed in the 2000 EIR considered the development of a 432,341 square-foot mixed-use building consisting of 146 residential units, commercial office space, approximately 4,710 square feet of ground floor retail and 284 parking spaces.

In 2001, the City approved a modification to the Original Project to allow a residential only development consistent with a Residential Alternative analyzed in the 2000 EIR. . On May 4, 2005, the City re-approved the modified residential only project. Subsequent renewals and extensions of the approvals were granted in 2007 and 2008. Starting in 2008, the City adopted a series of citywide extensions of termination dates of all previously approved but unbuilt projects (Resolutions 81723, 83424, 83989, 84746, and 85305). The Project took advantage and obtained the citywide extensions, the most recent of which, Resolution 85305, extends the Project approvals to December 31, 2015. These approvals may be further extended by the Planning Commission upon request and payment of the applicable fee.

The Modified Project now proposes a residential only development up to approximately 380 feet (33 floors) in height[1] with 254 multi-family units consisting of a mix of studio, one-, two- and three-bedroom units with an average unit size of approximately 945 square feet. The Modified Project would include approximately 5,000 square feet of ground-floor commercial space for general retail and/or restaurant uses and off-street parking for 232 cars and 66 bicycles.

The Modified Project is seeking a modification to the 2005 approved residential only Project, and extensions of the approvals including the Conditional Use Permit, Minor Variance, Regular Design Review and extension of the Project entitlements for two (2) years.

The 2000 EIR analyzed the environmental impacts of adoption and implementation of the Original Project. The analysis in the 2000 EIR directly applies to the Modified Project, providing the basis for use of an Addendum. Separate and independently, qualified planning level documents, specifically program-level EIRs, that can be used as a basis to provide additional CEQA clearance of the Modified Project (all or in part) under specific CEQA provisions include Oakland's 1998 General Plan Land Use and Transportation Element EIR, the 2010 General Plan Housing Element Update EIR and 2014 Addendum, and the 2011 Central District Urban Renewal Plan Amendments EIR.

III. Prior CEQA Review

1640 Broadway Mixed Use Development Project EIR

The environmental impacts associated with the proposed development of the 2000 Project (i.e., Original Project) were evaluated under the 1640 Broadway Mixed Use Development Project EIR (2000 EIR). It was certified by the City on October 4, 2000. The 2000 EIR, including its Initial Study Checklist, determined that the Original Project's impacts to the following resources would be reduced to a **less-than-significant level with the implementation of mitigation measure**s: temporary construction-related traffic circulation, insufficient bicycle parking; fugitive dust from construction activities and construction noise.

The 2000 EIR determined that the Original Project would have **less-than-significant impacts** for the following resources: aesthetics/visual, shadow and wind, historic architectural resources, biological resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, population and housing, public services, recreation, and utilities and service systems.

The 2000 EIR determined that the Original Project would have a **significant unavoidable effect** on parking. Specifically, the 2000 EIR concluded the 2000 Project provided insufficient off-street parking in relation to present and cumulative parking demand in the downtown area.[2] Due to the potential for significant and unavoidable impacts, a Statement of Overriding Considerations was adopted as part of the City approvals.

[1] For the purposes of this CEQA document, height is defined as the distance from grade level to the top of the mechanical penthouse. The reference to "approximately" reflects the fact that final design and determination of floor-to-floor heights may result in the final height being slightly higher or lower than as indicated. However, technical studies for shadow and wind effects assumed a building of 406 feet, reflecting a 'worst case' scenario and determined effects to be less than significant; actual effects would be less.

[2] Since the certification of the 2000 EIR, consideration of parking as a significant impact in a transit priority area such as the Project Site has been eliminated. (Public Resources Code Section 21099(d), effective January 1, 2014).

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

Applicable Previous CEQA Documents and Program EIRs

The analysis in the 2000 EIR applies directly to the Modified Project, providing the basis for use of an Addendum. The following describes the Program EIRs that constitute the Previous CEQA Documents considered in this CEQA Analysis, which are collectively referred to as the "the Program EIRs" or "Previous CEQA Documents." Each of the following documents is hereby incorporated by reference and can be obtained from the City of Oakland Bureau of Planning at 250 Frank H. Ogawa Plaza, Suite 3315, Oakland, California 94612, and/or located at http://ec2-54-235-79-104.compute-1.amazonaws.com/Government/o/PBN/OurServices/Application/DOWD009157.htm. They include the following:

- Oakland's 1998 General Plan Land Use and Transportation Element EIR;
- The 2010 General Plan Housing Element Update EIR and its 2014 Addendum; and,
- The 2011 Central District Urban Renewal Plan Amendments EIR

The following is a brief discussion of each document.

Land Use and Transportation Element EIR

The City certified the EIR for its General Plan Land Use and Transportation Element (LUTE) in 1998 ("1998 LUTE EIR"). The LUTE identifies policies for utilizing Oakland's land as change takes place and sets forth an action program to implement the land use policy through development controls and other strategies. The LUTE identifies five "Showcase Districts" targeted for continued growth; the 1640 Broadway Project is located within the "Downtown Showcase District" (Downtown) intended to promote a mixture of vibrant and unique districts with around-the-clock activity, continued expansion of job opportunities, and growing residential population. The 1998 LUTE EIR is designated a "Program EIR" under CEQA Guidelines Sections 15183 and 15183.3. As such, subsequent activities under the LUTE are subject to requirements under each of the aforementioned CEQA Sections, which are described further in Section III. While approved after certification of the 1998 LUTE EIR, growth and potential effects of the development of 1640 Broadway would have been considered in the cumulative growth projections factored into the 1998 LUTE EIR analysis.

Applicable mitigation measures identified in the 1998 LUTE EIR are largely the same as those identified in the other Program EIRs prepared *after* the 1998 LUTE EIR, either as mitigation measures or newer standard conditions of approval, the latter of which are described below in Section III.

Environmental Effects Summary

The 1998 LUTE EIR, including its Initial Study Checklist, determined that development consistent with the LUTE would result in the impacts that would be reduced to a **less-than-significant level with the implementation of mitigation measures and/or standard conditions of approval** (described in Section III): aesthetics (views, architectural compatibility and shadow only); air quality (construction dust [including PM10] and emissions Downtown, odors); cultural resources (except as noted below as less than significant); hazards and hazardous materials; land use (use and density incompatibilities); noise (use and density incompatibilities, including from transit/transportation improvements); population and housing (induced growth, policy consistency/clean air plan); public services (except as noted below as significant);[3] and transportation/circulation (intersection operations Downtown).

Less-than-significant impacts were identified for the following resources in the 1998 LUTE EIR and Initial Study: aesthetics (scenic resources, light and glare); air quality (clean air plan consistency, roadway emissions in Downtown, energy use emissions, local/regional climate change); biological resources; cultural resources (historic context/settings, architectural compatibility); energy; geology and seismicity; hydrology and water quality; land use (conflicts in mixed use projects and near transit); noise (roadway noise Downtown and citywide, multifamily near transportation/transit improvements); population and housing (exceeding household projections, housing displacement from industrial encroachment); public services (water demand, wastewater flows, stormwater quality, parks services); and transportation/circulation (transit demand). **No impacts** were identified for agricultural or forestry resources, and mineral resources.

Significant unavoidable impacts were identified for the following environmental resources in the 1998 LUTE EIR: air quality (regional emissions, roadway emissions Downtown); noise (construction noise and vibration in Downtown); public services (fire safety); transportation/circulation (roadway segment operations); wind hazards, and policy consistency (clean air plan). Due to the potential for significant unavoidable impacts, a Statement of Overriding Considerations was adopted as part of the City's approvals.

<u>Oakland Housing Element Update EIR and Addendum</u>

Since the 2000 EIR, the City has twice amended its General Plan to adopt updates to its Housing Element. It certified a 2010 EIR for the 2007-2014 Housing Element and a 2014 Addendum to the 2010 EIR for the 2015-2023 Housing Element. The General Plan identifies the City's current and projected housing needs, and sets goals, policies, and programs to address those needs, as specified by the state's *Regional Housing Needs Allocation* (RHEA) process. Although 1640 Broadway is not specified as a "Housing Opportunity Site" in the 2015-2023 Housing Element, the proposed Project would contribute to the total number of housing units needed in the City of Oakland to meet its RHNA target. Applicable mitigation measures and SCAs identified in the 2014 Addendum to the 2010 EIR are considered in the analysis of the residential components of the 1640 Broadway Project in this document, and are largely the same as those identified in the 2011 Redevelopment Plan Amendments EIR. The 2010 Housing Element Update EIR was designated a "Program EIR" under CEQA Guidelines Sections 15183 and 15183.3. As such, subsequent activities under the Housing Element that involve housing, are subject to requirements under each of the aforementioned CEQA Sections, which are described further in Section III.

Applicable mitigation measures and standard conditions of approval (also described in Section III) identified in the 2010 Housing Element Update EIR are considered in the analysis in this document and are largely the same as those identified in the other Program EIR documents described in this section.

Environmental Effects Summary

The 2010 Housing Element Update EIR, including its Initial Study Checklist, and 2014 Addendum (collectively referred to as the "Housing Element Update EIR") determined that housing developed pursuant to the Housing Element, which would include 1640 Broadway, would result in impacts that would be reduced to a **less-than-significant level with the implementation of mitigation measures**

[3] The 1998 LUTE EIR addressed effects on solid waste demand and infrastructure facilities for water, sanitary sewer and stormwater drainage under *Public Services*.

and/or standard conditions of approval (described in Section III): aesthetics (visual character/quality and light/glare only); air quality (except as noted below); biological resources; cultural resources; geology and soils; greenhouse gas emissions; hazards and hazardous materials (except as noted below, and no impacts regarding airport/airstrip hazards and emergency routes); hydrology and water quality (except as noted below); noise; public services (police and fire only); and utilities and service systems (except as noted below).

Less-than-significant impacts were identified for the following resources in the Housing Element Update EIR: hazards and hazardous materials (emergency plans and risk via transport/disposal); hydrology and water quality (flooding/flood flows, and inundation by seiche, tsunami or mudflow); land use (except no impact regarding community division or conservation plans); population and housing (except no impact regarding growth inducement); public services and recreation (except as noted above, and no impact regarding new recreation facilities); and utilities and service systems (landfill, solid waste, and energy capacity only, and no impact regarding energy standards). **No impacts** were identified for agricultural or forestry resources, and mineral resources.

Significant unavoidable impacts were identified for the following environmental resources in the Housing Element Update EIR: air quality (toxic air contaminant exposure) and traffic delays. Due to the potential for significant unavoidable impacts, a Statement of Overriding Considerations was adopted as part of the City's approvals.

Central District Urban Renewal Plan Amendments EIR

The Project Site at 17th and Broadway is located within the Central District Urban Renewal Plan Area, which generally encompasses the entire Downtown: approximately 250 city blocks (828 acres) in an area generally bounded by Interstate 980 (I-980), Lake Merritt, 27th Street and the Embarcadero. The Oakland City Council adopted the Central District Urban Renewal Plan (the "Redevelopment Plan") for the Project Area in June 1969. In 2011, the City prepared and certified an EIR for proposed amendments to the Urban Renewal Plan, and amended or supplemented the Plan up to April 3, 2022 (2011 Redevelopment Plan EIR).[4] The 1640 Broadway Project has been factored as into all cumulative traffic analysis for projects developed in the Downtown area since the City's certification of the 2000 EIR. The Redevelopment Plan Amendments EIR was designated a "Program EIR" under CEQA Guidelines Section 15180; as such, subsequent activities are subject to requirements under CEQA Section 15168.

Applicable mitigation measures and standard conditions of approval (described in Section III) identified in the 2011 Redevelopment Plan Amendments EIR are considered in the analysis in this document and are also largely the same as those identified in the other Program EIRs described in this section.

Environmental Effects Summary

The 2011 Redevelopment Plan Amendments EIR determined that development facilitated by the Proposed Amendments, combined with cumulative development would result in impacts to the following resources that would be reduced to a **less-than-significant level with the implementation of identified mitigation measures and/or standard conditions of approval** (described in Section III):

---

[4] The 2011 EIR addressed two amendments. A 17th Amendment to the Redevelopment Plan to (1) extend the duration of the Plan from 2012 to 2022 and extend the time period that the then-Redevelopment Agency could receive tax increment funds from 2022 to 2032, as allowed by Senate Bill (SB) 211 (codified as Health and Safety Code Section 33333.10 et seq.); (2) increase the cap on the receipt of tax increment revenue to account for the proposed time extensions; and (3) renew the then-Redevelopment Agency's authority to use eminent domain in the Project Area. An 18th Amendment further extended the then-Redevelopment Plan time limit from 2022 to 2023 and extended the time period that the then-Redevelopment Agency could receive tax increment funds from 2032 to 2033, as allowed by Health and Safety Code Section 33331.5.

aesthetics (light/glare only); air quality (except as noted below as less than significant and significant); biological resources (except no impacts regarding wetlands or conservation plans); cultural resources (except as noted below as significant); geology and soils; greenhouse gas emissions; hazards and hazardous materials; hydrology and water quality (stormwater and 100-year flooding only); noise (exceeding standards – construction and operations only); traffic/circulation (safety and transit only); utilities and service systems (stormwater and solid waste only).

Less-than-significant impacts were identified for the following resources in the 2011 Redevelopment Plan EIR: aesthetics (except as noted above as less than significant with standard conditions of approval); air quality (clean air plan consistency); hydrology and water quality (except as noted above as less than significant with standard conditions of approval); land use and planning; population and housing; noise (roadway noise only); public services and recreation; traffic/circulation (air traffic and emergency access); and utilities and service systems (except as noted above as less than significant with standard conditions of approval). **No impacts** were identified for agricultural or forestry resources, and mineral resources.

The 2011 Redevelopment Plan EIR determined that the proposed amendments combined with cumulative development, including 1640 Broadway, would have **significant unavoidable impacts** on the following resources: air quality (toxic air contaminant exposure and odors); cultural resources (historic); and traffic/circulation (roadway segment operations).[5] Due to the potential for significant unavoidable impacts, a Statement of Overriding Considerations was adopted as part of the City's approvals.

IV. Purpose and Summary of this CEQA Document

The purpose of this CEQA document is to evaluate the potential environmental effects of the Modified Project and whether such impacts were adequately covered under the 2000 EIR or Program EIRs to allow the Modified Project certain CEQA streamlining and/or tiering provisions and CEQA exemptions to apply. The analysis conducted incorporates by reference the information contained in the 2000 EIR and Program EIRs and includes a CEQA Checklist and supporting documentation to provide comprehensive review and public information for the basis of any determination. Based on the evaluation conducted and as the Checklist demonstrates, the Modified Project qualifies for several CEQA streamlining and/or tiering provisions and CEQA exemptions as summarized below, each of which separately and independently provide a basis for CEQA compliance.

Addendum

Public Resources Code Section 21166 and CEQA Guidelines Section 15164 (Subsequent EIRs, Supplements and Addenda to an EIR or Negative Declaration), state that an addendum to a certified EIR is allowed when minor changes or additions are necessary and none of the conditions for preparation of a subsequent EIR or Negative Declaration pursuant to Section 15162 and 15164 are satisfied.

The analysis in the 2000 EIR directly applies to the Modified Project, providing the basis for the use of an Addendum.

[5] The 2011 Redevelopment Plan EIR also identified significant and avoidable noise effects specifically associated with the potential development of a new baseball stadium at Victory Court, and multimodal safety at at-grade rail crossings, both near the Oakland Estuary. These effects would not pertain to the 1640 Broadway Project given the distance and presumably minimal contribution of multimodal trips affecting these impacts.

Community Plan Exemption

Public Resources Code Section 21083.3 and CEQA Guidelines Section 15183 (Projects Consistent with a Community Plan or Zoning) allow streamlined environmental review for projects that are "consistent with the development density established by existing zoning, community plan or general plan policies for which an EIR was certified, except as might be necessary to examine whether there are project-specific significant effects which are peculiar to the project or its site." Section 15183(c) specifies that "if an impact is not peculiar to the parcel or to the proposed 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, then an EIR need not be prepared for the project solely on the basis of that impact."

The analysis in the Program EIRs - the 1998 LUTE EIR and the Housing Element EIR are applicable to the Modified Project and are previous CEQA documents that provide the basis for use of the Community Plan Exemption.

Qualified Infill Exemption

Public Resources Code Section 21094.5 and CEQA Guidelines Section 15183.3 (Streamlining for Infill Projects) allow streamlining for certain qualified infill projects by limiting the topics subject to review at the project level, if the effects of infill development have been addressed in a planning level decision or by uniformly applicable development policies. Infill projects are eligible if they are located in an urban area on a site that either has been previously developed or that adjoins existing qualified urban uses on at least 75 percent of the site's perimeter; satisfy the performance standards provided in CEQA Guidelines Appendix M; and are consistent with the general use designation, density, building intensity and applicable policies specified for the project area in either a sustainable communities strategy or an alternative planning strategy. No additional environmental review is required if the infill project would not cause any new specific effects or more significant effects, or if uniformly applicable development policies or standards would substantially mitigate such effects.

The analysis in the Program EIRs, including the 1998 LUTE EIR and Housing Element EIR are applicable to the Modified Project and previous CEQA documents providing the basis for the use of Qualified Infill Exemption under CEQA Guidelines section 15183.3.

Program EIRs and Redevelopment Projects

CEQA Guidelines Section 15168 (Program EIRs) and Section 15180 (Redevelopment Projects) provide that the 2011 Redevelopment Plan EIR can be used as a Program EIR in support of streamlining and/or tiering provisions under CEQA. The 2011 Redevelopment Plan EIR is a Program EIR for streamlining and/or tiering provisions by CEQA Section 15168. The section defines the "program EIR" as one prepared on a series of actions that can be characterized as one large project and are related geographically and by other shared characteristics. Section 15168 continues that "subsequent activities in the program EIR must be examined in the light of the program EIR to determine whether an additional environmental document must be prepared." If the agency finds that pursuant to CEQA Guidelines Section 15162, no new effects could occur or no new mitigation measures 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.

Further, CEQA Guidelines Section 15180 specifies that "if a certified Redevelopment Plan EIR is prepared, no subsequent EIRs are required for individual components of the Redevelopment Plan unless a subsequent EIR or supplement to the EIR would be required by Section 15162 or 15163."

Consideration of Cumulative Effects

The scope of environmental review of projects that qualify for a Community Plan Exemption or for Infill Streamlining pursuant to the foregoing sections of the CEQA Guidelines is limited to project-specific environmental effects which are peculiar to the project or site or are potentially significant off-site or cumulative impacts which were not discussed in the Previous CEQA Documents. Because cumulative impacts have been previously addressed in the Previous CEQA Documents, consideration of cumulative effects is not warranted in the analysis below.

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

The CEQA Checklist provided in Section IX of this document evaluates the potential environmental effects of the proposed Modified Project, and evaluates whether such impacts were adequately analyzed and addressed in the 2000 EIR (as well as the Program EIRs previously described in Section II) to allow the CEQA streamlining provisions to apply. The analysis conducted incorporates by reference the information contained in the 2000 EIR and each of the previous Program EIRs. The Modified Project is legally required to incorporate and/or comply with any applicable requirements and mitigation measures identified in the 2000 EIR. Therefore, the measures are herein assumed to be included as part of the proposed Project, including those that have been modified to reflect the City's current standard language and requirements, as discussed below.

Application of SCAs, in General

The City of Oakland established *Standard Conditions of Approval and Uniformly Applied Development Standards* (SCAs) after certification of the 2000 EIR, and the 1998 LUTE EIR. The City also has recently adopted an updated version of the SCAs from those included in the Housing Element Update EIR and the Redevelopment Plan EIR.[6] The City's SCAs are incorporated into and applied to new and changed projects as conditions of approval, regardless of a project's environmental determination. The SCAs incorporate policies and standards from various adopted plans, policies, and ordinances (such as the Oakland Planning Code and Municipal Code, Creek Protection Ordinance, Stormwater Water Management and Discharge Control Ordinance, Tree Protection Ordinance, Grading Regulations, National Pollutant Discharge Elimination System (NPDES) permit requirements, Housing Element-related mitigation measures, California Building Code and Uniform Fire Code, among others). These policies and standards 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.

SCA Application in this CEQA Document

Several SCAs would apply to the Modified Project because of its characteristics and proposed changes to the Original Project; they are triggered by the fact that the City is considering renewed discretionary

[6] Adopted by City Council on 11/03/08 (Ordinance No. 12899 C.M.S.) Revised July 22, 2015. The updated SCAs are identified by a number and a brief 2-3 word topic description heading; the SCA numbers replace previous identifiers that used a different format –one that began with a topic abbreviation (e.g., AIR, NOI, TRA for air quality, noise traffic) followed by a number, as in AIR-1, AIR-2 (air quality issues) or CUL-1, CUL-2 (cultural resource issues). For the reader's convenience, both the prior topical abbreviations and the new SCA numbers are provided, both in the body of this document and in Attachment A.

actions for the Modified Project. Because the SCAs are mandatory City requirements, the impact analyses for new and modified projects assumes that all applicable SCAs will be imposed and implemented by the project in question.

Mitigation measures that were identified in the 2000 EIR and that would apply to the Modified Project are listed in Attachment A to this document. 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, which provide equally effective mitigation. All mitigation measures and SCAs that are applicable to the Modified Project are listed in Attachment A. Most of the SCAs applicable to the Project were also identified in the 2011 Redevelopment Plan Amendments EIR and the 2010 Oakland Housing Element Update EIR and 2014 Addendum. The 1998 LUTE EIR was developed prior to the City's application of SCAs.

VI. Modified Project CEQA Compliance

The Modified Project satisfies each of the CEQA streamlining provisions relied upon, as summarized below.

Addendum.

The analysis conducted in this document indicates that an addendum to the 2000 EIR directly applies; therefore, this CEQA Analysis is considered to be the addendum. As discussed under Project Description below, the Modified Project represents a minor change to the project analyzed in the 2000 EIR, and is similar to the Residential-only Alternative examined in the 2000 EIR. The height of the Modified Project is approximately five feet taller than the Residential-only Alternative while the total number of dwelling units would be the same. The Modified Project would include more dwelling units than set forth in Original Project, as shown in Table 1 (up to 254 units, instead of 146 units) and less office (0 square feet of office instead of 177,600). The Modified Project would generate 108 peak hour trips in the AM and 144 peak hour trips in the PM, substantially less than the 279 AM peak hour trips and 299 PM peak hour trips estimated for the Original Project analyzed in the 2000 EIR. The Modified Project therefore meets the requirements for preparation of an Addendum, as evidenced in Attachment B to this document.

Community Plan Exemption.

Based on the analysis conducted in this document, the Modified Project also qualifies for a community plan exemption. The Modified Project is permitted in the zoning district where the project site is located, and is consistent with the bulk, density, and land uses envisioned for the site. This CEQA document considers the analysis in the Housing Element Update and further reconsiders the analysis in the 1998 LUTE EIR for the overall project. This CEQA Analysis concludes that the proposed Project would not result in significant impacts that (1) are peculiar to the project or project site; (2) were not identified as significant project-level, cumulative, or offsite effects in the 2000 EIR; or (3) were previously identified as significant effects, but are determined to have a more severe adverse impact than discussed in the EIR. Findings regarding the proposed Project's consistency with the zoning are included as Attachment C to this document.

Qualified Infill Exemption.

The analysis conducted indicates that the Modified Project qualifies for a qualified infill exemption and is generally consistent with the required performance standards provided in CEQA Guidelines Appendix M, as evaluated in Table D-1 in Attachment D to this document. This CEQA Analysis supports the finding that the Modified Project would not cause any new specific effects or more significant effects than previously identified in applicable planning level EIRs and uniformly applicable development policies or standards (SCAs) would substantially mitigate the project's effects. The Modified Project is proposed on a previously developed site in downtown Oakland and is surrounded by urban uses. Further, the proposed Project is consistent with the land use, density, building intensity, and applicable policies for the site. The analysis herein considers the analysis in the 2000 EIR; the 1998 LUTE EIR and the Housing Element EIR.

Program EIRs and Redevelopment Projects.

The Modified Project is one of several subsequent activities that are part of a series of actions specifically named in the cumulative setting for the 2011 Redevelopment Plan EIR. The analysis in the 2011 Redevelopment EIR and in this CEQA Analysis demonstrates that the Modified Project would not result in substantial changes or involve new information that would warrant preparation of a subsequent EIR, per CEQA Guidelines Section 15162.

* * * * *

Overall, based on an examination of the analysis, findings, and conclusions of the 2000 EIR, as well as those of the 1998 LUTE EIR, the 2011 Redevelopment Plan EIR and the Housing Element Update EIR – all of which are as summarized in the CEQA Checklist in Section VI of this document – the potential environmental impacts associated with the Modified Project have been adequately analyzed and covered in prior Program EIRs. Therefore, no further review or analysis under CEQA is required.

VII. Project Description

Background

On October 4, 2000, the Oakland Planning Commission approved the 1640 Broadway Mixed Use Development Project (Original Project). The Original Project consisted of approximately 177,600 square feet of office space, 233,575 square feet of residential space, 4,710 square feet of ground floor retail commercial space and off-street parking for 284 vehicles. On October 3, 2001, the Planning Commission approved a modification to the Original Project that would allow the construction of either the 2000 Project or an all-residential development with ground floor retail (2001 Project) generally consistent with the "Residential Only" alternative evaluated in the 2000 EIR. On May 4, 2005, the Planning Commission re-approved the Original Project with 254 dwelling units, approximately 4,700 square feet of ground floor commercial retail space and parking for 326 cars (2005 Project). The 2001 and 2005 Projects are collectively referred to as the "Subsequent Approvals."

As noted above, the Original Project was modified to remove the office component and replace it with an expanded residential component. **Table 1** shows how the development components have evolved over time, ending in the Modified Project.

Table 1: Evolution of Project Components, Original 2000 Project to Modified Project

Project Element	Original Mixed-Use Project (2000)	Residential Only Alternative (from 2000 EIR)	Residential Project - May 2005	Current Modified Project
Height	389’	389’	375’	380’ **
Dwelling Units	146	255	254	254

Project Element	Original Mixed-Use Project (2000)	Residential Only Alternative (from 2000 EIR)	Residential Project - May 2005	Current Modified Project
Floor Area: Residential	233,575	411,175*	411,175*	310,000
Floor Area: Retail Commercial	4,710	4,710	4,710	5,000**
Floor Area: Office	177,600	-0-	-0-	-0-
Parking: cars	284	284	326	232***
Parking: Bicycles****	241	90	90	82

* This number is an estimate, as the description of the Residential Alternative in the 2000 EIR does not include this number; the estimate is derived by adding the office square feet to the residential square feet.

** Building height and amount of commercial/retail square footage are approximate, subject to minor changes as design reaches final schematic design phase.

*** Current design includes parking for 232 cars on four levels above grade, with at least 58 spaces per floor. This reflects a ratio of 0.91 spaces per dwelling (0.91:1) whereas current City of Oakland Planning Code requires 1 space per dwelling (1:1). With the use of car stacking devices, the total supply of parking spaces could increase to 254 (1:1 ratio), or more, if required by the City or to meet market demand. If stacking devices are used at all they would be installed only on the upper-most parking level, requiring the floor-to-floor height for that one floor to increase by 3 – 4 feet which would raise the height of the overall building by a like amount. As technical studies prepared analyzed a height of 406 feet, this height increase would be covered under this analysis.

**** The Project will provide a total of 82 spaces for bicycle parking; 66 will be in a secured space inside the building on the ground floor (long term bike parking), and 16 will be in a secured facility outside the building (short-term bike parking).

Project Site

Project Location

The Project site is located at 1640 Broadway, the southeast corner of Broadway and 17th Street in downtown Oakland (**Figure 1**). The nearly square site measures approximately 150’ x 150’ and consists of Assessor’s Parcel Numbers 008-662-001-03, 008-662-001-04 and 008-662-001-05.

Existing Site Conditions

Existing conditions at the Project site are unchanged from those described in the 2000 EIR. As depicted in photographs in **Figures 2 and 3**, the Project site is a surface parking lot with a capacity of approximately 75 cars. The parking lot is accessed from the 17th Street frontage. The site is flat and ground surface is paved with asphalt; a small operator’s kiosk is the only structure on the site. The frontages along Broadway and 17th Streets are improved with concrete sidewalks. Except for a large street tree in the sidewalk adjacent to the Broadway frontage, the site and its adjacent sidewalks are devoid of trees or other landscaping.

Surrounding Context

The area surrounding the Project site is primarily commercial land uses consisting of offices, ground and upper floor retail or services and some upper story residential. Abutting the Project site on the south at 1600 Broadway is a 4-story commercial building commonly known as the Irene Sargeant Building consisting of ground floor retail and offices above. To the east along the south side of 17th Street and extending to Franklin Street is the 16-story 277 foot tall AT&T building located at the southwest corner of 17th and Franklin Streets. As shown in **Figure 4**, the blank west façade of this building abuts the rear (east) lot line of the Project site.

Figure 5 is a photograph showing buildings on the north side of 17th Street, across from the Project site. On the northeast corner of Broadway at (1700 Broadway) is a ten-story office building. Adjacent to that and located mid-block heading towards Franklin Street is the three-story offices of PGA Design, a local landscape architecture firm, which adjoins the seven story Rockwood Leadership Institute next door, and finally, on the northwest corner of Franklin Street is the First Church of Christ Scientist.

On the west side of Broadway, across from the Project site are a series of 2- and 3-story commercial buildings with retail and service uses at street level and other commercial uses on upper floors.

The northwest corner of 17th and Broadway (at 1701 Broadway) is a free-standing 3-story brick-clad office building that is the home of Youth Radio.

Zoning

The Project site is zoned Central Business District – Pedestrian (CBD-P) which allows the most intensive use of downtown sites including residential densities up to 1 dwelling unit per 90 square feet of site area (approximately 484 units per gross acre). There are no height limits in the CBD-P zoning district.

Project Characteristics[7]

The Project involves removal of the existing surface parking lot and construction of the proposed building. **Table 2** summarizes the proposed mixed-use development and **Figures 6 through 12** depict the proposed site and building plans, including the canopy extension on the adjacent AT&T building. In total, the building would have a footprint of approximately 22,230 square feet, 100 percent of the Project site. The building would be thirty-four stories and would reach approximately 380’ to the top of the mechanical penthouse.

Table 2: Proposed Development

Building Uses and Spaces	Gross Square Feet (approx.)
Commercial Retail (at grade)	5,000 (approximately)
Residential Units	310,000
Amenity and Open Space	10,500
Parking	88,100
Total Project	**413,600**

Source: SCB Architects

[7] Unless otherwise stated, all information from this section is from 1640 Broadway Associates LLC and SCB Architects, dated September 3, 2015 and submitted for Design Review.

Building Elements

The Modified Project consists of the following elements:

- Below Grade Level: Excavation only for structural foundation (drilled piers, grade beams, mat foundation).
- Ground Floor Level: Height of ground floor level is 18 feet to accentuate retail frontage along Broadway and 17th Street. Ground floor uses and spaces include:
    - Commercial retail space facing Broadway
    - Community / residential office facing 17th Street
    - Residential lobby with entrance from Broadway, separating the retail and community/residential office spaces. Lobby entrance leads to a central elevator core with three passenger elevators
    - Firemen's Control Center (FCC)
    - Rooms for mail and packages
    - Secured parking for 66 bicycles
    - Rooms for temporary moving storage
    - A trash room with compactor
    - Space for one (1) truck loading dock
    - A room for building storage
    - Rooms for the main electrical switchgear and electrical transformer
    - Garage entry from 17th Street and two-way ramp providing access to parking levels above
    - Bike racks or other devices to accommodate sixteen (16) short-term bicycle parking spaces outside the building
- Levels 2 through 5: Parking for cars with total of 232 spaces (0.91 spaces per dwelling unit)
- Level 6: Amenity space, both enclosed and exterior. This area would consist of a fitness center, a 'co-working' center, a storage area, and a studio and one-bedroom dwelling unit. The exterior portion would consist of a landscaped common area terrace for use by building residents and would include an outdoor swim pool and cabana and dog run.
- Levels 7 through 32: Residential Floors
- Level 33: Amenity Level (residents' lounge, roof deck and spa) and mechanical equipment
- Level 34: Mechanical (boiler room, emergency generator, elevator machine room)

Massing above the upper-most garage level would essentially be a rectangular tower measuring approximately 80 feet by 150 feet oriented in an east-west direction, with the long dimension parallel to 17th Street. The setback area on Level 6 would provide an outdoors amenity space for building occupants.

The structural design contemplates poured-in-place post-tensioned concrete with floor-to-floor heights ranging from 18 feet at the ground floor level and 10' 8" in the upper levels. Exterior materials are proposed to be a mixture of aluminum-framed clear glass and pre-cast concrete panelized curtain wall or Window Wall systems at the Tower, and pre-cast concrete panels and aluminum screening elements for the garage cladding with additional accent materials.

All parking would be located on floors 2 –5 accessed via an internal two-way ramp. The garage is designed to accommodate a total of 232 parking spaces, tenant storage, stairwells, elevators, and a lobby; secured parking for 66 bicycles would be provided on the ground floor. If additional parking is required by the City to meet existing code requirements, or if elected by the Project applicant to provide additional parking in response to market demand, the additional spaces would be provided through the use of car stacking devices which would require 3 – 4 feet higher floor to floor height of any affected floors which would also raise the height of the overall building by a like amount.[8]

The ground floor of the building would include a retail space fronting on Broadway and a 'community/residential office' facing 17th Street. The community/residential office would be used for marketing the residential units; once the building is fully occupied, that space or a portion of it, may be converted to retail or restaurant use. The ground floor retail space would have an 18 foot clear height and fenestration would equal or exceed the minimum façade transparency requirement. The retail space would be open to the public. In addition, a residential lobby with a stairwell and elevators would be located on the ground floor, fronting onto Broadway. Exit stairwells from the garage and residential floors above would exit at the ground floor lobby and onto 17th Street.

Sidewalk/streetscape improvements would be installed as part of the Modified Project. Improvements would include street lights, street furniture and street trees. The Modified Project would also work with the City to install a corner bulb-out at the southeast corner of the 17th Street/Broadway intersection and, pursuant to an agreement with the property owner the Project will install a canopy extension on the adjacent AT&T building at southwest corner of 17th and Franklin Streets.

In total, the Modified Project would include up to 254 housing units. **Table 3** presents the breakdown of units by unit type and by floor level. The proposed unit mix would consist of studios and one-, two- and three-bedroom units, with an overall average size of approximately 945 square feet.

Table 3: Residential Unit Mix by Floor Level

Residential Floors	Studio	1-BR	2-BR	3-BR	Total
6 – 22	17	57	54	16	144
23 – 32	--	50	50	10	110
Total	17	107	104	26	254
Percent of Total	7%	42%	41%	10%	100%

Source: SCB Architects 2015.

Vehicular Access and Circulation

The Project site would be accessible to vehicles from the 17th Street frontage. The two spaces for building service and residential truck loading would be located on the first level accessed through the main parking entrance.

[8] The technical studies prepared as part of this analysis conservatively evaluated a 406-foot building.

Bicycle and Pedestrian Circulation

Secure long-term bicycle parking would be included on the first floor with space for 66 bicycles; secure parking for sixteen (16) bicycles for short-term bike parking needs would be provided outside the building.

Emergency Access

Fire department connections would be provided on 17th Street near the garage entry and firemen's control center would be in the building lobby. The building would be required to meet full life safety standards for fire protection, firemen's control and exiting capability pursuant to the California Building Code.

Parking and Loading

Levels 2 through 5 would provide 232 parking spaces for residents, accessed via a ramp from the 17th Street entrance. Each parking floor would provide at least 58 spaces; additional capacity could be provided through the use of stacking devices. The Modified Project would provide one (1) residential truck loading space.

Landscape and Design

The Project site is located in an urban setting. It is currently used as a surface parking lot. Vegetation is limited to ruderal weeds growing between cracks in the pavement and one mature street tree in the Broadway sidewalk. The Project site is completely covered with impervious asphalt surface. Implementation of the Project would result in the same amount of impervious surface. The Modified Project would include landscaping on the 6th Floor and 33rd floor amenity levels. Street trees would be planted along the Broadway and 17th Street sidewalk frontages.

The Modified Project would undergo the required design review process, pursuant to Section 17.101C.020 of the City's Planning Code. The Modified Project would be designed to meet CALGreen, Title 24, and any amendments required by the City. The Modified Project would be contemporary in design, utilizing a variety of materials including a mixture of aluminum-framed clear glass and pre-cast concrete panelized curtain wall or Window Wall systems at the tower, and pre-cast concrete panels and aluminum screening elements for the garage cladding with additional accent materials. The Modified Project would be GreenPoint Rated in compliance with the City's Green Building Ordinance.

Activity/Employment

The Modified Project would include a mix of residential and retail uses. Using the generation rate established in the City's Housing Element of 1.87 persons per household, the proposed Project at 254 multi-family residential units would accommodate up to 475 new residents. In addition, the approximately 5,000 square feet of retail space could generate approximately 10 employees[9] in addition to employees needed for building operation and maintenance.

Utilities

Onsite utility usage would include electricity, natural gas, domestic water, wastewater, and storm drainage. All onsite utilities would be designed in accordance with applicable codes and current engineering practices. The Modified Project would not require any water or wastewater infrastructure

[9] Using a standard generation rate of 500 sf per retail employee.

improvements. However, the Modified Project would pay the Sewer Mitigation Fee, which would either contribute to replacing pipes that will increase capacity to the local collection system or be used to perform inflow and infiltration rehabilitation projects outside of the Project site area.

Project Construction and Schedule

Project construction would begin with the removal of the asphalt pavement on the surface of the lot, removing any buried utilities and excavation to an average depth of 8 feet for construction of footings, grade beams and foundation elements. Project construction is estimated to take about 24 months, beginning in mid-2016, with building occupancy planned for late 2018. Assuming 240 work days in a calendar year (excluding weekends and holidays), construction phasing is estimated to involve the following time increments:

- Site preparation and excavation: approximately 40 work days
- Foundations and base building construction, interior and exterior: approximately 370 work days
- Site improvements: approximately 40 work days
- Commissioning, testing, and final inspection: approximately 30 work days

Depending on the construction phase, the number of onsite construction workers could range from approximately 10 to 60 workers per day. The maximum number of workers (60 workers per day) would occur during framing, concrete pours, and interior finishes as well as the exterior phase (both during the building construction phase). The minimum number of workers (10 workers per day) would occur during the site preparation and excavation phase.

Equipment and Staging

Typical construction equipment would include an extendable forklift, generators, excavator, loader, dump trucks, tower crane, elevator man/material lift, and extendable lifts. Pile driving would be required for shoring; piles would be driven at pre-drilled locations. All construction equipment, employee vehicles, and import material would be staged onsite or nearby.

Spoils, Debris, and Materials

Construction would require removal of the existing surface pavement and excavation below grade for foundation construction. This work would generate an estimated 8,500 cubic yards of material which would be disposed offsite.

Project Approvals

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

Actions by the City of Oakland

- Planning Commission—Extension of, and modifications to, existing Regular Design Review, CEQA determination, Conditional Use Permit (for a building larger than 200,000 square feet and for parking less than required by code) and a Minor Variance (for providing one off-street residential truck loading berth where two are required) and vesting tentative parcel map.
- Other City Permits —Grading permit, tree permit and other related onsite and offsite work permits and minor encroachment permit.

Actions by Other Agencies

- Bay Area Air Quality Management District (BAAQMD)—Issuance of permits for installation and operation of the emergency generator.
- Regional Water Quality Control Board, San Francisco Bay Region (RWQCB)—Acceptance of a Notice of Intent to obtain coverage under the General Construction Activity Storm Water Permit, and Notice of Termination after construction is complete. 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)—Approval of new service requests and new water meter installations.
- Bay Area Regional Transit (BART) – Review of construction plans for consistency with BART General Guidelines for Design and Construction Over or Adjacent to BART's Subway Structures and approval of plans and/or permit issuance for construction.

Figure 1. Project Location

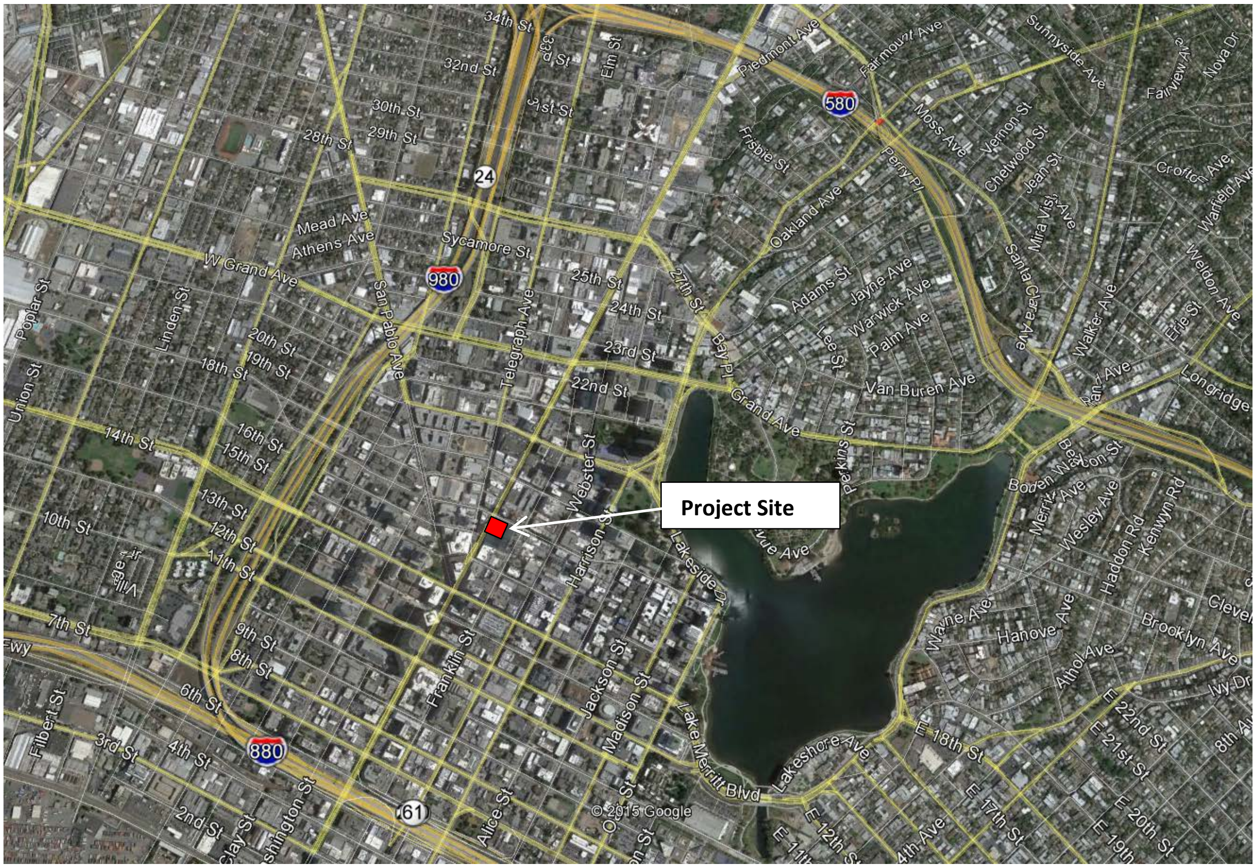


Figure 2. Neighborhood Setting

Figures 3a and 3b. Current Site Conditions as Parking Lot

Figure 4. Blank west façade of ATT Building

Figure 5. North Side of 17th Street, Looking East

Figure 6. Site Plan

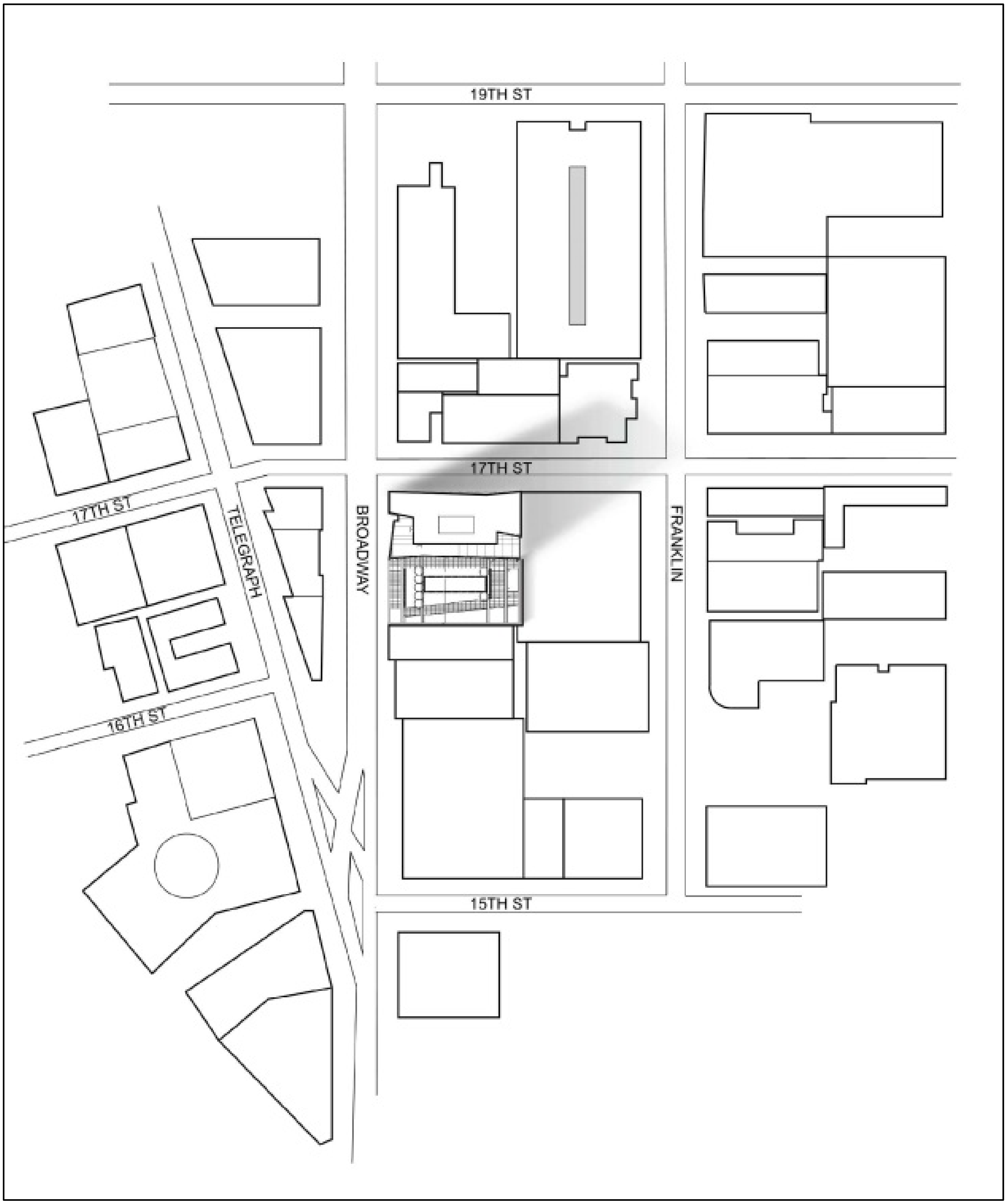


Figure 7. Rendering showing building massing

Figure 8. Ground Floor Plan

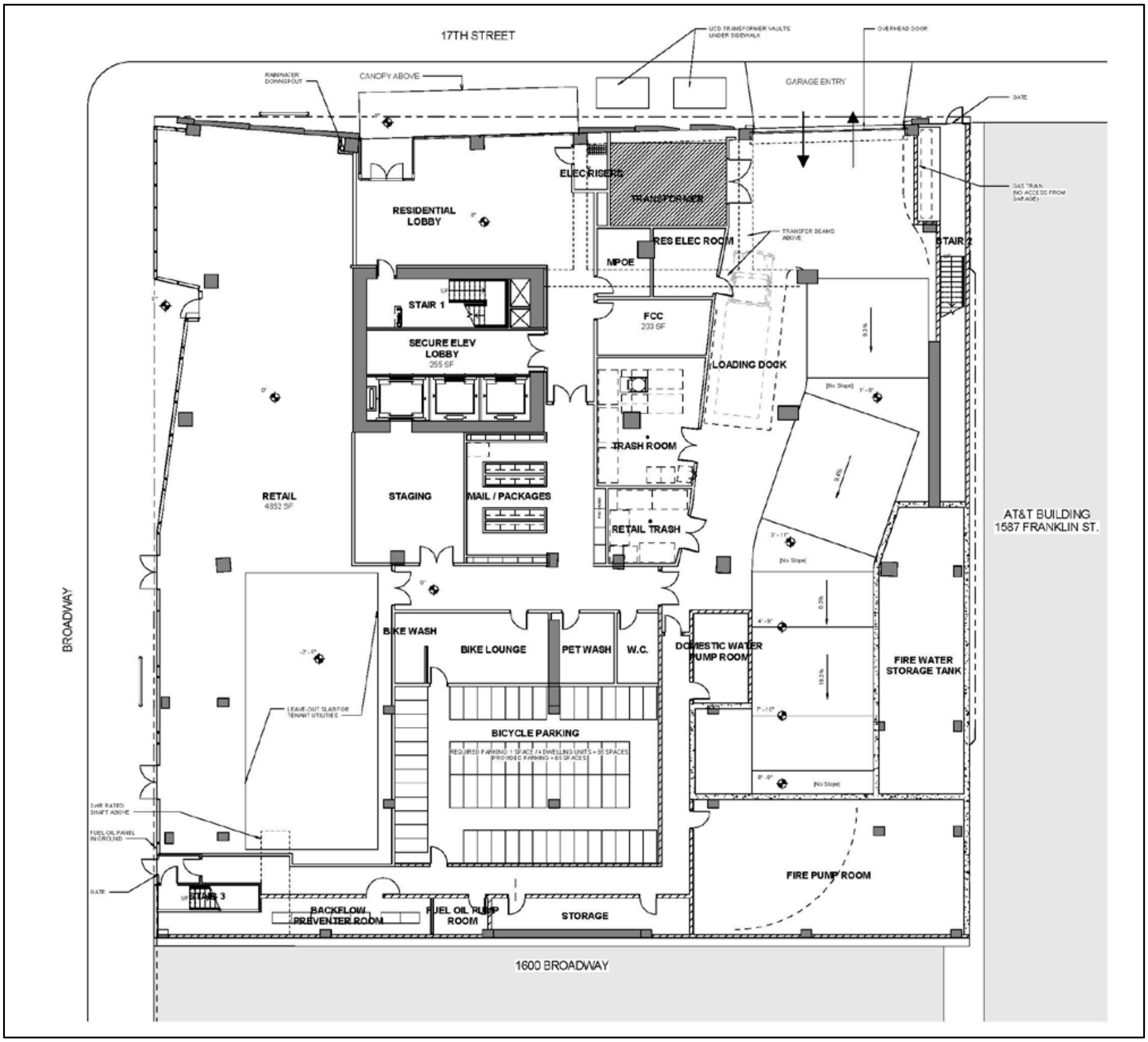


Figure 9. Podium Amenity Plan (Floor 6)

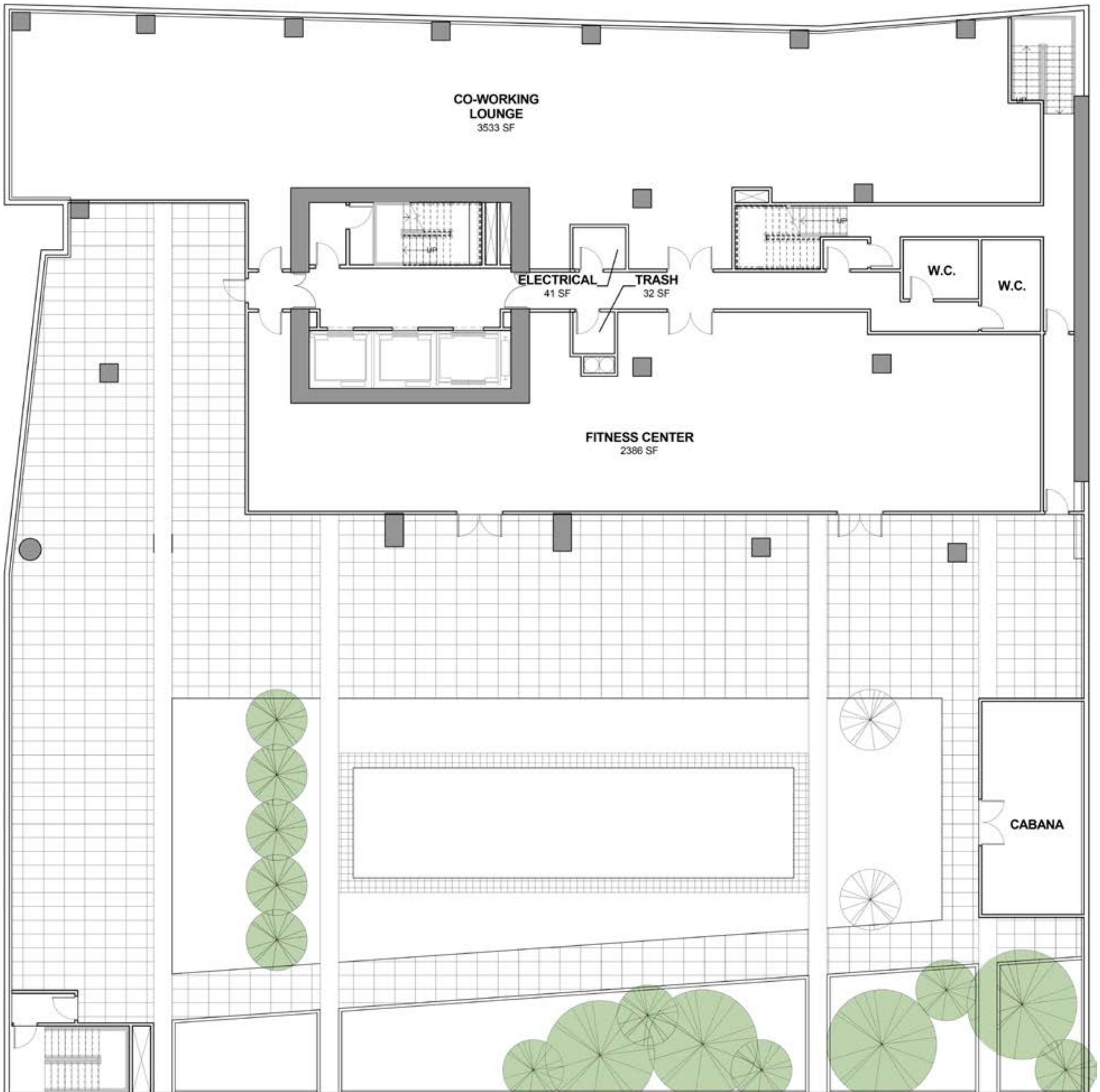


Figure 10. Typical Residential Floor Plan (Floors 7 – 22)

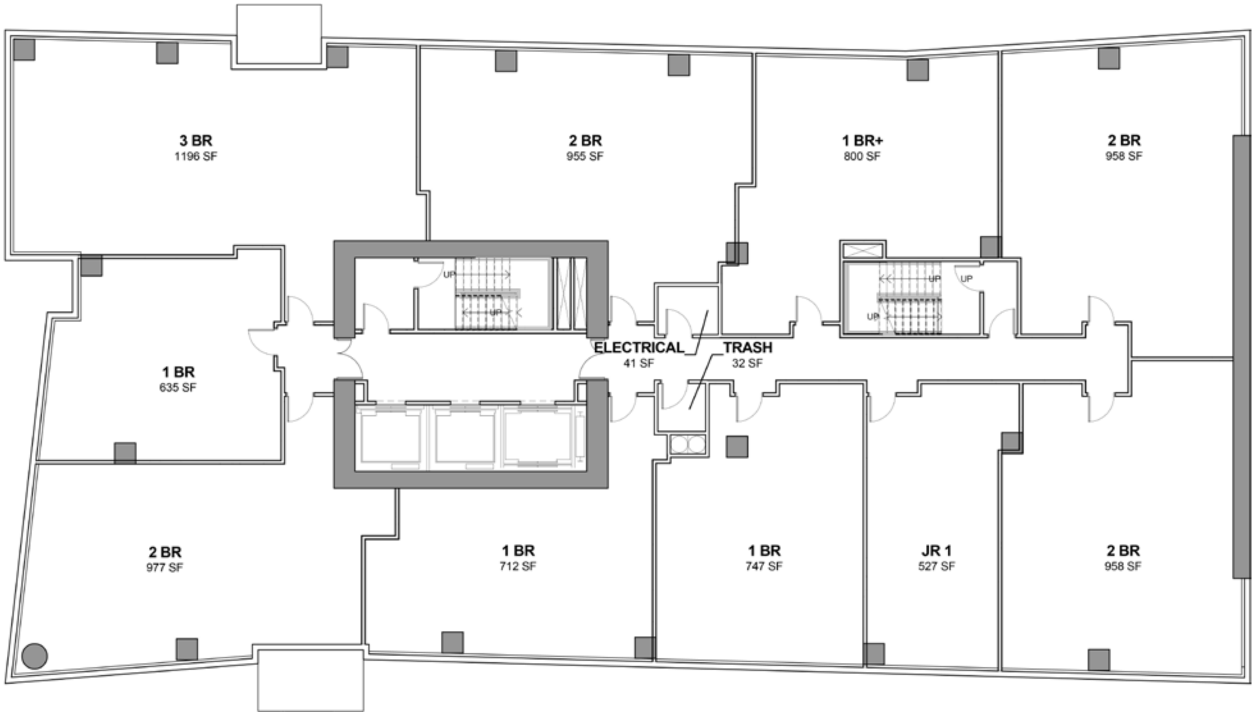


Figure 11. Typical Residential Floor Plan (Floors 23-32)

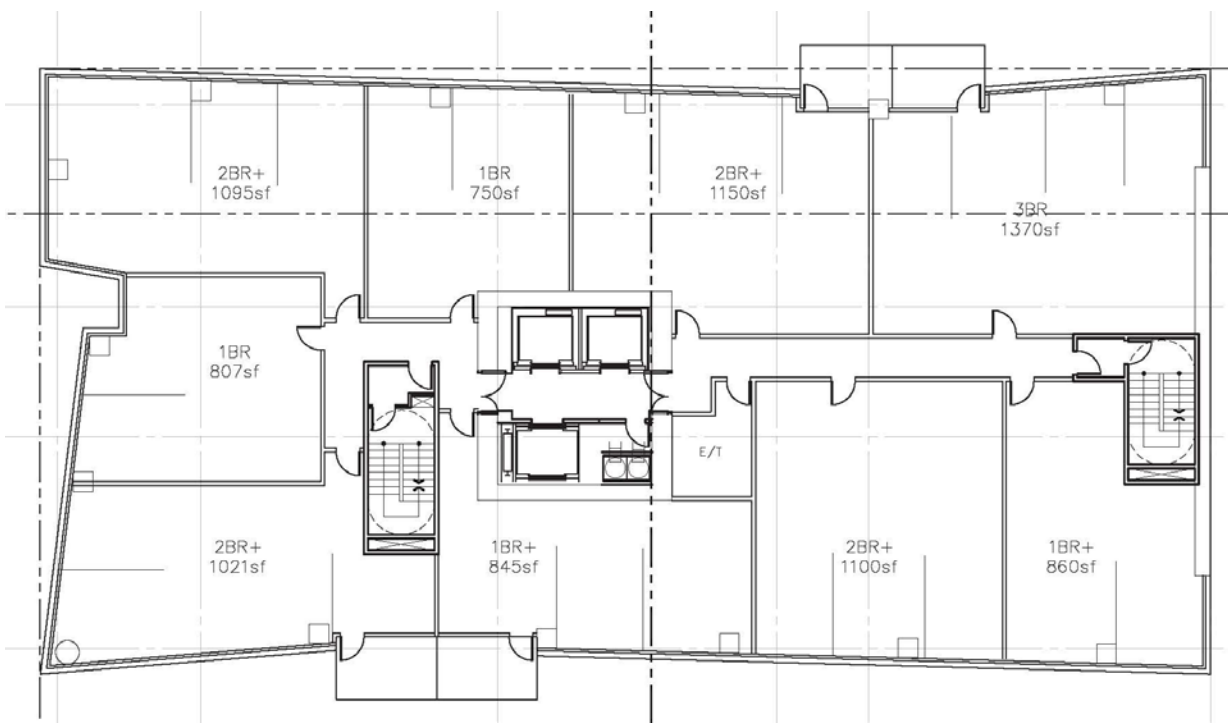
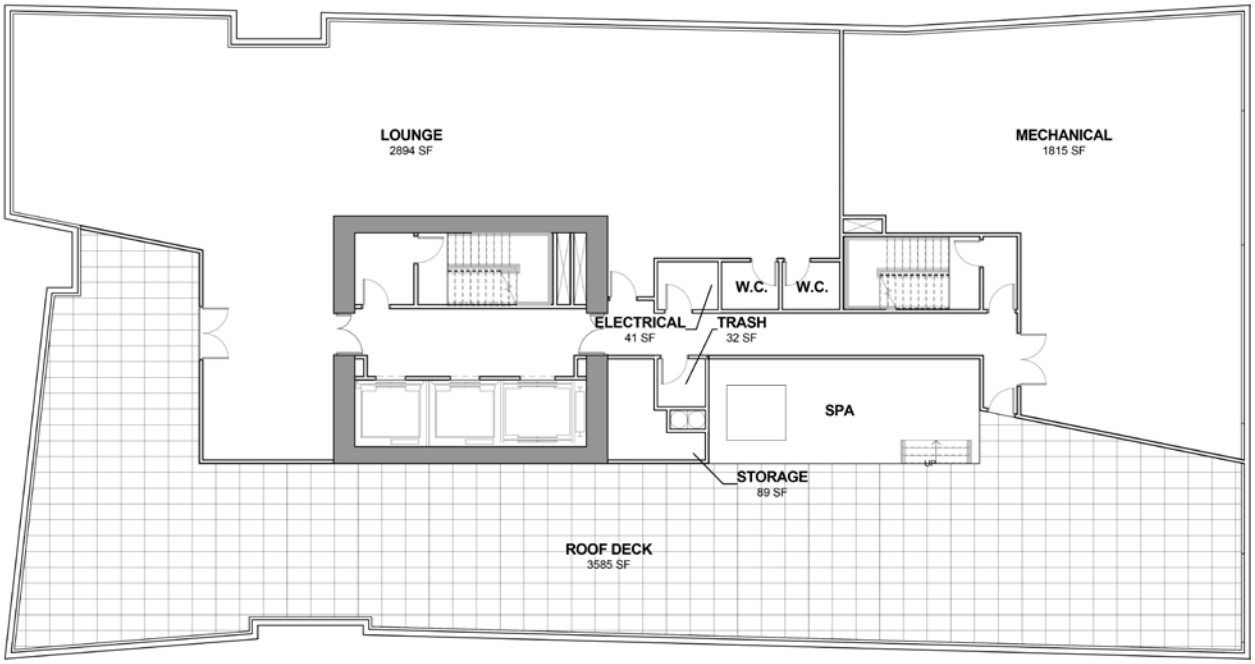


Figure 12. Roof Level Amenity Plan (Floor 33)



VIII. CEQA Findings

An evaluation of the Modified Project is provided in the CEQA Checklist below. This evaluation concludes that the Modified Project qualifies for an exemption/addendum from additional environmental review and/or no further environmental review is required. It is consistent with the development density and land us characteristics established by the City under the LUTE and Housing Element and any potential environmental impacts associated with its development were adequately analyzed and covered by the analysis in the 2000 EIR and the Redevelopment Plan EIR.

The proposed 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. With the implementation of the applicable mitigation measures and SCAs, the proposed Project would not result in a substantial increase in the severity of previously identified significant impacts in the 2000 EIR, the Program EIRs, or in any new significant impacts that were not previously identified in any of those CEQA documents.

In accordance with Public Resources Code Sections 21083.3, 21094.5, and 21166; and CEQA Guidelines Sections 15162, 15164, 15183, 15183.33, 15168 and 15180,, and as set forth in the CEQA Checklist below, the proposed Project qualifies for an addendum and one or more exemptions because the following findings can be made:

- The analyses conducted and the conclusions reached in the 2000 EIR certified by the Planning Commission on October 4, 2000 remain valid, and no supplemental environmental review is required for the proposed Project. The Modified Project would not cause new significant impacts not previously identified in the 2000 EIR, or result in a substantial increase in the severity of previously identified significant impacts in the 2000 EIR. No new mitigation measures would be necessary to reduce significant impacts. No changes have occurred with respect to circumstances surrounding the Original Project approvals and Subsequent Approvals that would cause significant environmental impacts to which the Modified Project would contribute to a significant level, and no new information has been put forward that shows that the Modified Project would cause significant environmental impacts. Therefore, no supplemental environmental review is required, in accordance with Public Resources Code Section 21166 and CEQA Guidelines Sections 15162, 15164 as well as 15168 and 15180.

- The proposed Project would not result in significant impacts that (1) are peculiar to the project or the project site; (2) were not previously identified as significant project-level, cumulative, or offsite effects in the 2000 EIR or applicable Program EIRs; or (3) were previously identified as significant effects, but which – as a result of substantial new information not known at the time the 2000 EIR, or the Program EIRs were certified – would increase the severity above that described in those EIRs. Therefore, the proposed Project is exempt from further environmental review in accordance with Public Resources Code Section 21083.3 and CEQA Guidelines Section 15183.

- The proposed Project would not cause any new specific effects or more significant effects than previously analyzed in the 2000 EIR or the Program EIRs. Further, the proposed Project would not cause any new specific effects on the environment that are more significant than previously analyzed in the 2000 EIR or the aforementioned previously certified applicable Program EIRs. The effects of the proposed Project have been addressed in the previous Program EIRs, and no further environmental documents are required in accordance with Public Resources Code Section 21094.5 and CEQA Guidelines Section 15183.3.

  Program EIRs and Redevelopment Projects. The proposed Project would not result in substantial changes or involve new information not already analyzed in the 2011 Redevelopment Plan EIR, in which the Original Project is identified as part of the series of actions named in the cumulative analysis of that EIR. The effects of the proposed Project have been addressed in that EIR and no further environmental documents are required in accordance with CEQA Guidelines Sections CEQA Guidelines Sections 15168 and 15180.

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

12/18/15

Darin Ranelletti
Environmental Review Officer

Date:

IX. CEQA Checklist

Overview

The analysis in this CEQA Checklist provides a summary of the potential environmental impacts that may result from approval and implementation of the Modified Project. It evaluates those potential environmental impacts in relation to the impacts evaluated in the 2000 EIR[10] as well as the findings of the Program EIRs to the extent that the environmental impacts of the Original Project are still applicable to the Modified Project. The 2000 EIR and other Program EIRs are collectively referred to throughout this CEQA analysis as "Previous CEQA Documents." As noted above, the Program EIRs include the 1998 Land Use and Transportation Element EIR (certified in February 1998), the 2011 Central District Urban Renewal Plan (or Redevelopment Plan) Amendments EIR (certified April 3, 2012), and the 2010 General Plan Housing Element Update EIR (certified on December 21, 2010) and 2014 Addendum (adopted December 9, 2014). Given the timespan between the preparations of these EIRs, variations in the specific environmental topics addressed and significance criteria exist, but as discussed above in Section II and throughout this Checklist, the overall environmental impacts identified in each are largely the same with any notable differences noted.

Several mitigation measures identified in the 2000 EIR have since been adopted by the City as SCAs for all projects. All mitigation measures, as modified herein, and SCAs identified for the Modified Project are presented in Attachment A to this document, which is incorporated by reference into this CEQA Analysis. Because SCAs are mandatory City requirements, the impact analysis for the proposed Project assumes they will be imposed and implemented, which the Project Sponsor has agreed to, or ensure that, they will be complied with as part of the proposed Project. If this CEQA Checklist or its Attachments inaccurately identifies or fails to list a mitigation measure or SCA, the applicability of that mitigation measure or SCA to the proposed Project is not affected.

This CEQA Checklist hereby incorporates by reference the discussion and analysis of all potential environmental impact topics as presented in the certified 2000 EIR and the Program EIRs. The significance criteria from the 2000 EIR have been consolidated and abbreviated in this CEQA Checklist for administrative purposes; where appropriate, the significance criteria have been updated to reflect current City of Oakland significance criteria established after the 2000 EIR and that now apply to the proposed Project.

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

- Equal or Less Severity of Impact Previously Identified in the Previous CEQA Documents;
- Substantial Increase in Severity of Previously Identified Significant Impact in the Previous CEQA Documents; or
- New Significant Impact.

Where the severity of the impacts of the proposed Project would be the same as or less than the severity of the impacts described in the Previous CEQA Documents, the checkbox for Equal or Less Severity of Impact Previously Identified in the Previous CEQA Documents is checked. If the checkbox for Substantial Increase in Severity of Previously Identified Significant Impact in the Previous CEQA Documents or New Significant Impact were to be checked, such a check box would indicate that there are significant impacts that are either:

[10] Reference to the "2000 EIR" encompasses the Initial Study, Draft EIR and Final EIR.

- Peculiar to project or project site (pursuant to CEQA Guidelines Sections 15183 or 15183.3);
- Not identified in the previous 1998 LUTE EIR or Housing Element Update EIR (per CEQA Guidelines Sections 15183 or 15183.3), including offsite and cumulative impacts (per CEQA Guidelines Section 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); or
- Due to substantial new information not known at the time the Previous CEQA Documents were certified (per CEQA Guidelines Sections 15162, 15168, 15183, or 15183.3).

In such a circumstance, a new EIR would be required for the Modified Project. None of these conditions were found for the Modified Project, as demonstrated throughout the following CEQA Checklist and in its supporting Attachments (Attachments A through D). The proposed Project meets the criteria and standards specified in the CEQA Guidelines sections identified above.

1. Aesthetics, Shadow, and Wind Would the project:	**Equal or Less Severity of Impact Previously Identified in the Previous CEQA Documents**	**Substantial Increase in Severity of Previously Identified Significant Impact in Previous CEQA Documents**	**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.	☒	☐	☐

Scenic Vistas, Scenic Resources, and Visual Character (Criterion 1a)

Previous EIR Conclusions

The 2000 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

Original Project's development of a 389 foot high 26-story building where the residential floors were designed partially for loft type apartments with 20 foot floor-to-floor heights.[11]

The existing conditions and immediate surroundings of the Project site are substantially unchanged from the 2000 EIR. The Project site remains as a surface parking lot for approximately 75 cars. (See **Figures 2 and 3** of this document) and the buildings in the immediate vicinity are the same as depicted in the 2000 EIR.

Visual quality (scenic vistas, scenic resources, visual character, and light and glare) was analyzed in each of the Program EIRs considered throughout this CEQA Analysis. The 1998 LUTE EIR, the Housing Element Update EIR, and the 2011 Redevelopment Plan EIR found that the effects to visual quality would be less than significant. The 2011 Redevelopment Plan EIR and the Housing Element EIR cited applicable SCAs that would ensure the less-than-significant visual quality effects. The 1998 LUTE EIR was certified prior to the City adoption of SCAs and therefore identified mitigation measures, which are functionally equivalent to the SCAs that would reduce the potential effects to less than significant.

Modified Project Assessment

The massing and physical aspects of the Modified Project are very similar to the Original Project. The 2000 EIR presented a massing model of the Original Project building which was a 389-foot tall "L" shaped building covering the entire site with setbacks at the 14th and 23rd floors.[12] The 2000 EIR included floor plans showing that the Original Project would include street-level commercial uses. The 2000 EIR found that the "…visual character of the structure would reflect the construction methods, and would relate to the existing visual character of the immediate vicinity of the Project site..."[13] The Modified Project would be approximately 380 feet tall (measured to the top of the mechanical penthouse), consisting of 33 stories of occupied space and would have ground floor retail/commercial space. Both the Original Project and Modified Project include multiple parking floors above the ground floor. Above that level, the Original Project retained an "L" shaped tower whereas the Modified Project tower is essentially rectangular in shape.

It should be noted that aesthetics are no longer considered under CEQA for projects in urban infill areas that meet certain criteria and is therefore a topic no longer required in the environmental evaluation of the Modified Project. Even so, it can also be noted that the visual impacts of the Modified Project would be very similar to those discussed in the 2000 EIR and would remain less than significant. The visual impacts of the Modified Project would also be similar to, or less severe than, those identified in the Program EIRs considered in this analysis.

Applicable Mitigation Measures and/or SCAs

Development of the Modified Project would be required to comply with City of Oakland SCAs related to landscaping, street frontages, landscape maintenance, utility undergrounding, public right-of-way improvements, and lighting plans. As set forth in Attachment A, these include SCA AES-1 (Landscape Plan) and AES-2 (Lighting). No mitigation measures would apply.

[11] The increased ceiling height for the loft style apartments in the Original Project resulted in fewer overall building stories but approximately the same height as Modified Project.

[12] 1640 Broadway Mixed Use Development Project Draft EIR, Figures III-3 and IV.E-7.

[13] Ibid, p. IV-65.

Shadow (Criteria 1b & 1c)

Previous EIR Conclusions

The 2000 EIR determined that the Original Project would cast shadow on the blocks to the north, west and east but would not substantially affect any public open spaces; shadow impacts were determined to be less than significant; no mitigation measures were necessary.

The Housing Element EIR and 2011 Redevelopment Plan EIR found less-than-significant shadow effects, assuming incorporation of applicable SCAs. The 1998 LUTE EIR, which was certified prior to the City adoption of SCAs, identified mitigation measures that are functionally equivalent to the SCAs that would reduce the potential shadow effects to less than significant.

Modified Project Assessment

Given the slightly different building massing proposed for the Modified Project, and to provide further documentation of potential shadow effects, a new shadow analysis was conducted for this CEQA Checklist by RWDI, Inc.[14]

The renderings included in the RWDI Shadow Study illustrate shadows that would be cast by the Modified Project at three prime hours (9 am, 12 noon and 3 pm) on the 21st day of March, September and December and at four prime hours (9 am, 12 noon, 3 pm and 6 pm) on the 21st day of June. The City of Oakland requires that a building not cast shadows that would substantially impair the beneficial use of any public or quasi-public park, lawn, garden, or open space or shade buildings with passive solar technology or of historical significance. Known public open spaces in the vicinity of the Project include Frank H. Ogawa Plaza to the southwest and Snow Park to the northeast – both located a few blocks away from the Project. Shadows cast by the Modified Project would not extend to these areas. In addition, buildings with passive solar technology or historical significance would not be impacted by the Modified Project.

Overall, the shadow effects of the Modified Project would be similar to or less than those discussed in the 2000 EIR and would remain less than significant. The shadow effects of the Project would also be similar to, or less severe than, those identified in the Program EIRs considered in this analysis. Because the Modified Project would not create a significant shadow effect, it also would not contribute to a cumulative shadow effect.

Applicable Mitigation Measures and/or SCAs

Since there are no impacts related to shadows and no changes from the effects discussed in the 2000 EIR, no City of Oakland SCAs or mitigation measures would apply.

Light (Criterion 1d)

Previous EIR Conclusions

The 2000 EIR did not identify an environmental impact related to adequate light related to appropriate uses and no mitigation was required.

[14] RWDI, Inc., *1640 Broadway Sun-Shadow Study*, September 2, 2015, included in this CEQA document as Appendix 4.

Modified Project Assessment

The exception from the Planning Code required for the Modified Project (e. g., Minor Variance) is not related to the provision of adequate light, and would not result in a physical effect.

Applicable Mitigation Measures and/or SCAs

Since there are no impacts related to light and no changes from the effects discussed in the 2000 EIR, no City of Oakland SCAs or mitigation measures would apply.

Wind (Criterion 1e)

Previous EIR Conclusions

The 2000 EIR concluded that Original Project related shifts or changes in ground-level wind speeds under prevailing conditions would be moderate and not result in a significant impact; no mitigation measures were necessary.

The Housing Element EIR and 2011 Redevelopment Plan EIR found less than significant wind hazard effects with the incorporation of applicable SCAs. The 1998 LUTE EIR found a significant and unavoidable wind hazards impact.

Modified Project Assessment

The Modified Project would be nearly the same in terms of height and bulk as that analyzed in the 2000 EIR. However, the 2000 EIR wind assessment was qualitative only.

To document potential wind effects of the Modified Project, a wind tunnel analysis was conducted by RWDI, Inc. Wind tunnel modeling results are set forth in the *Pedestrian Wind Conditions Consultation Wind Tunnel Tests Report*, included in this CEQA document as **Appendix 5.** The Wind Tunnel Tests verified that the Modified Project would not result in pedestrian level wind effects above the City's threshold level, consistent with the conclusion stated in the 2000 EIR. The *Pedestrian Wind Conditions Consultation Report* also demonstrates that the Modified Project's pedestrian wind level effects fall below the wind hazard level identified in the 1998 LUTE EIR and would not create a significant and unavoidable project specific or cumulative impact.

Applicable Mitigation Measures and/or SCAs

Since there are no impacts related to wind and no changes from the effects discussed in the 2000 EIR, no City of Oakland SCAs or mitigation measures would apply.

Conclusions – Aesthetics, Shadow and Wind

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR and the Program EIRs, implementation of the proposed Project would not substantially increase the severity of significant impacts identified in the 2000 EIR or the Program EIRs, nor would it result in new significant impacts related to aesthetics[15], shadow or wind that were not identified in the 2000 EIR or the Program EIRs.

[15]Under Public Resources Code Section 21099(d), effective January 1, 2014, aesthetics of "a residential, mixed-use residential, or employment center project on an infill site located within a transit priority area shall not be considered significant impacts on the environment." The Modified Project qualifies as an infill site within a transit priority area and therefore aesthetics is

The scope of environmental review of projects that qualify for a Community Plan Exemption or for Infill Streamlining pursuant to sections 15183 and 15183.3 of the CEQA Guidelines is limited to project-specific environmental effects which are peculiar to the project or site or are potentially significant off-site or cumulative impacts which were not discussed in the Previous CEQA Documents. The Modified Project would not result in significant off-site or cumulative effects related to aesthetics, shadows or wind not previously discussed.

---

no longer to be considered in determining the significance of project impacts under CEQA. Aesthetics was discussed in the Previous EIRs, which is why it is included in this CEQA Checklist.

2. Air Quality Would the project:	**Equal or Less Severity of Impact Previously Identified in the Previous CEQA Documents**	**Substantial Increase in Severity of Previously Identified Significant Impact in Previous CEQA Documents**	**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.	☒	☐	☐

Pursuant to CEQA, lead agencies must apply appropriate thresholds based on substantial evidence in the record. The City's air quality thresholds rely upon the technical and scientific basis of the Bay Area Air Quality Management District (BAAQMD) 2010 thresholds. The resolution adopting the 2010 and 2011 BAAQMD thresholds was set aside by an Alameda County Superior Court in March 2012. In August 2013, the California Court of Appeals reversed the Superior Court's judgment and vacated its writ of mandate. The case is currently pending before the California Supreme Court.

The City's thresholds are consistent with and authorized by CEQA Guidelines section 15064. They have not been challenged and remain in effect. The methodology used for assessing air quality impacts (e.g., calculating air pollution emissions and potential health impacts) is based on the latest version of BAAQMD's CEQA Guidelines and guidelines published by other regional, state, and federal regulatory agencies.

BAAQMD most recently updated it CEQA Air Quality Guidelines in May of 2012. These guidelines no longer recommend quantitative significance thresholds, but recommend lead agencies develop their own thresholds of significance offering, as possibilities, its previous 1999 Guidelines thresholds, a table of thresholds promulgated by other California air districts, as well as a reference to California Air Pollution Control Officers Association and State Air Resources Board guidance. Reference to the BAAQMD CEQA Thresholds Options and Justification Report developed by district staff in 2009 is also an option and one that provides lead agencies with a justification for continuing to rely on the BAAQMD 2011 thresholds. Based on the foregoing, the City's Thresholds for air quality appropriately rely upon and are generally based upon the BAAQMD 2011 CEQA Guidelines and Thresholds.

Modified Project Analysis

Since certification of the 2000 EIR the Bay Area Air Quality Management District (BAAQMD) has adopted new CEQA thresholds. Since information on the above mentioned air quality issues was known, or could have been known, when the 2000 EIR or other the Program EIRs was being prepared, it is not legally "new information" as specifically defined under CEQA.

Nevertheless, although this CEQA Checklist (and Addendum) could rely upon the 2000 EIR thresholds, which were based upon the *Bay Area Air Quality Management District* (*BAAQMD) 1996 CEQA Air Quality Guidelines*, the more stringent *BAAQMD May 2011 CEQA Guidelines and Thresholds* were used in this analysis. This provides a more conservative evaluation of the Modified Project's potential Air Quality impacts. Under either the BAAQMD's *1996 CEQA Air Quality Guidelines* or *2011 CEQA Guidelines and Thresholds*, the Modified Project would be subject to current City SCAs and previously approved mitigation measures from the 2000 EIR, as detailed below.

Construction and Operational Emissions (Criterion 2a)

Previous EIR Conclusions

The 2000 EIR found that the Original Project would have a potentially significant impact on construction air emissions, but that those impacts could be reduced to a less than significant level with the incorporation of mitigation measures. The 2000 EIR analyzed operational air emissions of the Original Project relative to the methodology and thresholds of the BAAQMD contained in its *1996 CEQA Air Quality Guidelines*, which had less stringent thresholds for ROG and NOx (80 pounds per day), a more stringent threshold for PM10 (80 pounds per day), and no threshold for PM2.5. The 2000 EIR found that emissions were below the 1996 thresholds and no mitigation was required. Emissions from maintenance operation of generators was not required to be considered at that time under the 1996 CEQA Air Quality Guidelines and therefore was not considered in the 2000 EIR. The 2000 EIR determined that cumulative air quality impacts for the Original Project would not constitute a "considerable" contribution to the region's cumulative air quality impacts and were therefore found to be less than significant and no mitigation was required.

The Redevelopment Plan EIR and the Housing Element EIR found that emissions associated with construction and operations resulting from increased criteria pollutants from resulting development would result in less-than-significant effects, with adherence to mitigation measures or SCAs. Specifically, the Redevelopment Plan EIR and the Housing Element EIR cited applicable SCAs that would ensure these less-than-significant effects, including dust/PM10 and odors, as well as consistency with the applicable regional clean air plan. The 1998 LUTE EIR, which was certified prior to the City's adoption of SCAs, identified mitigation measures that are functionally equivalent to the SCAs that would reduce the potential construction and operational emissions effects to less than significant, including specifically in the Downtown area. However, the 1998 LUTE EIR found significant cumulative effects regarding increased criteria pollutants from increased traffic regionally, and the identified mitigation measures would not reduce the effect, which would remain significant and unavoidable after implementation of the mitigation.

Modified Project Assessment

Construction Air Emissions

The 2000 EIR for the Original Project analyzed construction-related air emissions relative to the methodology and thresholds of the Bay Area Air Quality Management District (BAAQMD) contained in its *1996 CEQA Air Quality Guidelines* which did not require quantification of construction-related emissions or identify quantitative thresholds for assessing construction-related emissions. While not required, modeling of construction-related emissions associated with the Modified Project was performed for this CEQA Checklist; the assumptions and inputs used for the model and the model results are provided in Appendix 1.

The California Emissions Estimator Model (CalEEMod) Version 2013.2.2 was used to predict emissions from construction and operation of the Modified Project. Model inputs included the proposed land uses (i.e., high rise condominiums, retail commercial) and trip generation rates. CalEEMod provides annual emission estimates for construction for both on-site and off-site construction activities. On-site activities are primarily made up of construction equipment emissions, while off-site activity includes worker, hauling and vendor traffic. A construction build-out scenario, including equipment list was provided. According to this schedule, construction would begin in 2016 and be completed in 2018. Construction phases included demolition (i.e., removal of asphalt paving), grading and excavation, building-exterior, building–interior /architectural coating, and paving. The schedule and equipment usage estimates provided were input to CalEEMod. The CalEEMod default horsepower and load factors were used for each piece of construction equipment.

Average daily emissions were computed by dividing the total construction emissions by the number of construction days. **Table 4** shows total construction emissions in tons and average daily emissions in pounds per day of criteria air pollutants, Reactive Organic Gas (ROG), Nitric Oxide (NO_X), and Particulate Matter exhaust (PM_{10} and $PM_{2.5}$). As indicated in **Table 4**, predicted project emissions of Criteria Air Pollutants during construction are below the BAAQMD significance thresholds.

Table 4. Construction Period Emissions

Scenario	ROG	NOx	PM_{10} Exhaust	$PM_{2.5}$ Exhaust
Construction emissions (tons)	3.74 tons	3.31 tons	0.12 tons	0.11 tons
Average daily emissions (pounds)[1]	14.8 lbs.	13.1 lbs.	0.5 lbs.	0.4 lbs.
BAAQMD Thresholds (pounds per day)	*54* lbs.	*54* lbs.	*82* lbs.	*54* lbs.
Exceed Threshold?	**No**	**No**	**No**	**No**

Notes:

[1] Assumes 506 workdays.

Construction activities, particularly during site preparation and grading would temporarily generate fugitive dust in the form of particulate matter, PM_{10} and $PM_{2.5}$. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site could deposit mud on local streets, which could be an additional source of airborne dust after it dries. Fugitive dust emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. Fugitive dust emissions would also depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles (PM_{10}) would settle near the source, while fine particles ($PM_{2.5}$) would be dispersed over greater distances from the construction site.

Overall, the proposed Project would not substantially increase the severity of significant impacts identified in the 2000 EIR or the Program EIRs, nor would it result in new significant impacts related to construction air emissions or fugitive dust that were not identified in the 2000 EIR or those other Program EIRs.

Operational Emissions

CalEEMod was used to predict emissions from operation of the Modified Project following construction. The same model run used to compute construction period emissions was used to predict operational emissions.

The analysis below used the following assumptions to calculate the daily operational emissions associated with the Modified Project:

- The vehicle trip generation rates that were input into CalEEMod (Version 2013.2.2) account for the 2000 Bay Area Travel Survey (BATS) modal split adjustment factor that is required by the City of Oakland for near-transit developments;
- The model assumed no fireplaces in the proposed dwelling units.
- All other inputs in CalEEMod were based on model default values.
- One backup diesel generator was assumed pursuant to California Building Code Requirements for buildings of this height. The generator was assumed to have a rating of 600 kW-hr that would be operated for maintenance purposes 50 hours per year or about 1 hour per test day.

The daily operational emissions for the proposed Project, based on the assumptions above, are presented in **Table 5** below. As shown, annual average daily regional emissions for the Modified Project would not exceed the City's thresholds for ROG, NO_X, PM_{10} or $PM_{2.5}$. Note that emissions from existing uses at the site (e.g., cars using the parking lot) are not included in this assessment, so the net effect of the Project is really less. As with the construction thresholds, these thresholds were developed to represent a cumulatively considerable contribution to regional air quality and as such, represent not only a project level threshold but a cumulative threshold as well.

Table 5. Operational Emissions

Scenario	ROG	NOx	PM10	PM2.5
Annual Project Operational emissions (tons)	3.13 tons	2.48 tons	1.19 tons	0.36 tons
Annual Generator Emissions (tons)	<0.01 tons	0.05 tons	<0.01 tons	<0.01 tons
Total (tons)	<3.14 tons	2.53 tons	<1.20 tons	<0.37 tons
BAAQMD Thresholds (tons per year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
Exceed Threshold?	**No**	***No***	**No**	**No**
Average Daily Project Operational	17.2 lbs.	13.6 lbs.	6.5 lbs.	2.0 lbs.

Emissions (pounds)[1]				
Average Daily Generator Emissions (pounds)	<0.1 lbs.	0.3 lbs.	<0.1 lbs.	<0.1 lbs.
Total (pounds)	<17.3 lbs.	13.9 lbs.	<6.6 lbs.	<2.1 lbs.
BAAQMD Thresholds (pounds per day)	*54* lbs.	*54* lbs.	*82* lbs.	*54* lbs.
Exceed Threshold with Mitigation?	**No**	**No**	**No**	**No**

[1] Assumes 365-day operation.

As noted above, the operational and construction assumptions (schedule and equipment) and CalEEMod model output files for the Modified Project are provided in Appendix 1.

Cumulative Air Emissions

The Modified Project would have emissions less than the BAAQMD screening size for evaluating impacts related to ozone and particulate matter. Therefore, the proposed Project would not contribute substantially to existing or projected violations of those standards. Carbon monoxide emissions from traffic generated by the Project would be the pollutant of greatest concern at the local level. Congested intersections with a large volume of traffic have the greatest potential to cause high-localized concentrations of carbon monoxide. Air pollutant monitoring data indicate that carbon monoxide levels have been at healthy levels (i.e., below State and federal standards) in the Bay Area since the early 1990s. As a result, the region has been designated as attainment for that standard. The highest measured level over any 8-hour averaging period during the last 3 years in the Bay Area is less than 3.0 parts per million (ppm), compared to the ambient air quality standard of 9.0 ppm. Intersections affected by the Project would have traffic volumes less than the BAAQMD screening criteria and, thus, would not cause a violation of an ambient air quality standard or have a considerable contribution to cumulative violations of these standards.[16]

Overall, the Modified Project would not substantially increase the severity of significant impacts identified in the 2000 EIR or the Program EIRs, nor would it result in new significant impacts related to operational air emissions that were not identified in the 2000 EIR or those other Program EIRs.

Applicable Mitigation Measures and/or SCAs

Under the 2000 EIR, the Original Project was required to comply with Mitigation Measure C.1 to control fugitive dust and ensure equipment maintenance. Mitigation Measure C.1 applies to the Modified Project, but has been replaced by SCA AIR-1 (as shown in Attachment A) which is required on all projects within the City to control fugitive dust and ensure equipment maintenance. The 2000 EIR found no significant impacts related to operational emissions and no mitigation measures or SCAs were required. No mitigation measures would apply.

[16] For a land-use project type, the BAAQMD CEQA Air Quality Guidelines state that a Modified Project would result in a less than significant impact to localized carbon monoxide concentrations if the project would not increase traffic at affected intersections with more than 44,000 vehicles per hour.

Toxic Air Contaminants (Criterion 2b)

Previous EIR Conclusions

The 2000 EIR for the Original Project analyzed air emissions relative to the methodology and thresholds of the BAAQMD contained in its *1996 CEQA Air Quality Guidelines* which did not require quantification of cumulative health risks and screening tools for analyzing such cumulative risks were not available from BAAQMD at that time. As presented in the analysis below, the Modified Project would not result in a new significant impact with respect to cumulative toxic air contaminants (TACs) impacts.

The LUTE EIR (1998) did not quantify or address cumulative health risks as such analysis was not required when that EIR was prepared. The Redevelopment Plan EIR (2011), and the Housing Element EIR (2010 and 2014) did conduct cumulative health risk assessments and, unlike the Modified Project, identified significant and unavoidable impacts, after the consideration of SCAs.

Modified Project Assessment

The 2000 EIR did not evaluate health risk associated with toxic air contaminants (TACs). This CEQA Checklist includes an evaluation of those risks in conformance with the *BAAQMD 2011 CEQA Guidelines and Thresholds*. Because this topic was not discussed previously in the 2000 EIR, the following background is provided. TACs are types of 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 (HRA) to determine what sources and pollutants to control as well as the degree of control. The health risk assessment, presented in detail in Appendix 1 and summarized below, considers exposure to toxic substances and human health risks from exposure to toxic substances based on the potency of the toxic substances. The assessment evaluates chronic, long-term effects, calculating the increased risk of cancer as a result of exposure to one or more TACs.

Project impacts related to increased community risk can occur either by introducing a new sensitive receptor, such as a residential use, in proximity to an existing source of TACs or by introducing a new source of TACs with the potential to adversely affect existing sensitive receptors in the Project vicinity. BAAQMD recommends using a 1,000-foot screening radius around a project site for purposes of identifying community health risk from siting a new sensitive receptor or a new source of TACs.

Consistent with BAAQMD requirements, operation and testing of the proposed Project's emergency back-up generator was evaluated for risk to nearby sensitive receptors. The Modified Project's generation of dust and equipment exhaust from construction activities on a temporary basis was evaluated to determine the potential to affect nearby sensitive receptors, including residences. The Modified Project's impacts associated with project construction TAC emissions were also assessed as well as the Modified Project's introduction of new sensitive receptors to the area that would be exposed to emissions from nearby roadways and stationary sources. As presented in the analysis below, the Modified Project would not result in a new significant impact with respect to cumulative toxic air contaminants (TACs) impacts.

<u>Construction Impacts</u>

As stated in the full Health Risk Assessment set forth in Appendix 1, the Modified Project would result in a maximum increased residential child cancer risk of 2.7 in one million and an increased residential adult cancer risk of 0.2 in one million. These increased cancer risks would be below the BAAQMD significance threshold of a cancer risk of greater than 10.0 in one million and would be considered a *less-than-significant* impact.

The maximum modeled annual $PM_{2.5}$ concentration was 0.02 µg/m^3 (micrograms per cubic meter) and occur at the same location where the maximum cancer risk occurred. This $PM_{2.5}$ concentration is below the BAAQMD significance threshold of 0.3 µg/m^3 used to judge the significance of health impacts from $PM_{2.5}$. This would be considered a *less-than-significant* impact.

Potential non-cancer health effects due to chronic exposure to DPM were also evaluated. Non-cancer health hazards from TAC exposure are expressed in terms of a hazard index (HI), which is the ratio of the TAC concentration to a reference exposure level (REL). California's Office of Environmental Health and Hazards (OEHHA) has defined acceptable concentration levels for contaminants that pose non-cancer health hazards. TAC concentrations below the REL are not expected to cause adverse health impacts, even for sensitive individuals. The chronic inhalation REL for DPM is 5 µg/m3. The maximum modeled annual DPM concentration was 0.015 µg/m3 which is much lower than the REL. The maximum computed hazard index based on this DPM concentration is 0.003 which is much lower than the BAAQMD significance criterion of a hazard index greater than 1.0. This would be considered a less-than-significant impact.

The Modified Project would have a less-than-significant impact with respect to community risk caused by construction activities.

Operational Impacts

Impacts from Local Surface Streets

Traffic on high volume roadways is a source of TAC emissions that may adversely affect sensitive receptors in close proximity to the roadway. Modeling results using the BAAQMD *Roadway Screening Analysis Calculator* found that the estimated cancer risk from Broadway at the Project site would be 9.5 per million and $PM_{2.5}$ concentration would be 0.19 µg/m^3. Chronic or acute hazard index (HI) for both roadways would be below 0.03. Potential risk from both roadways would be below the BAAQMD significance thresholds for community risk from single sources.

Impacts from Stationary Sources

Additional assessment was conducted with regard to permitted stationary sources of air pollution near the Project site. The assessment focused on emergency back-up generators located at 1587 Franklin Street and 1600 Franklin Street and the level of cancer risks and annual $PM_{2.5}$ concentrations generated by these facilities at residential receptor locations in the Modified Project building.

Using BAAQMD cancer risk calculation methods the maximum estimated increased residential cancer risks would be 2.1 and 2.0 in one million for the 1587 and 1600 Franklin Street generators, respectively which are lower than the BAAQMD cancer risk significance threshold of greater than 10.0 in one million and would be considered a *less-than-significant* impact.

The maximum modeled annual $PM_{2.5}$ concentrations were less than 0.004 µg/m^3 from the generators and the maximum Hazard Index would be less than 0.0008. $PM_{2.5}$ concentrations and Hazard Indexes at other floor levels would be lower than the maximum values. The maximum $PM_{2.5}$ concentration and Hazard Index would be below BAAQMD significance thresholds of 0.3 µg/m^3 for $PM_{2.5}$ and 1.0 for a Hazard Index and would be considered a *less-than-significant* impact.

Operational Impacts from Project Generator

The only source of TACs identified with build-out of the Project is one emergency back-up diesel-powered generator of up to 600 kW/805 hp, located on the roof of the building (floor level 34). The generator would be tested routinely, up to 50 hours per year. Emissions from the testing and maintenance of the generator were calculated using CARB's OFFROAD emissions model for large compression-ignited engines above 25 hp and included the CARB and U.S. EPA Low Carbon Fuel Standard (LCFS) rules.

The BAAQMD permit requirements for the generator include an assessment showing less-than-significant health risks from diesel particulate matter exposure, cancer risks less than 10 per million and that the project includes Best Available Toxics Control Technology, which would set limits for diesel particulate matter emissions. Emissions from the generator that comply with all applicable BAAQMD regulations generally are considered as not having a significant air quality community risk impact.

Results of generator modeling indicate average daily emissions of 0.0019 pounds of DPM per day. Risk and $PM_{2.5}$ concentrations from a diesel generator of this size and average daily emissions were then calculated based on BAAQMD's *Risk and Hazards Emissions Screening Calculator (Beta Version)*. Results indicate that the Project generator would result in an excess cancer risk of 2.0 per million, $PM_{2.5}$ concentration of <0.01 µg/m^3 and HI of <0.01, all of which would be below BAAQMD thresholds of significance both on-site affecting Project residences and at nearby sensitive receptors. *Therefore, this impact would be considered less than significant*. Appendix 1 includes emission factors and risk modeling calculations for the project emergency back-up generator.

Combined Community Risk Impacts

As discussed above, the Project site is affected by multiple sources of TACs in the vicinity of the Project site. **Table 6** shows the cancer risk associated with each source affecting the Project site. The sum of impacts from combined sources (i.e., sources within 1,000 feet of the Project) would be below the threshold of 100 in one million used by the City. Therefore, the combined impact from operational community risk at the Project site would be considered *less-than-significant*. Similarly, the maximally exposed individual (MEI) during project construction (Figure 11) was evaluated for combined community risk from construction and operational sources in **Table 6**.

Table 6. Impacts from Combined Sources at Project Site

Source	**Maximum Cancer Risk (per million)**	**Hazard Index**	**$PM_{2.5}$ concentration ($\mu g/m^3$)**
Broadway at 100 feet	9.5	<0.03	0.19
Project Generator (up to 600 kW)	2.0	<0.01	<0.01
Plant 13494, Pacific Bell/AT&T	2.1	<0.01	<0.01
Plant 14532, AC Transit	2.0	<0.01	<0.01
Plant 14607, Rotunda Partners II	5.3	<0.01	<0.01
Plant 14423, Oakland 14th Office	2.8	<0.01	<0.01
Plant 12765, MCI, dba Verizon Business	1.4	<0.01	<0.01
Plant 14502, City of Oakland, Environmental Services Division	1.1	<0.01	<0.01
Plant 14503, City of Oakland, Environmental Services Division	7.2	<0.01	<0.01
Plant 19281, State of California	1.1	<0.01	0.01
Plant 14173, PG&E	1.8	<0.01	<0.01
Combined Sources	36.3	<0.13	<0.29
BAAQMD Threshold – Combined Sources	***100***	***10.0***	***0.8***

Table 7. Impacts from Combined Sources at Construction MEI

Source	Maximum Cancer Risk (per million)	Hazard Index	$PM_{2.5}$ concentration ($\mu g/m^3$)
Project Construction	2.7	<0.01	0.02
Webster Street at 10 feet	2.0	<0.03	0.04
17th Street at 200 feet	3.6	<0.03	0.07
Project Generator (up to 600 kW)	<2.0	<0.01	<0.01
Plant 13494, Pacific Bell/AT&T	<2.1	<0.01	<0.01
Plant 14532, AC Transit	<2.0	<0.01	<0.01
Plant 14173, PG&E	2.9	<0.01	0.01
Plant 18668, AT&T Corp.	2.5	<0.01	<0.01
Plant 14711, Verizon Business	1.6	<0.01	<0.01
Combined Sources	<21.4	<0.13	<0.19
BAAQMD Threshold – Combined Sources	***100***	***10.0***	***0.8***

As shown in **Table 7**, the sum of impacts from combined sources including construction at the construction MEI would be below the threshold of 100 in one million used by the City and this impact would be considered *less-than-significant*.

Applicable Mitigation Measures and/or SCAs

Because impacts related to health risk would be less than significant, no mitigation measures are required or applicable. However, the Modified Project would be required to implement BAAQMD-recommended and standard City of Oakland SCAs related to air quality. These include SCAAIR-1 (Construction-Related Air Pollution Controls, Dust and Equipment Emissions) as identified in Attachment A. The Health Risk Assessment prepared for the Modified Project and set forth in Appendix 1-B satisfies the requirements of AIR-2 (Exposure to Air Pollution (Toxic Air Contaminants)) and finds *less than significant* impacts. No mitigation measures would apply.

Conclusions – Air Quality

Based on an examination of the analysis, findings and conclusions of the 2000 EIR and the Program EIRs, implementation of the Modified Project would not substantially increase the severity of significant impacts identified in the 2000 EIR or the Program EIRs, nor would it result in new significant impacts related to construction and operational air emission that were not identified in the 2000 EIR or the Program EIRs. Moreover, based on the analysis of the Modified Project's construction and operational related emissions, including the preparation of a Health Risk Assessment, the Modified Project would comply with the BAAQMD 2011 CEQA Guidelines and Thresholds for emissions and toxic air contaminants and would not result in new significant impacts related to air quality. The scope of environmental review of projects that qualify for a Community Plan Exemption or for Infill Streamlining pursuant to sections 15183 and 15183.3 of the CEQA Guidelines is limited to project-specific environmental effects which are peculiar to the project or site or are potentially significant off-site or cumulative impacts which were not discussed in the Previous CEQA Documents. The Modified Project would not result in significant off-site or cumulative effects related to air quality not previously discussed.

3. Biological Resources Would the project:	**Equal or Less Severity of Impact Previously Identified in the Previous CEQA Documents**	**Substantial Increase in Severity of Previously Identified Significant Impact in Previous CEQA Documents**	**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.	☒	☐	☐

Special-Status Species, Wildlife Corridors, Riparian and Sensitive Habitat, Wetlands, Tree and Creek Protection (Criteria 3a and 3b)

Previous EIR Conclusions

The Initial Study prepared for the 2000 EIR found that the Original Project would not result in any significant impacts on biological resources and no mitigation measures were necessary.

The Prior Program EIRs found that the effects to biological resources would be less than significant. The Housing Element EIR and 2011 Redevelopment Plan EIR cited applicable SCAs that would ensure the less than significant impacts to biological resources. No mitigation measures were necessary.

Modified Project Assessment

The Project site is located within a fully developed urban area of Downtown Oakland. The site is 100% covered with impervious surface and does not contain vegetation and 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 Project site is devoid of trees or other landscaping and is not connected to other nearby natural habitats, and therefore would not constitute or function as a wildlife corridor. There are no natural sensitive communities in the area.

Site conditions have not materially changed since certification of the 2000 EIR and the biological impacts of the Modified Project would be very similar to those discussed in the 2000 EIR and would remain less than significant. The biological effects of the Modified Project would also be similar to, or less severe than, those identified in the Program EIRs considered in this analysis.

Applicable Mitigation Measures and/or SCAs

Tree permits would be required in regard to potential effects to the existing street trees on the Broadway frontage and to the planting of new street trees as proposed by the Modified Project. Specifically, the Modified Project would be required to implement the following City of Oakland SCAs related to street trees as identified in Attachment A: SCA-BIO-1 (Tree Removal During Breeding Season) and SCA BIO-2 (Tree Permit, Tree Protection During Construction and Tree Replacement Plantings). No mitigation measures would apply.

Conclusions – Biological Resources

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR and the Program EIRs, implementation of the Modified Project would not substantially increase the severity of significant impacts identified in the 2000 EIR or the Program EIRs, nor would it result in new significant impacts related to biological resources that were not identified in the 2000 EIR or the Program EIRs. The scope of environmental review of projects that qualify for a Community Plan Exemption or for Infill Streamlining pursuant to sections 15183 and 15183.3 of the CEQA Guidelines is limited to project-specific environmental effects which are peculiar to the project or site or are potentially significant off-site or cumulative impacts which were not discussed in the Previous CEQA Documents. The Modified Project would not result in significant off-site or cumulative effects related to biological resources not previously discussed.

4. Cultural Resources Would the project:	**Equal or Less Severity of Impact Previously Identified in the Previous CEQA Documents**	**Substantial Increase in Severity of Previously Identified Significant Impact in Previous CEQA Documents**	**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.	☒	☐	☐

Historical Resources (Criterion4a), and Archaeological and Paleontological Resources and Human Remains (Criteria 4b, 4c and 4d)

Previous EIR Conclusions

The 2000 EIR found that the Original Project would not result in the physical demolition, destruction, relocation, or alteration of historical resources that are listed in or may be eligible for listing in the federal, state, or local registers of historical resources. The 2000 EIR determined that construction of the proposed building at the Project site would not result in a substantial adverse change in either of the two historic districts in the Project vicinity (i.e., the 17th Street Historic District and the Downtown Oakland Historic District). No mitigation was required.

The Initial Study for the 2000 EIR did not determine whether there are known archaeological or paleontological resources recorded at the Project site but stated that excavation and grading activities could potentially encounter such resources and for that reason the Project would be required to implement measures to ensure that any archaeological or paleontological resources or human remains encountered during excavation or construction are adequately addressed.

The Housing Element EIR and 2011 Redevelopment Plan EIR found that the effects to archaeological and paleontological resources and human remains would be less than significant with the incorporation of City of Oakland SCAs. The 1998 LUTE EIR was certified prior to the City adoption of SCAs, and therefore identified mitigation measures, which are functionally equivalent to the SCAs, that would reduce the potential effects to archaeological resources to less than significant.

Modified Project Assessment

There has been no change to the Project site since the 2000 EIR was certified and there have been no changes in the number of historic resources in the vicinity of the Project site that would potentially be affected by the Modified Project to a different extent than was previously described in the 2000 EIR. The inadvertent discovery of human remains during ground-disturbing activities cannot be entirely discounted. In the event that human remains are discovered during excavation, implementation of an SCA, which would ensure that the appropriate procedures for handling and identifying the remains are followed, would reduce impacts to a less-than-significant level.

Overall the cultural resources impacts of the Modified Project would be similar to those discussed in the 2000 EIR and Program EIRs and would remain less than significant.

Applicable Mitigation Measures and/or SCAs

Development of the Modified Project would be required to comply with the City of Oakland SCAs to ensure that archaeological resources are recovered and that appropriate procedures are followed in the event of accidental discovery including requiring a qualified paleontologist to document a discovery, requiring that appropriate procedures be followed in the event of a discovery, and ensuring that the appropriate procedures for handling and identifying human remains are followed. The applicable City of Oakland SCAs related to accidental discovery of archeological and paleontological resources and human remains, as identified in Attachment A are SCA CUL-1 (Archaeological and Paleontological Resources – Discovery During Construction), and SCA CUL-2 (Human Remains – Discovery During Construction). No mitigation measures would apply.

Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR and Program EIRs, implementation of the proposed Project would not substantially increase the severity of significant impacts identified in the 2000 EIR or the Program EIRs, nor would it result in new significant impacts related to cultural resources that were not identified in the 2000 EIR or the Program EIRs. The scope of environmental review of projects that qualify for a Community Plan Exemption or for Infill Streamlining pursuant to sections 15183 and 15183.3 of the CEQA Guidelines is limited to project-specific environmental effects which are peculiar to the project or site or are potentially significant off-site or cumulative impacts which were not discussed in the Previous CEQA Documents. The Modified Project would not result in significant off-site or cumulative effects related to cultural resources not previously discussed.

5. Geology, Soils, and Geohazards Would the project:	**Equal or Less Severity of Impact Previously Identified in the Previous CEQA Documents**	**Substantial Increase in Severity of Previously Identified Significant Impact in Previous CEQA Documents**	**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.	☒	☐	☐

Seismic Hazards, Expansive Soils, and Soil Erosion (Criterion 5a and 5b)

Previous EIR Conclusions

The 2000 EIR found that the potential impact of development of the Original Project on geology, soils and geologic hazards would be less than significant, with the Project sponsor's adherence to local and state regulations. The 2000 EIR described that the site is 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. The 2000 EIR also determined that development of the 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 because the Project would be required to 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 also determined that development of the Original Project would result in less-than-significant impacts regarding substantial soil erosion or loss of topsoil because of the Project applicant's required compliance with standard City practices.

The Program EIRs found that the effects to geology, soils, and geologic hazards would be less than significant with the incorporation of City of Oakland SCAs. The 1998 LUTE EIR, which was certified prior to the City adoption of SCAs, identified mitigation measures that are functionally equivalent to the SCAs that would reduce the potential geological or soils impacts to less than significant. No mitigation measures were necessary.

Modified Project Assessment

The Project site is located approximately 3 miles southwest of the Hayward Fault and is outside of the Alquist-Priolo Geologic Hazards Special Studies Zone.

As reported in the 2000 EIR, the Project site is located in an area designated as least susceptible to landslides; it does not have contributing factors such as slopes over 15 percent or a history of landslide problems. Moreover, the site is relatively flat and developed in the Downtown urban area that is built-out or paved, landscaped, and served by an existing storm drain system. The Project site continues to have these characteristics and therefore would not result in significant impacts with respect to landslides. The proposed Project would not result in substantial risks to life or property.

The soil characterization of the Project site has not changed since the 2000 EIR. As reported in the Initial Study for the 2000 EIR, the site is in an area characterized as Urban Land-Danville complex, which have some development limitations. These limitations would be addressed pursuant to current City of Oakland SCAs that minimize potential geo-hazards impacts and require the preparation of soils and geotechnical reports specifying generally accepted and appropriate engineering techniques and compliance with local and state regulations and codes. Implementation of City of Oakland SCAs that require the preparation of soils and geotechnical reports specifying generally accepted and appropriate engineering techniques would reduce potential impacts to less-than-significant levels.

The proposed Project would require excavation of up to 8,500 cubic yards of soil, as described in the Project Description (Section IV of this document) and would require a grading permit from the City. In addition to the requirements of the grading permit, adherence to existing City of Oakland SCAs would ensure that development of the Modified Project would minimize erosion and sedimentation during construction of storm drainage facilities which shall be designed to meet applicable regulations and require preparation and submittal of an erosion control plan.

The proposed Project is located adjacent to the BART subway, which was constructed in the early 1970s. Given its proximity, the proposed Project will be required to obtain approval of its plans and potentially a permit from BART for work within the BART sphere of influence. BART shall review all engineering reports, site plans (which shall show the location of subway structures, BART easement), dewatering monitoring and recharging plans, vibration monitoring plans, foundation plans (which shall show the anticipated total foundation loads on BART tunnels), excavation plans including shoring systems for areas within the Zone of Influence, and any other information or technical analysis requested. The proposed Project will be required to comply with BART's General Guidelines for Design and Construction Adjacent to BART's Subway Structures. This requirement applies to all construction near BART infrastructure. Compliance with the BART General Guidelines for Design and Construction Adjacent to BART's Subway Structures and any conditions imposed by BART as part of the proposed Project's plan review or permitting will reduce any potential impacts on BART facilities and infrastructure to less-than-significant levels.

Overall, geologic, soils and geo-hazards of the Modified Project would be similar to those discussed in the 2000 EIR and Program EIRs and would remain less than significant.

Applicable Mitigation Measures and/or SCAs

Development of the Modified Project would be required to comply with City of Oakland SCAs related to avoiding and minimizing potential geologic impacts and soil erosion. As set forth in Attachment A, these include City of Oakland SCA GEO-1 (Soils Report) and SCA GEO-2 (Construction Related Permits) that address concerns related to soil erosion and sedimentation control in particular, as well as geotechnical hazards.

It would also require compliance specifically with local and state regulations governing design and construction practices, including BART General Guidelines for Design and Construction Adjacent to BART's Subway Structures and the California Building Code. No mitigation measures would apply.

Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR and the Program EIRs considered in this analysis, implementation of the proposed Project would not substantially increase the severity of significant impacts identified in the 2000 EIR or the other Program EIRs, nor would it result in new significant impacts related to geology, soils, and geo-hazards that were not identified in the 2000 EIR or the other Program EIRs. The scope of environmental review of projects that qualify for a Community Plan Exemption or for Infill Streamlining pursuant to sections 15183 and 15183.3 of the CEQA Guidelines is limited to project-specific environmental effects which are peculiar to the project or site or are potentially significant off-site or cumulative impacts which were not discussed in the Previous CEQA Documents. The Modified Project would not result in significant off-site or cumulative effects related to geology or soils not previously discussed.

6. Greenhouse Gas and Climate Change Would the project:	**Equal or Less Severity of Impact Previously Identified in the Previous CEQA Documents**	**Substantial Increase in Severity of Previously Identified Significant Impact in Previous CEQA Documents**	**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 4.6 metric tons of CO_2e per service population annually. The service population includes both the residents and the employees of the project. The project's impact would be considered significant if the emissions exceed BOTH the 1,100 metric tons threshold and the 4.6 metric tons threshold. Accordingly, the impact would be considered less than significant if the project's emissions are below EITHER of these thresholds.	☒	☐	☐
b. Fundamentally conflict with applicable plan, policy, or regulation adopted for the purposes of reducing greenhouse gas emissions.	☒	☐	☐

Pursuant to CEQA, lead agencies must apply appropriate thresholds based on substantial evidence in the record. The City's GHG thresholds rely upon the technical and scientific basis of the Bay Area Air Quality Management District (BAAQMD) 2010 thresholds. The resolution adopting the 2010 and 2011 BAAQMD thresholds was set aside by an Alameda County Superior Court in March 2012. In August 2013, the California Court of Appeals reversed the Superior Court's judgment and vacated its writ of mandate. The case is currently pending before the California Supreme Court.

The City's thresholds are consistent with and authorized by CEQA Guidelines section 15064. They have not been challenged and remain in effect. The methodology used for assessing GHG/global climate change impacts (e.g., calculating emissions) impacts is based on the latest version of BAAQMD's CEQA Guidelines and guidelines published by other regional, state, and federal regulatory agencies.

BAAQMD most recently updated it CEQA Air Quality Guidelines in May of 2012. These guidelines no longer recommend quantitative significance thresholds, but recommend lead agencies develop their own thresholds of significance offering, as possibilities, its previous 1999 Guidelines thresholds, a table of thresholds promulgated by other California air districts, as well as a reference to California Air Pollution Control Officers Association and State Air Resources Board guidance. Reference to the BAAQMD CEQA Thresholds Options and Justification Report developed by district staff in 2009 is also an option and one that provides lead agencies with a justification for continuing to rely on the BAAQMD 2011 thresholds. Based on the foregoing, the City's Thresholds for GHG appropriately rely upon and are generally based upon the BAAQMD 2011 CEQA Guidelines and Thresholds.

Greenhouse Gas Emissions (Criterion 6a)

Previous EIR Conclusions

Climate change and greenhouse gas emissions were not expressly addressed in the 2000 EIR, or in the 1998 LUTE EIR. Information on climate change and greenhouse gas (GHG) emissions was known, or could have been known at the time the 2000 EIR and 1998 LUTE EIR were prepared. Therefore, climate change and GHG emissions is not legally "new information" as specifically defined under CEQA and is not required to be analyzed as a part of the CEQA Checklist (and Addendum). The Modified Project, however, to be conservative, evaluates climate change and GHG emissions.

The Housing Element EIR and 2011 Redevelopment Plan EIR included GHG emissions and impacts analyses, as these documents were prepared after both former Governor Schwarzenegger's 2005 Executive Order S-3-05 that sets forth a series of target dates by which statewide emissions of GHGs need to be progressively reduced as well as California's landmark Assembly Bill 32 in 2006. Both of these Program EIRs identified less-than-significant impacts with the incorporation of numerous applicable City of Oakland SCAs. No mitigation measures were necessary.

Modified Project Assessment

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 proposed Project would make a considerable contribution to cumulative climate change effects.

CalEEMod was used to predict GHG emissions from construction and operation of the site assuming full build-out of the Modified Project. The proposed land use, project size and other project-specific information were input to the model, as described in Section 2a, above. CalEEMod output worksheets are included in Appendix 1**.**

Service Population

Project service population is the sum of future residences and full-time employees. The future number of residences was estimated at 640 based on the latest US Census data,[17] and the number of future employees was estimated to be 17 based on approximately 2.5 employees per 1,000 sf, for a total service population of 657.

<u>Construction Emissions</u>

Construction GHG emissions were calculated using the same CalEEMod run as described under Impact 2a. GHG emissions associated with construction were computed to be 1,083 MT of CO_2e, anticipated to occur over the entire construction period. These are the emissions from on-site operation of construction equipment, vendor and haul truck trips, and worker trips. Neither BAAQMD nor the City of Oakland has an adopted threshold of significance for construction-related GHG emissions, though the District recommends quantifying emissions and disclosing that GHG emissions would occur during construction. BAAQMD also encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable. Best management practices assumed to be incorporated into construction of the Modified Project include, but are not limited to: using local building materials of at least 10 percent and recycling or reusing at least 50 percent of construction

[17] United States Census Bureau, 2015. *Oakland (city), California QuickFacts, Persons per Household (2009-2013)*. Available online: http://quickfacts.census.gov/qfd/states/06/0653000.html. Accessed: July 29, 2015.

waste or demolition materials. The City recommends annualizing a project's expected GHG emissions during construction over a period of 40 years and then adding to the expected emissions during operation for comparison to the operational threshold, as discussed below.

Operational Emissions

The CalEEMod model, along with project vehicle trip generation rates, was used to predict daily emissions associated with operation of the fully-developed site under the proposed Project. In 2019, annual emissions resulting from operation of the proposed Project, including emissions from mobile sources, are predicted to be 2,094 MT of CO_2e.

Project Generator

As discussed above, the proposed Project would include one emergency diesel generator, assumed to be up to 600 kW/805 hp. The generator would be tested routinely, up to 50 hours per year. Emissions from the testing and maintenance of the generator was calculated using CARB's OFFROAD emissions model for large compression-ignited engines above 25 hp and included the CARB Low Carbon Fuel Standard (LCFS) rules. Results of generator modeling indicate annual CO_2 emissions of 11 MT. The BAAQMD threshold for stationary sources requiring permits is 10,000 annual MT. Therefore, the proposed Project stationary GHG emissions would be well below this threshold. Details of the generator modeling are included in Appendix 1**.**

Modeling Results

Total operational GHG emissions for the Modified Project are presented in **Table 8**. This table presents the project-related GHG emissions from all sources and assesses the impact relative to City thresholds. As discussed below (see Transit Priority Project, and Attachments C and D to this document), the Modified Project meets the criteria for a residential or mixed use "transit priority project," and is located within a "Regional Center" Priority Development Area (PDA) pursuant to the Plan Bay Area, which represents the Sustainable Communities Strategy (SCS) for the greater San Francisco Bay Area (MTC, 2013). Environmental documents for such projects need not analyze global warming impacts resulting from cars and light duty trucks. A lead agency should consider whether such projects may result in GHGs from other sources, however, consistent with the CEQA Guidelines. Consequently, if the proposed Project meets the requirements of a transit priority project, its mobile source need not be included in the assessment of GHG impacts. As shown in **Table 8**, total GHG emissions excluding mobile emissions are estimated at 804 MT CO_2e per year, which is below the threshold of 1,100 MT CO_2e per year. GHG emissions also would not exceed the service population threshold of 4.6 MT of CO_2e when mobile emissions are included. Therefore, the GHG emission impact would be *less than significant*.

Table 8. Annual Project GHG Emissions (CO_2e) in Metric Tons

Source Category	2019 Project Emissions
Area	15
Energy Consumption	637
Mobile	1,290
Solid Waste Generation	75
Water Usage	50
Project Construction[1]	27
Project Total	2,094
Total without Mobile Emissions	804
Threshold	1,100 MT CO_2e/Year
Service Population Emissions[2]	3.23 MT of CO_2e/year/S.P.
Threshold	4.6 MT CO_2e/year/S.P.

Notes: [1] Annualized construction emissions over a 40-year period per City of Oakland requirements.
[2] Based on a project service population of 657 future residents and employees. S.P. = service population.

Applicable Mitigation Measures and/or SCAs

Development of the Modified Project would be required to comply with City of Oakland SCAs that require the project to contribute to minimizing potential GHG emissions from construction and operations of development projects by encouraging and providing alternative transportation facilities (bicycles and BART), construction equipment emissions, transportation demand management, construction waste reduction and recycling, as well as California Green Building Standards. The Modified Project would not be required to comply with the City's SCA related to its GHG reduction plan as the significance threshold to trigger that SCA are not exceeded. No mitigation measures would apply.

Consistency with GHG Emissions Plans and Policies (Criterion 6b)

Previous EIR Conclusions

As noted above, climate change and GHG issues were not expressly addressed in the 2000 EIR, or in the 1998 LUTE EIR. The Modified Project, however, to be conservative, evaluates climate change and GHG consistency. Note that since information on greenhouse gas emissions was known, or could have been known, when the 2000 EIR was being prepared, the discussion below is not legally "new information" as specifically defined under CEQA.

The Housing Element EIR and 2011 Redevelopment Plan EIR included an evaluation of GHG Emission Plans and Policies and found the impacts less-than-significant with the incorporation of numerous applicable City of Oakland SCAs. No mitigation measures were necessary.

Modified Project Assessment

The proposed Project will be subject to new requirements under rule making developed at the State and local level regarding greenhouse gas emissions and be subject to local policies that may regulate emissions of greenhouse gases.

The Modified 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 proposed Project.

Specifically, the proposed Project would also be consistent with the State's Updated Climate Change Scoping Plan and the City of Oakland's Energy and Climate Action Plan in that it will include a number of sustainability design features. The proposed Project will comply with the Green Building ordinance and requirements. It will optimize the efficiency of the building through use of efficient heating, ventilation, and air conditioning (HVAC) and lighting systems and reduce domestic energy use compared to traditional development. The proposed Project will meet the newly implemented Building Energy Efficiency Standards. The proposed Project is located within a "Regional Center" Priority Development Area (PDA) pursuant to the Plan Bay Area, which represents the Sustainable Communities Strategy (SCS) for the greater San Francisco Bay Area; as discussed below and in Attachment D to this document, the proposed Project meets all conditions for qualification as a transit priority project with respect to the SCS, as discussed below.

Transit Priority Project

As introduced above, per CEQA Guidelines Section 15183.5 (c), environmental documents for certain residential and mixed use projects and transit priority projects, as defined in Section 21155 of the Public Resources Code, that are consistent with the general use designation, density, building intensity and applicable policies specified for the project area in an applicable SCS or alternative planning strategy need not analyze global warming impacts resulting from cars and light duty trucks. A lead agency should consider whether such projects may result in GHGs from other sources, however, consistent with the CEQA Guidelines. Consequently, if the project meets the requirements of a transit priority project, its mobile source emissions need not be included in the assessment of GHG impacts.

Section 21155 of the California Public Resources Code defines transit priority projects as projects which:

1. Contain at least 50 percent residential use, based on total building square footage and, if the project contains between 26 percent and 50 percent nonresidential uses, a floor area ratio of not less than 0.75;
2. Provide a minimum net density of at least 20 dwelling units per acre; and
3. Be located within one-half mile of a major transit stop or high-quality transit corridor included in a regional transportation plan. A major transit stop is as defined in Section 21064.3, except that, for purposes of this section, it also includes major transit stops that are included in the applicable regional transportation plan. For purposes of this section, a high quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours. A project shall be considered to be within one-half mile of a major transit stop or high-quality transit corridor if all parcels within the project have not more

than 25 percent of their area farther than one-half mile from the stop or corridor and if not more than 10 percent of the residential units or 100 units, whichever is less, in the project are farther than one-half mile from the stop or corridor.

The Modified Project proposes 240,000 net square feet of residential uses and 4,135 square feet of non-residential (retail commercial or restaurant) uses (97 percent residential use) with a floor area ratio of 18.6. The proposed Project meets condition (1) above for qualification as a transit priority project. The Project proposes a maximum of 254 residential units on a parcel of 0.51 acre, which is equivalent to 498 dwelling units per acre. Consequently, the proposed Project also meets condition (2) above for qualification as a transit priority project.

Finally, an entrance to the 19th Street BART Station (at 18th and Broadway), a major transit stop, is approximately 240 feet from the proposed residential entry and other transit lines and major transfer points are along Broadway within one to three blocks from the Project site. Consequently, the Modified Project meets also meets condition (3) above for qualification as a transit priority project. As all three conditions above for qualification as a transit priority project are met, pursuant to Section 15183.5 (c) of the CEQA Guidelines, the mobile source emissions of the proposed Project need not be included in the assessment of GHG impacts in the environmental document.

Applicable Mitigation Measures and/or SCAs

Because GHG emissions would be below applicable threshold levels, development of the Modified Project would not be required to comply with City of Oakland SCAs related to GHG. No mitigation measures would apply.

Conclusion

Based on an examination of the analysis, findings and conclusions of the Housing Element EIR and 2011 Redevelopment Plan EIR, implementation of the Modified Project would not substantially increase the severity of significant impacts identified in the Housing Element ER or the 2011 Redevelopment Plan EIR, nor would it result in new significant impacts related to GHG or fundamentally conflict with applicable plans, policies, or regulations adopted for the purposes of reducing GHG emission that were not identified in the Housing Element EIR or the 2011 Redevelopment Plan EIR. Moreover, based on the analysis above, implementation of the Modified Project would not result in a significant impact regarding GHG emissions or fundamentally conflict with applicable plans, policies, or regulations adopted for the purposes of reducing greenhouse gas emission.

7. Hazards and Hazardous Materials Would the project:	**Equal or Less Severity of Impact Previously Identified in the Previous CEQA Documents**	**Substantial Increase in Severity of Previously Identified Significant Impact in Previous CEQA Documents**	**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.	☒	☐	☐

Exposure to Hazards, Hazardous Materials Use, Storage and Disposal (Criterion7a)

Previous EIR Conclusions

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. The Project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would not create a significant hazard to the public or the environment. No mitigation measures were necessary.

The Housing Element EIR and 2011 Redevelopment Plan found less-than-significant effects regarding hazards and hazardous materials with the incorporation of applicable City of Oakland SCAs and no mitigation measures were required. The 1998 LUTE EIR was certified prior to the City adoption of SCAs and therefore identified mitigation measures which are functionally equivalent to the SCAs that would reduce the potential impacts of exposure to workers and the public during construction to less than significant.

Modified Project Assessment

The Modified Project would involve similar activities as the "Residential Only" Alternative evaluated in the 2000 EIR. Although no buildings exist on the Project site, existing asphalt pavement would be removed. The Phase1 Environmental Site Assessment prepared for the Original Project concluded none of the prior uses of the site would have involved or resulted in hazardous conditions or affected soil or groundwater conditions below the site or nearby areas. The potential for past and future environmental effects of nearby buildings was considered minimal.[18]

Applicable Mitigation Measures and/or SCAs

The transport, use, and storage of all hazardous materials involved with the Modified Project would be required to follow the applicable laws and regulations adopted to safeguard workers and the general public and development of the Modified Project would be subject to the City of Oakland's SCAs pertaining to best management practices for hazardous materials. No mitigation measures would apply.

Hazardous Materials within a Quarter Mile of a School (Criterion 7b)

Previous EIR Conclusions

The Initial Study prepared for the 2000 EIR determined that the Original Project would not cause hazardous emissions or handle hazardous or acutely hazardous materials, substances, or wastes.

The Prior Program EIRs all reported potential development in proximity to schools, which could create potential risk of upset conditions, and development that would occur under the Program EIRs will adhere to all City of Oakland SCAs and the effect will be less than significant. No mitigation measures were warranted.

Modified Project Assessment

Development of the Modified Project would be required to comply with existing local regulations that require hazardous material handlers within 1,000 feet of a school or other sensitive receptor to prepare a Hazardous Materials Assessment Report and Remediation Plan. Additionally, those handling or storing hazardous materials would be required to prepare a Hazardous Materials Management Plan and Hazardous Materials Business Plan, as required by Alameda County and a City of Oakland SCA; preparation of these plans would reduce impacts to less-than-significant levels. The only school located within 1000 feet of the Project site is the Oakland School for the Arts, located at 530 18th Street, approximately 775 feet from the Project site. Because the Project is not a hazardous materials handler, these requirements would not apply.

Applicable Mitigation Measures and/or SCAs

As no impacts related to hazardous materials within a quarter mile of a school are identified, no mitigation measures or SCAs would apply.

[18] William Dubovsky Environmental, *Phase I Environmental Site Assessment, 1640 Broadway, Oakland, California*, for Hernon Construction Inc., August 31, 1999

Emergency Access Routes (Criteria 7c)

Previous EIR Conclusions

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.

Each of the Program EIRs found less-than-significant effects regarding the potential for interference with emergency response plans or evacuation plans. No mitigation measures were necessary.

Modified Project Assessment

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. The Modified Project, however, would not permanently change the surrounding streets or roadways and would not significantly interfere with emergency response plans or evacuation plans. No impact is therefore identified similar to the determination of the 2000 EIR.

Applicable Mitigation Measures and/or SCAs

As no impacts are identified related to emergency response or evacuation plans, no mitigation measures or SCAs would be applicable. Nevertheless, SCA HAZ-1 (Hazardous Materials Related to Construction) would be applicable, as it applies to all projects involving construction activities and SCA HAZ-2 (Site Contamination) to the extent applicable.

Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR and the other applicable Program EIRs, implementation of the Modified Project would not substantially increase the severity of significant impacts identified in the 2000 EIR and the other Program EIRs, nor would it result in new significant impacts related to hazards and hazardous materials that were not identified in the 2000 EIR or the other Program EIRs. The scope of environmental review of projects that qualify for a Community Plan Exemption or for Infill Streamlining pursuant to sections 15183 and 15183.3 of the CEQA Guidelines is limited to project-specific environmental effects which are peculiar to the project or site or are potentially significant off-site or cumulative impacts which were not discussed in the Previous CEQA Documents. The Modified Project would not result in significant off-site or cumulative effects related to hazards or hazardous materials not previously discussed.

8. Hydrology and Water Quality Would the project:	**Equal or Less Severity of Impact Previously Identified in the Previous CEQA Documents**	**Substantial Increase in Severity of Previously Identified Significant Impact in Previous CEQA Documents**	**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.	☒	☐	☐

Water Quality, Stormwater, and Drainages and Drainage Patterns (Criteria 8a and 8c)

Previous EIR Conclusions

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 of the Original Project would involve ground disturbance but would not substantially change or increase the amount of impervious surface area and would therefore not substantially change or increase the amount of runoff to the City's stormwater drainage system. The analysis discussed measures that pertain to erosion and sedimentation control, post construction stormwater management and treatment measures for compliance with the federal Clean Water Act.

The Program EIRs considered in this analysis all found less-than-significant impacts related to hydrology or water quality, primarily given required adherence to existing regulatory requirements, many of which are incorporated in the City of Oakland's SCAs. No mitigation measures were warranted.

Modified Project Assessment

The Modified 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.

Applicable Mitigation Measures and/or SCAs

The 2000 EIR discussed measures that pertain to erosion and sedimentation control, post construction stormwater management and treatment measures for compliance with the federal Clean Water Act. These measures are now incorporated in several City of Oakland SCAs that would ensure impacts to a less-than-significant level by minimizing runoff and erosion, as well as sedimentation and contamination to stormwater and surface water during and after construction activities. The SCAs applicable to the Modified Project are SCA HYD-1 (State Construction General Permit), SCA HYD-2 (Site Design Measures to Stormwater Runoff), SCA HYD-3 (Source Control Measures to Limit Stormwater Pollution) and , HYD-4 (NPDES C.3 Stormwater Requirements for Regulated Projects) as set forth in Attachment A to this document. No mitigation measures would apply.

Use of Groundwater (Criterion 8b)

Previous EIR Conclusions

The 2000 EIR assumed project compliance with existing City practices, which are now City of Oakland SCAs that address all applicable regulatory standards and regulations pertaining to remediation and grading and excavation activities.

The Program EIRs identified less-than-significant effects regarding use of groundwater, and recognized that subsequent development could involve dewatering. Compliance with existing City requirements and practices imbedded in the City of Oakland SCAs were cited to ensure such activities do not substantially deplete groundwater resources, which is not anticipated since groundwater in the area is not a potable water source. No mitigation measures were warranted.

Modified Project Assessment

The Modified 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 and the Program EIRs.

Applicable Mitigation Measures and/or SCAs

As no impacts related to groundwater are identified, no mitigation measures or SCAs would apply.

Flooding and Substantial Risks from Flooding (Criterion 8d)

Previous EIR Conclusions

As reported in the 2000 EIR, the Original Project is located in Flood Area C, which is not located in either a 100 year or 500-year floodplain. In addition, the Original Project is not located near a levee or a dam.

The Program EIRs found less-than-significant impacts related to flooding and risks from flooding. The LUTE EIR acknowledged that areas considered under that Program EIR could potentially occur within a 100-year flood boundary. Adherence to existing regulatory requirements that are incorporated in the City of Oakland's SCAs would address potentially significant effects regarding flooding. No mitigation measures were warranted.

Modified Project Assessment

The 2000 EIR found that development of the Original Project would not result in a significant impact, with respect to flood-related risks. The impact would be the same with the Modified Project.

Applicable Mitigation Measures and/or SCAs

As no impacts related to flooding are identified, no mitigation measures or SCAs would apply.

Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR and the Program EIRs, implementation of the Modified Project would not substantially increase the severity of significant impacts identified in the 2000 EIR or the Program EIRs, nor would it result in new significant impacts related to hydrology and water quality that were not identified in the 2000 EIR or those other Program EIRs. The scope of environmental review of projects that qualify for a Community Plan Exemption or for Infill Streamlining pursuant to sections 15183 and 15183.3 of the CEQA Guidelines is limited to project-specific environmental effects which are peculiar to the project or site or are potentially significant off-site or cumulative impacts which were not discussed in the Previous CEQA Documents. The Modified Project would not result in significant off-site or cumulative effects related to hydrology or water quality not previously discussed.

9. Land Use, Plans, and Policies Would the project:	**Equal or Less Severity of Impact Previously Identified in the Previous CEQA Documents**	**Substantial Increase in Severity of Previously Identified Significant Impact in Previous CEQA Documents**	**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.	☒	☐	☐

Division of Existing Community, Conflict with Land Uses, or Land Use Plans (Criteria 9a through 9c)

Previous EIR Conclusions

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 Program EIRs considered in this analysis all found less-than-significant impacts related to land use, plans, and policies, and no mitigation measures were warranted. The LUTE EIR, however, identified a significant and unavoidable effect associated with inconsistencies with policies in the Clean Air Plan (resulting from significant and unavoidable increases in criteria pollutants from increased traffic regionally). It identified mitigation measures, which largely align with current City of Oakland SCAs involving Transportation Demand Management (TDM) and which apply to all projects within the City of Oakland.

Modified Project Assessment

The project site is part of the existing urban grid of Downtown Oakland, and its development would be of similar and compatible scale and use to its surroundings; it would not create a division of the community.

The Project site 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 development of the Project site would be consistent with this intent, with the development of residential and ground floor retail and/or restaurant uses that would support job opportunities.

The Modified Project would not conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project that was adopted for the purpose of avoiding or mitigating an environmental effect. However, the Modified Project would require a minor variance from the off-street residential loading requirements pursuant to Oakland Planning Code Section 17.116.120 since the Project is only able to provide one (1) off-street residential truck loading space where two are required.

The approval of a variance would not result in an environmental effect. The Project also requires a Conditional Use Permit (CUP) to authorize 22 fewer parking spaces than are required by the City's parking standards. With approval of the minor variance and CUP, development of the Project site as proposed under the Modified Project would be consistent with the CBD-P Zoning and CBD General Plan designations.

Applicable Mitigation Measures and/or SCAs

As no environmental effects related to conflicts with land use plans are identified, no mitigation measures or SCAs would apply.

Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR and Program EIRs, implementation of the Modified Project would not substantially increase the severity of significant impacts identified in the 2000 EIR or those Program EIRs, nor would it result in new significant impacts related to land use, plans, and policies that were not identified in the 2000 EIR or the other Program EIRs. The 2000 EIR did not identify any mitigation measures related to land use, and no City of Oakland SCAs directly addressing land use and planning apply to the Modified Project. The scope of environmental review of projects that qualify for a Community Plan Exemption or for Infill Streamlining pursuant to sections 15183 and 15183.3 of the CEQA Guidelines is limited to project-specific environmental effects which are peculiar to the project or site or are potentially significant off-site or cumulative impacts which were not discussed in the Previous CEQA Documents. The Modified Project would not result in significant off-site or cumulative effects related to land use or planning not previously discussed.

10. Noise Would the project:	**Equal or Less Severity of Impact Previously Identified in the Previous CEQA Documents**	**Substantial Increase in Severity of Previously Identified Significant Impact in Previous CEQA Documents**	**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 9a.m. on weekends and federal holidays, noise levels received by any land use from construction or demolition shall not exceed the applicable nighttime operational noise level standard; Generate noise in violation of the City of Oakland nuisance standards (Oakland Municipal Code Section 8.18.020) regarding persistent construction-related noise;	☒	☐	☐
b. Generate noise in violation of the City of Oakland Noise Ordinance (Oakland Planning Code Section 17.120.050) regarding operational noise;	☒	☐	☐
c. Generate noise resulting in a 5 dBA permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or, if under a cumulative scenario where the cumulative increase results in a 5 dBA permanent increase in ambient noise levels in the project vicinity without the project (i.e., the cumulative condition including the project compared to the existing conditions) and a 3-dBA permanent increase is attributable to the project (i.e., the cumulative condition including the project compared to the cumulative baseline condition without the project);	☒	☐	☐
d. Expose persons to interior 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; Expose persons to or generate noise levels in excess of applicable standards established by a regulatory agency (e.g., occupational noise standards of the Occupational Safety and Health Administration [OSHA]); or	☒	☐	☐
e. During either project construction or project operation expose persons to or generate groundborne vibration that exceeds the criteria established by the Federal Transit Administration (FTA).	☒	☐	☐

Construction and Operational Noise and Vibration, Exposure of Receptors to Noise (Criteria 10a, 10b, 10d, and 10e)

Previous EIR Conclusions

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.

The 2000 EIR determined that project-generated traffic noise would result in noise impacts to nearby sensitive noise receptors. However, it stated that the existing noise environment in the vicinity of the project site is dominated by noise from the nearby street network which would, in effect, "drown out" the comparatively minor vehicle noise associated with project-related traffic.

The 2000 EIR also determined that the Original Project would locate multi-family residential land uses at a location where ambient exterior noise levels are at 71 dBA which is considered “normally unacceptable” for such uses by the City of Oakland. The 2000 EIR stated that the project applicant would be required to submit a comprehensive acoustical analysis to the City demonstrating that the residential units would be designed and constructed in a manner to assure compliance with the Title 24 interior noise level standard of 45 dB CNEL. The 2000 EIR did not frame this requirement as a mitigation measure and no mitigation was required.

The Program EIRs considered in this analysis all found less-than-significant impacts related to operational noise, primarily from roadway traffic, as well as noise compatibility. The LUTE EIR identified mitigation measures to address potential noise conflicts between different land uses.[19] Regarding construction noise, most of the Program EIRs found less-than-significant impacts, primarily with adherence to City of Oakland SCAs; the LUTE EIR identified a significant construction noise and vibration impact in Downtown, even after the incorporation of mitigation measures. The impact regarding construction noise and vibration in the LUTE EIR was significant and unavoidable.

Modified Project Assessment

Construction Noise

Construction activities for the Modified Project are expected to occur over approximately 24 months, and would entail some excavation and shoring; foundation and below-grade construction; and construction of the building and finishing interiors.

Vibration

Construction of the Project foundation system would require drilled piers and could potentially involve pile driving, activities that would generate vibration during the construction phase. Similar to Mitigation Measures D.1.b and D.1.c in the 2000 EIR, the Modified Project would be required to comply with the City’s Standard Condition of Approval NOI-3 (Extreme Construction Noise).

[19] The 2011 Redevelopment Plan EIR also identified significant and avoidable noise effects specifically associated with the potential development of a new baseball stadium at Victory Court, and multimodal safety at at-grade rail crossings, both near the Oakland Estuary. These effects would not pertain to the Current Project given the distance and presumably minimal contribution of multimodal trips affecting these impacts.

Applicable Mitigation Measures and/or SCAs

Implementation of applicable City of Oakland SCAs would minimize construction noise impacts by limiting hours of construction activities; require best available noise control technology; and notification of any local residents of construction activities, and to track and respond to noise complaints. The applicable SCAs are NOI-1 (Construction Days/Hours), NOI-2 (Construction Noise), NOI-3 (Extreme Construction Noise), NOI-4 (Project Specific Construction Noise Reduction Measures) and NOI-5 (Construction Noise Complaints). These SCA replace Mitigation Measures D.1a, b, c & d from the 2000 EIR. As a result, the construction noise impacts of the Modified Project would be less than significant, as identified for the Original Project in the 2000 EIR.

Operational Noise

As was found in the 2000 EIR, the Project is a multi-family residential land use located where ambient exterior noise levels are considered “normally unacceptable” for such uses by the City of Oakland.

Applicable Mitigation Measures and/or SCAs

Incorporation of current City of Oakland SCA NOI6 (Exposure to Community Noise) that addresses interior noise requirements and NOI-7 (Operational Noise) would achieve the intent of the wording in the 2000 EIR and assure compliance with Title 24 interior noise level standard of 45 CNEL in habitable rooms with doors and windows closed. Development of the proposed Modified Project would comply with the foregoing SCAs to ensure the less than significant impact identified in the 2000 EIR. No mitigation measures would apply.

Traffic Noise (Criterion 10c)

Previous EIR Conclusions

As noted above, the Program EIRs considered in this analysis all found less-than-significant impacts related to roadway traffic, as well as noise compatibility.

The 2000 EIR relied upon the LUTE EIR in determining that traffic-related noise level increases along Broadway, taken in the context of anticipated major development north and south of the Project site would result in only minimal increases above existing noise levels and that noise from the nearby street network would, in effect, ‘drown out’ the comparatively minor vehicle noise associated with project related traffic. The analysis found that vehicles entering and exiting from the parking area at the Project site would not be expected to result in a noticeable (i.e., greater than 1.5 dB L_{dn}) increase in existing noise levels.

Further, the 2000 EIR also determined that the Original Project together with anticipated future development in the downtown area as well as Oakland in general could result in long-term traffic increases and could cumulatively increase noise levels. However, anticipated project-related traffic would be expected to contribute to a local noise environment which was described as already so loud that it would mask the comparatively minor traffic-related noise that would be generated by the Project and other projects proposed in the immediate vicinity of the Project site. The cumulative impact was determined to be less than significant.

Modified Project Assessment

The Modified Project would not be anticipated to experience impacts related to traffic noise significantly differently or greater than was evaluated in the 2000 EIR.

Applicable Mitigation Measures and/or SCAs

As no environmental effects related to traffic noise are identified, no mitigation measures or SCAs would apply.

Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR and the Program EIRs, implementation of the Modified Project would not substantially increase the severity of significant impacts identified in the 2000 EIR or the other Program EIRs, nor would it result in new significant impacts related to noise that were not identified in the 2000 EIR or in the other Program EIRs. The scope of environmental review of projects that qualify for a Community Plan Exemption or for Infill Streamlining pursuant to sections 15183 and 15183.3 of the CEQA Guidelines is limited to project-specific environmental effects which are peculiar to the project or site or are potentially significant off-site or cumulative impacts which were not discussed in the Previous CEQA Documents. The Modified Project would not result in significant off-site or cumulative noise effects not previously discussed.

11. Population and Housing Would the project:	**Equal or Less Severity of Impact Previously Identified in the Previous CEQA Documents**	**Substantial Increase in Severity of Previously Identified Significant Impact in Previous CEQA Documents**	**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.	☒	☐	☐

Population Growth and Displacement of Housing and People (Criteria11a and 11b)

Previous EIR Conclusions

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.

The Program EIRs considered in this analysis all found less-than-significant impacts related to population and housing; the LUTE EIR and Redevelopment Plan EIR also addressed employment. The impact identified in the LUTE EIR addressed unanticipated employment growth (compared to regional ABAG projections) which would create an increased demand for new housing. The effect was reduced to less than significant with identified mitigation measures that committed the City of Oakland to creating and maintaining a relevant database of vacant and underutilized land parcels for use by City departments, and providing assistance to private developers of affordable and market rate housing projects in locating appropriate sites. No other mitigation measures were warranted. Because the mitigation measures in the LUTE EIR were not applicable to private parties, they were not turned into SCAs.

Modified Project Assessment

Development of the Modified Project would add up to 254 residential units and 457 residents to the Downtown area. At buildout of the Modified Project, this would represent approximately 0.05 and 1.2 percent of the total 2015-2040 population growth projected for Oakland and the Downtown/Jack London Square PDA, respectively;[20] these proportions of growth would not be considered substantial.

Moreover, infill growth from development of the Project site, whether new residents or employees, was anticipated in the City's 2015-2023 Housing Element Update (2014), the Central District Urban Renewal

[20] The Downtown / Jack London Square PDA growth from 2010 to 2040 is protected to reach 39,440 persons. City of Oakland growth from 2010 to 2040 is projected to reach 857,240 persons. (ABAG, 2012)

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. The Modified Project aligns with Oakland General Plan policies that support additional housing opportunities in proximity to employment centers and alternative transportation options, like Downtown. The Modified Project would not displace any housing units, as none exist on the Project site. The Modified Project's impacts to population and housing would be less than significant, as identified in the 2000 EIR.

Applicable Mitigation Measures and/or SCAs

The 2000 EIR did not identify any mitigation measures related to population and housing, and none would be required for the Modified Project. Also, no SCAs would apply.

Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR and the Program EIRs, implementation of the Modified Project would not substantially increase the severity of significant impacts identified in the 2000 EIR and the other Program EIRs, nor would it result in new significant impacts related to population and housing that were not identified in the 2000P EIR and those Program EIRs. The scope of environmental review of projects that qualify for a Community Plan Exemption or for Infill Streamlining pursuant to sections 15183 and 15183.3 of the CEQA Guidelines is limited to project-specific environmental effects which are peculiar to the project or site or are potentially significant off-site or cumulative impacts which were not discussed in the Previous CEQA Documents. The Modified Project would not result in significant off-site or cumulative effects related to population and housing not previously discussed.

12. Public Services, Parks and Recreation Facilities Would the project:	**Equal or Less Severity of Impact Previously Identified in the Previous CEQA Documents**	**Substantial Increase in Severity of Previously Identified Significant Impact in Previous CEQA Documents**	**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 that might have a substantial adverse physical effect on the environment.	☒	☐	☐

Public Services and Parks and Recreation (Criteria 12a and 12b)

Previous EIR Conclusions

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 resulting in 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 Modified Project plans, and project applicants' required contribution amount to school impact fees to offset any impacts to school facilities from the Modified Project.

The Program EIRs considered in this analysis all found less-than-significant impacts related to public services and recreational facilities; no mitigation measures were warranted nor City of Oakland SCAs identified. The 1998 LUTE EIR, which was certified prior to the City adoption of SCAs, identified mitigation measures that are functionally equivalent to the SCAs that would reduce potential effects on public services to less than significant. The LUTE EIR identified significant effects regarding increased student enrollment, particularly in Downtown (and the Waterfront), and identified mitigation measures that were determined to reduce the effect to less than significant.

Modified Project Assessment

Consistent with the findings of the 2000 EIR, and because the Modified Project is substantially the same as the previously approved Original Project, impacts related to public services including police, fire, public schools and libraries and parks and recreation facilities would be less-than-significant on both a project and cumulative level.

As noted above, 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 Modified Project plans, and project applicants' required contribution amount to school impact fees to offset any impacts to school facilities from the Modified Project.

Applicable Mitigation Measures and/or SCAs

The 2000 EIR did not identify any mitigation measures related to public services, parks and recreation facilities, and none would be required for the Modified Project.

Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR and the other Program EIRs, implementation of the Modified Project would not substantially increase the severity of significant impacts identified in the 2000 EIR or the other Program EIRs, nor would it result in new significant impacts related to the provision of public services and parks and recreation facilities that were not identified in the 2000 EIR or the other Program EIRs. The scope of environmental review of projects that qualify for a Community Plan Exemption or for Infill Streamlining pursuant to sections 15183 and 15183.3 of the CEQA Guidelines is limited to project-specific environmental effects which are peculiar to the project or site or are potentially significant off-site or cumulative impacts which were not discussed in the Previous CEQA Documents. The Modified Project would not result in significant off-site or cumulative effects related to public services not previously discussed.

13. Transportation and Circulation Would the project:	**Equal or Less Severity of Impact Previously Identified in the Previous CEQA Documents**	**Substantial Increase in Severity of Previously Identified Significant Impact in Previous CEQA Documents**	**New Significant Impact**
Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit, specifically:			
Traffic Load and Capacity Thresholds a. At a study, signalized intersection which is located outside the Downtown area and that does not provide direct access to Downtown, the project would cause the motor vehicle level of service (LOS) to degrade to worse than LOS D (i.e., LOS E or F) and cause the total intersection average vehicle delay to increase by four (4) or more seconds;	☒	☐	☐
b. At a study, signalized intersection which is located **within the Downtown area or that provides direct access to Downtown**, the project would cause the motor vehicle LOS to degrade to worse than LOS E (i.e., LOS F) and cause the total intersection average vehicle delay to increase by four (4) or more seconds;	☒	☐	☐
c. At a study, signalized intersection **outside the Downtown area and that does not provide direct access to Downtown** where the motor vehicle level of service is LOS E, the project would cause the total intersection average vehicle delay to increase by four (4) or more seconds;	☒	☐	☐
d. At a study, signalized intersection **outside the Downtown area and that does not provide direct access to Downtown** where the motor vehicle level of service is LOS E, the project would cause an increase in the average delay for any of the critical movements of six (6) seconds or more;	☒	☐	☐
e. At a study, signalized intersection for all areas where the level of service is LOS F, the project would cause (a) the overall volume-to-capacity (“v/c”) ratio to increase 0.03 or more or (b) the critical movement v/c ratio to increase 0.05 or more;	☒	☐	☐
f. At a study, unsignalized intersection the project would add ten (10) or more vehicles to the critical movement and after project completion satisfy the California Manual on Uniform Traffic Control Devices (MUTCD) peak hour volume traffic signal warrant;	☒	☐	☐
g. For a roadway segment of the Congestion Management Program (CMP) Network, the project would cause (a) the LOS to degrade from LOS E or better to LOS F or (b) the V/C ratio to increase 0.03 or more for a roadway segment that would operate at LOS F without the project; or	☒	☐	☐

13. Transportation and Circulation Would the project:	**Equal or Less Severity of Impact Previously Identified in the Previous CEQA Documents**	**Substantial Increase in Severity of Previously Identified Significant Impact in Previous CEQA Documents**	**New Significant Impact**
h. Cause congestion of regional significance on a roadway segment on the Metropolitan Transportation System (MTS) evaluated per the requirements of the Land Use Analysis Program of the CMP.	☒	☐	☐

This section of the CEQA Checklist presents the findings of a Transportation Impact Analysis completed for the Modified Project.[21]

Criteria 13a through 13h

Previous EIR Conclusions

The 2000 EIR for the Original Project analyzed transportation and circulation conditions in and around the Project area. Project generated vehicle trips were found to not result in significant impacts at local intersections under both existing conditions and cumulative (2020) conditions and no mitigation was required. The 2000 EIR identified only one significant and unavoidable impact – namely, that the Project would provide insufficient parking relative to existing demand and relative to anticipated increases in parking demand in the future. The 2000 EIR required implementation of a number of measures under Mitigation Measure B.3 that would reduce the demand for off-street parking and found that even with implementation of the mitigation measure the increase in parking demand in the Downtown area would continue to represent a significant unavoidable cumulative impact to which the Original Project would contribute significantly.

The Program EIRs considered for this analysis identified significant and unavoidable impacts regarding intersection and/or roadway segment operations. Various mitigation measures and City of Oakland SCAs are identified (except in the 1998 LUTE EIR, which does not identify SCAs). Other transportation/circulation effects identified in each of the documents are reduced to less than significant with adherence to City of Oakland SCAs or mitigation measure, as follows.

The LUTE EIR identified SU impacts regarding degradation of the level of service (LOS) for several roadway segments citywide. A mitigation measure was identified for one Downtown intersection to reduce the intersection operations to less than significant. All other topics were found less than significant.

The Housing Element EIR and Redevelopment Plan EIR and Addendum identified significant and unavoidable effects to roadway segment operations after the implementation of identified mitigation measures.

[21] Technical supporting information is attached hereto as Appendix 2

Modified Project Assessment

Existing Setting

The traffic impact analysis prepared for the Modified Project evaluates traffic operations at the following four intersections in the vicinity of the Project site; these are four of the eight signalized intersections that were evaluated in the 2000 EIR and were selected for evaluation because they are identified as the critical intersections where the Modified Project would add substantial traffic. Based on review of the traffic analyses in the LUTE EIR, the Housing Element EIR and Addendum and EIRs prepared for other recent Downtown Oakland Projects, the selected intersections are considered most likely to experience a traffic impact given the trip assignments assumed for the Project. This review of other studies performed in the area wherein Project traffic would travel identified no other intersections operating near the City's thresholds of significance that would serve substantial levels of Project traffic.

1. 19th Street/Broadway
2. 17th Street/Broadway
3. 19th Street/Telegraph Avenue
4. 17th Street/Telegraph Avenue

Traffic data at the study intersections was available from the 2013 Latham Square Traffic Analysis Memorandum. These traffic counts include vehicle, pedestrian, and bicycle data. The traffic data collection was conducted from 7:00 AM to 9:00 AM (weekday AM) and from 4:00 PM to 6:00 PM (weekday PM). Traffic counts for the Telegraph Avenue intersections were collected in May 2011, and traffic counts for the Broadway intersections were collected on January 24, 2013. City of Oakland considers traffic count data for downtown Oakland to be valid for a period of five (5) years; this is particularly appropriate in light of the absence of any substantial new development in the Downtown area or near the Project site over the past five years that might have resulted in different traffic conditions; no such changes have occurred.

Based on review of the traffic analyses in the LUTE EIR, the Housing Element EIR and Addendum and EIRs prepared for other recent Downtown Oakland Projects, no issues were identified associated with MTS roadway segments, vehicle queuing or vehicle collisions within the project's area of effect. The 2000 EIR also did not identify any impacts associated with these topic areas. The Modified Project is not anticipated to result in new significant adverse impacts to Metropolitan Transportation System (MTS) roadway segments or vehicle queuing, and proposes no features that are unsafe or expected to result in an increase in vehicle collisions at area intersections.

Figure 13 presents existing intersection lane configurations, traffic control devices, and peak hour traffic volumes, as well as the peak hour pedestrian and bicycle volumes at the study intersections.

Based on the volumes and roadway configurations presented in Figure 13, Fehr & Peers calculated the Level of Service (LOS)[22] at the study intersections using the *2010 Highway Capacity Manual* (HCM) methodologies. City of Oakland considers LOS E as the threshold of significance for intersections located

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

within Downtown area or that provide direct access to Downtown,[23] and LOS D for all other intersections. All study intersections are in Downtown where the threshold of significance is LOS E.

All study intersections currently operate at either LOS A or LOS B during weekday AM and PM peak hours. **Table 9** summarizes the existing intersection analysis results. Appendix 2 provides the detailed LOS calculation sheets.

Table 9. Intersection LOS Summary – Existing Conditions

Intersection	Traffic Control[1]	Peak Hour	Delay[2] (seconds)	LOS
19th Street/Broadway	Signal	AM	8.4	A
		PM	11.1	B
17th Street/Broadway	Signal	AM	14.9	B
		PM	9.7	A
19th Street/Telegraph Avenue	Signal	AM	6.5	A
		PM	8.0	A
17th Street/Telegraph Avenue	Signal	AM	12.7	B
		PM	12.4	B

1 Signal = intersection is controlled by a traffic signal

2 For signalized intersections, average intersection delay and LOS based on the 2010 HCM method is shown.

SOURCE: Fehr & Peers, 2015.

Existing Transit Facilities

The Project site is served by AC Transit and BART services, along with the Free Broadway Shuttle. Along the Project frontage on Broadway (just south of the 17th Street intersection), approximately 100 feet of curb is dedicated to AC Transit bus stops and Free Broadway Shuttle stops. AC Transit Routes 1, 11, 12, 18, 51A, 72, 72M, 800, 802, 805, and 851 stop at this location. The reverse trip for these bus routes are also served across the street on Broadway just south of 17th Street. **Table 10** describes the AC Transit bus routes serving the Project area.

The 19th Street Oakland BART station is located less than one block from the Project site, with access on Broadway between 17th Street and 19th Street. The 12th Street Oakland BART station is also within reasonable walking distance (located approximately 1000 feet from the Project site). These BART stations are served by the Yellow (Pittsburg/Bay Point – Millbrae), Orange (Richmond – Fremont), and Red (Richmond – Millbrae) lines. The Orange and Red lines run with 15 minute headways during the week and 20 minute headways on the weekends; the Yellow line runs with weekday headways of 5 to 15 minutes and weekend headways of 20 minutes. These lines operate between 4:00 AM and 1:35 AM during the week, and between 5:55 AM and 1:35 AM on weekends. The 19th Street and 12th Street Oakland stations

23 Intersections that provide direct access to Downtown are generally defined as principal arterials within two miles of Downtown and minor arterials within one mile of Downtown, provided that the street connects directly to Downtown.

are heavily used stations, with approximately 27,000 to 30,000 entries and exits during the weekday at each station in October 2015.

The Free Broadway Shuttle runs Mondays through Fridays with a day route from 7:00 AM to 7:00 PM and night route from 7:00 PM to 10:00 PM. The day route operates with 10 to 15 minute headways from Jack London Square and Grand Avenue. The night route operates with 12 minute headways from Jack London Square to 27th Street.

Table 10. AC Transit Service Summary

Line	Route	Nearest Stop	Weekday		Weekend	
			Hours	Frequency	Hours	Frequency
Local Routes						
1	Between Berkeley and Bay Fair BART Stations via Telegraph Ave., International Blvd., and East 14th St.	Adjacent to Project on Broadway	5:15 AM to 12:45 AM	15 minutes	5:00 AM to 1:15 AM	20 minutes
11	Piedmont to Lake Merritt BART via Oakland Ave., Broadway, and 7th/8th St.	Adjacent to Project on Broadway	6:00 AM to 8:30 PM	30 minutes	7:00 AM to 8:45 PM	60 minutes
12	Berkeley BART to Downtown Oakland via Martin Luther King Jr. Way	Adjacent to Project on Broadway	6:10 AM to 10:50 AM	20 minutes	6:00 AM to 10:50 PM	30 minutes
18	University Village, Albany, to Montclair via Solano Ave, Shattuck Ave, Park Boulevard	Adjacent to Project on Broadway	5:20 AM to 12:40 AM	15 minutes	6:00 AM to 1:00 AM	20 minutes
51A	Between Rockridge and Fruitvale BART stations via Broadway and Santa Clara Ave.	Adjacent to Project on Broadway	5:00 AM to 12:30 AM	10 to 20 minutes	5:30 AM to 12:30 AM	15 to 20 minutes
72	Between Point Richmond and Oakland Amtrak via San Pablo Ave. and Broadway	Adjacent to Project on Broadway	5:00 AM to 1:30 AM	30 minutes	5:15 AM to 1:30 AM	30 minutes
72M	Between Point Richmond and Oakland Amtrak via San Pablo Ave. and Broadway	Adjacent to Project on Broadway	4:45 AM to 12:30 AM	30 minutes	4:45 AM to 1:15 AM	30 minutes
Night Routes						
800	Downtown San Francisco to Richmond BART Station via Telegraph Ave., Ashby Ave., Shattuck Ave., University Ave., and San Pablo Ave.	Adjacent to Project on Broadway	12:20 AM to 6:20 AM	60 minutes	11:50 PM to 7:40 AM	20 minutes
802	Between Downtown Oakland and Berkeley Amtrak via San Pablo Ave. and Broadway	Adjacent to Project on Broadway	12:15 AM to 5:30 AM	60 minutes	12:15 AM to 5:30 AM	60 minutes
805	Between Downtown Oakland and Oakland Airport via MacArthur Blvd., 73rd Ave., and Hegenberger Rd.	Adjacent to Project on Broadway	12:00 AM to 6:30 AM	60 minutes	12:00 AM to 6:30 AM	60 minutes
851	Between Fruitvale and Berkeley BART Stations via Fruitvale Ave., Santa Clara Ave., Webster St., Broadway, College Ave., and Bancroft Way/Durant Ave.	Adjacent to Project on Broadway	12:10 AM to 5:00 AM	60 minutes	12:10 AM to 5:00 AM	60 minutes

SOURCE: AC Transit, 2015.

Existing Bicycle Facilities

Based on the City of Oakland's Bicycle Master Plan (December 2007), bicycle facilities can be classified into several types, including:

Bicycle Paths (Class 1) are paved rights-of-way completely separated from streets. Bicycle paths are often located along waterfronts, creeks, railroad rights-of-way or freeways with a limited number of cross streets and driveways. These paths are typically shared with pedestrians and often called mixed-use paths.

Bicycle Lanes (Class 2) give bicyclists striped lanes on streets, designated with specific signage and stencils. Bicycle lanes may include buffer striping to provide greater separation between bicyclists and parked or moving vehicles. Bicycle lanes are the preferred treatment for all arterial and collector streets on the bikeway network. Bicycle lanes should not be installed on low-volume, low-speed residential streets. Because of driveways on those streets, bicyclists are safer riding in the middle of the travel lane.

Bicycle Routes (Class 3) designate preferred streets for bicycle travel using lanes shared with motor vehicles. While the only required treatment is signage, bicycle routes are designated because they are suitable for sharing with motor vehicles and provide better connectivity than other streets.

Arterial Bicycle Routes (Class 3A): On some arterial streets, bicycle lanes are not feasible, and parallel streets do not provide adequate connectivity. These streets may be designed to promote shared use with lower posted speed limits (preferably 25 mph), shared lane bicycle stencils ("sharrows"), wide curb lanes, and signage.

Bicycle Boulevards (Class 3B): Bicycle boulevards are bicycle routes on residential streets that prioritize through trips for bicyclists and reduce delay. The route should appeal to cyclists of varied skill levels by providing direct connections on streets with low traffic volumes. The route should reduce delay to bicyclists by assigning right-of-way to travel on the route. Traffic calming should be introduced as needed to discourage drivers from using the boulevard as a through route. Intersections with major streets should be controlled by traffic signals with bicycle actuation. Oakland's Bicycle Boulevards will be marked with shared lane bicycle stencils (aka "sharrows") and signage.

Currently, Broadway and Telegraph Avenue are Class 3 bicycle routes. The Bicycle Master Plan has designated Telegraph Avenue between Broadway and 20th Street as a Class 3A arterial bicycle route; north of 20th Street, Telegraph Avenue is designated as a Class 2 bike lane facility. South of Grand Avenue, Broadway has been removed of any bicycle designation. 17th Street between Telegraph Avenue and Clay Street is designated as a Class 2 bike lane facility, and 16th Street between Telegraph Avenue and Clay Street is designated as a Class 3A arterial bicycle route. According to the Bicycle Master Plan, neither Broadway nor 17th Street along the Project site's frontage is designated as bicycle facilities.

Modifications to Telegraph Avenue in the Project area are currently underway as part of a City project to repave the roadway. These "road diet" modifications include reducing the automobile lanes of travel from two lanes in each direction to one lane in each direction with a median left turn lane. In the space provided, buffered bicycle lanes or cycle tracks are being provided in various sections of the facility.

Trip Generation

Trip generation refers to the process of estimating the amount of vehicular traffic a project would add to the local roadway network. For this analysis, trip generation is estimated for typical weekday AM peak and PM peak hours. **Table 10** summarizes the trip generation for the Modified Project. The estimates presented are based on the most recently published rates in the Institute of Transportation Engineers

(ITE) *Trip Generation Manual* (9th Edition) with an adjustment accounting for trips that would be made by other modes.

The ITE data is based on data collected at mostly single-use suburban sites where the automobile is often the only travel mode. However, the Project site is in a mixed-use urban environment in Downtown Oakland where many trips are walk, bike, or transit trips. Since the Project site is one block from the 19th Street BART Station, this analysis reduces the ITE based trip generation by 43 percent to account for the non-automobile trips. This reduction is consistent with City of Oakland *Transportation Impact Study Guidelines* and is based on the Bay Area Travel Survey (BATS) 2000, which shows that the non-automobile mode share within one-half mile of a BART Station in Alameda County is about 43 percent. A 2011 research study shows reducing ITE based trip generation using BATS data results in a more accurate estimation of trip generation for mixed use developments than just using ITE based trip generation.[24]

Table 11 presents the vehicular trip generation estimate for the Modified Project compared to the trip generation estimated in the 2000 EIR for the Residential Only Alternative described in the Original Project. As summarized in **Table 11**, the Modified Project is estimated to generate about 1,627 daily, 108 AM peak hour, and 144 PM peak hour vehicle trips. This trip generation is conservative in that trip credits are not applied for the trips made to the existing parking lot at the site which would be removed with the development of the Modified Project.

[24] Evaluation of the Operation and Accuracy of Five Available Smart Growth Trip Generation Methodologies. Institute of Transportation Studies, UC Davis, 2011.

Table 11. Automobile Trip Generation Summary

Land Use	Units[1]	ITE Code	Daily	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Residential	254 DU	220 [2]	1,663	26	103	129	102	55	157
Retail	3.1 KSF	820 [3]	710	12	7	19	28	30	58
Restaurant	3.8 KSF	932 [4]	482	23	18	41	22	15	37
Subtotal			*2,855*	*61*	*128*	*189*	*152*	*100*	*252*
Non-Auto Reduction (-43%) [5]			-1,228	-26	-55	-81	-65	-43	-108
Total Project Trips			**1,627**	**35**	**73**	**108**	**87**	**57**	**144**
Original Project [6]			1,875	72	151	223	90	60	150
Net Difference			**-248**	**-37**	**-78**	**-115**	**-3**	**-3**	**-16**
Percent Difference			**-13%**			**-52%**			**-4%**

1 DU = Dwelling Units, KSF = 1,000 square feet.

2 ITE Trip Generation (9th Edition) land use category 220 – Apartment (Adj. Streets, 7-9AM, 4-6PM):

Daily: T = 6.06*(X)+123.56

AM Peak Hour: T = 0.49*(X)+3.73 (20% in, 80% out)

PM Peak Hour: T = 0.55*(X)+17.65 (65% in, 35% out)

3 ITE Trip Generation (9th Edition) land use category 820 – Shopping Center (Adj. Streets, 7-9AM, 4-6PM):

Daily: LN(T) = 0.65*LN(X)+5.83

AM Peak Hour: LN(T) = 0.61*LN(X)+2.24 (62% in, 38% out)

PM Peak Hour: LN(T) = 0.67*LN(X)+3.31 (48% in, 52% out)

4 ITE Trip Generation (9th Edition) land use category 932 – High-Turnover Restaurant (Adj. Streets, 7-9AM, 4-6PM):

Daily: T = 127.15*(X)

AM Peak Hour: T = 10.81*(X) (55% in, 45% out)

PM Peak Hour: T = 9.85*(X) (60% in, 40% out)

5 City of Oakland *Transportation Impact Study Guidelines*

6 From Table IV.B-5, 2000 EIR, adjusted by factors given in the Traffic, Circulation and Parking discussion for Alternative C – Residential Only Alternative

SOURCE: Fehr & Peers, 2015.

As shown in **Table 11** above, the Modified Project would generate approximately 13 percent fewer daily automobile trips than estimated for the Residential Only Alternative analyzed in the 2000 EIR. The AM Peak hour trips would be 52 percent less and the PM peak hour trips would be 4 percent less.

Consistent with *City of Oakland Transportation Impact Study Guidelines*, **Table 12** presents the estimates of Modified Project trip generation for all travel modes.

Table 12. Trip Generation by Travel Mode for the Modified Project

Mode	Mode Share Adjustment Factors1	Daily	AM Peak Hour	PM Peak Hour
Automobile	57.0%	1,627	108	144
Transit	30.4%	868	57	77
Bike	3.9%	111	7	10
Walk	23.0%	657	43	58
Total Trips		3,263	215	289

Note:

1. Based on City of Oakland Transportation Impact Study Guidelines assuming project site is in an urban environment within 0.5 miles of a BART Station.

Source: Fehr & Peers 2015.

Trip Distribution and Assignment

The trip distribution and assignment process is used to estimate how the trips generated by a project site would be distributed across the roadway network. Based on existing travel patterns, locations of complementary land uses, and results of the Alameda County Transportation Commission's (ACTC) Travel Demand Model, the directions of approach to and departure from the Project site were determined. Figure 14 shows the resulting trip distribution.

Trips generated by the Project site were assigned to the roadway network according to the trip distribution shown on Figure 14. While residential trips would park on-site, commercial trips would use public parking in the area. For the purpose of this study, it was assumed that all commercial trips would terminate at the Project driveway. Figure 15 shows the Modified Project trip assignment for the weekday AM and PM peak hours at the study intersections. Figures 16 and 17 show the resulting trip assignment by roadway segment for the AM and PM peak hours.

Modified Project

Based on Fehr & Peers' observations in Downtown Oakland, and as shown in **Table 9**, above, these intersections currently operate at acceptable conditions and are expected to continue operating at acceptable conditions in the future.

Significance Criteria

The traffic analysis prepared for the Modified Project used City of Oakland's CEQA Thresholds of Significance Guidelines to determine if the Modified Project would cause significant impacts to the study intersections. The analysis conducted for the Modified Project considers four analysis scenarios: Existing, Existing Plus Project, 2040 No Project, and 2040 Plus Project. This section discusses the impacts of the Modified Project on traffic operations under Existing and 2040 conditions based on the City of Oakland's Thresholds of Significance (see Checklist above and Attachment B to this document). A significant impact on study intersections would occur under the following conditions:

1. At a study, signalized intersection which is located outside the Downtown area and that does not provide direct access to Downtown, the project would cause the motor vehicle level of service (LOS) to degrade to worse than LOS D (i.e., LOS E or LOS F) and cause the total intersection average vehicle delay to increase by four (4) or more seconds;

2. At a study, signalized intersection which is located within the Downtown area or that provides direct access to Downtown, the project would cause the motor vehicle LOS to degrade to worse than LOS E (i.e., LOS F) and cause the total intersection average vehicle delay to increase by four (4) or more seconds;

3. At a study, signalized intersection outside the Downtown area and that does not provide direct access to Downtown where the motor vehicle level of service is LOS E, the project would cause the total intersection average vehicle delay to increase by four (4) or more seconds;

4. At a study, signalized intersection outside the Downtown area and that does not provide direct access to Downtown where the motor vehicle level of service is LOS E, the project would cause an increase in the average delay for any of the critical movements of six (6) seconds or more;

5. At a study, signalized intersection for all areas where the motor vehicle level of service is LOS F, the project would cause (a) the overall volume-to-capacity ("V/C") ratio to increase 0.03 or more or (b) the critical movement V/C ratio to increase 0.05 or more;

Existing and Existing Plus Project Intersection Analysis

This section presents the extent of Project impacts relative to existing conditions based on application of Thresholds of Significance. Figure 18 shows traffic volumes under Existing Plus Project conditions, which consists of Existing traffic volumes (shown on Figure 13) plus added traffic volumes generated by the Project (shown on Figure 15).

Table 12 summarizes the intersection operations results for the Existing No Project and Existing Plus Project conditions. All study intersections would continue to operate at an acceptable LOS. The Modified Project would not cause a significant impact at the study intersections under Existing Plus Project conditions.

Table 13. Intersection LOS Summary – Existing Plus Project

Intersection	Control[1]	Peak Hour	Existing (No Project) Delay[2] (sec)	Existing (No Project) LOS	Existing Plus Project Delay[2] (sec)	Existing Plus Project LOS[2]	Signif. Impact?
19th Street/Broadway	Signal	AM	8.4	A	8.6	A	No
		PM	11.1	B	11.4	B	No
17th Street/Broadway	Signal	AM	14.9	B	15.1	B	No
		PM	9.7	A	10.2	B	No
19th Street/Telegraph Avenue	Signal	AM	6.5	A	6.7	A	No
		PM	8.0	A	8.1	A	No
17th Street/Telegraph Avenue	Signal	AM	12.7	B	12.7	B	No
		PM	12.4	B	12.6	B	No

1 Signal = intersection is controlled by a traffic signal

2 For signalized intersections, average intersection delay and LOS based on the 2010 HCM method is shown.

Source: Fehr & Peers, 2015.

2040 No Project and 2040 Plus Project

Year 2040 traffic forecasts for the study intersections are based on the most recent ACTC Travel Demand Model (released in July 2014). The Model land use database and roadway network were checked for accuracy in the vicinity of the Project. Figure 19 shows the traffic volumes for the 2040 No Project and 2040 Plus Project scenarios. Future year conditions assume that planned transportation improvements such as the Bus Rapid Transit (BRT) project on Broadway, which is planned to reduce southbound Broadway from three travel lanes to two, would be made and complete.

Under the 2040 No Project and 2040 Plus Project conditions, all study intersections would continue to operate at an acceptable LOS and the Modified Project would not cause a significant impact at the study intersections. **Table 14** summarizes intersection LOS calculations.

Table 14. Intersection LOS Summary – 2040 Conditions

Intersection	Control	Peak Hour	2040 No Project		2040 Plus Project		Signif. Impact?
			Delay[2] (sec)	LOS[2]	Delay[2] (sec)	LOS[2]	
19th Street/Broadway	Signal	AM	9.3	A	9.6	A	No
		PM	13.8	B	14.3	B	No
17th Street/Broadway	Signal	AM	15.0	B	15.3	B	No
		PM	11.1	B	11.8	B	No
19th Street/Telegraph Avenue	Signal	AM	6.8	A	7.0	A	No
		PM	9.2	A	9.4	A	No
17th Street/Telegraph Avenue	Signal	AM	13.3	B	13.4	B	No
		PM	13.2	B	13.4	B	No

1 For signalized intersections, average intersection delay and LOS based on the 2010 HCM method is shown.

2 Delay is expressed in seconds per vehicle.

Source: Fehr & Peers, 2015.

Pedestrian and Bicycle Access and Safety

Pedestrian and bicycle access to the Project's residential units would be through a main lobby on Broadway. The commercial spaces would be accessed directly from the respective entrances on the Broadway and 17th Street frontages. The traffic signal at 17th Street and Broadway is expected to provide safe access for pedestrians that may need to cross Broadway or 17th Street. No pedestrian or bicycle safety issues are presented by the proposed location and points of access.

The Project is forecast to generate 7 bicycle trips during the AM peak hour and 10 bicycle trips during the PM peak hour. These trips would be adequately accommodated within the existing street and bicycle network without resulting in capacity issues. Similarly, the Project is forecast to generate 43 pedestrian/walk trips during the AM peak hour and 58 pedestrian/walk trips during the PM peak hour. When combined with the Project generated trips walking to neighborhood transit facilities, these pedestrian trip levels would be adequately accommodated within the surrounding pedestrian network (sidewalks and crosswalks), without causing capacity related issues.

A signalized midblock crossing exists just south of the Project site on Broadway (along the 16th Street alignment). The Latham Square Project proposes to improve this crossing with bulbouts to reduce the crossing distance and improve pedestrian visibility, and a center line median to improve vehicle safety and to provide pedestrian refuge at the midblock crossing. This crossing would remain signalized.

Transit Access

As previously discussed in detail, the Project is located in a high-density, transit-rich neighborhood within downtown Oakland and along the commercial corridors of Telegraph Avenue and Broadway.

Transit service providers in the vicinity include Bay Area Rapid Transit (BART) and AC Transit. The nearest BART station to the Project site is the 19th Street BART Station, about one block north. AC Transit operates multiple major bus routes in the vicinity of the Project, on Broadway.[25] Additional buses, including the Oakland Free Broadway shuttle ("Free B"), operate along Broadway with the nearest stop across 17th Street from the building entrance on Broadway. The Modified Project would not modify access between the Project site and bus stops in the vicinity of the Project; nor would it modify access between the Project site and the BART Station. The Modified Project presents no new or more severe transit-related impacts than were previously identified in the 2000 EIR.

Transit load is not part of the permanent physical environment; transit service changes over time as people change their travel patterns. Therefore, the effect of the proposed Project on transit ridership need not be considered a significant environmental impact under CEQA unless it would cause significant secondary effects, such as causing the construction of new permanent transit facilities which in turn causes physical effects on the environment. Furthermore, an increase in transit ridership is an environmental benefit, not an adverse impact. One of the goals of the Land Use and Transportation Element of the Oakland General Plan is to promote transit ridership. The City of Oakland, however, in its review of the proposed Project, takes into account the Project's potential effect on transit ridership. As such, although not required by CEQA, transit ridership is evaluated in this document as a non-CEQA topic for informational purposes.

The total Project transit trip generation of 57 person trips in the AM peak hour and 77 person trips in the PM peak hour would be spread amongst the myriad of transit opportunities surrounding the Project site. These levels of trips are well within the daily variation in loads on the various providers and would not be expected to have negative effects. The Project is also not anticipated to impact the running times of AC Transit bus routes. As shown in **Tables 13 and 14**, the Project would result in a minimal increase in transit travel times as a result of increases in delay at neighboring intersections.

Consistency with Adopted Policies, Plans or Programs Supporting Alternative Transportation

The Modified Project is consistent with several policies, plans and programs, and would not cause a significant impact by conflicting with adopted policies, plans, or programs supporting public transit, bicycles, or pedestrians. The *City of Oakland General Plan LUTE*, as well as the City's Public Transit and Alternative Mode and Complete Streets policies encourage the use of non-automobile transportation modes, such as transit, bicycling, and walking. The Modified Project would encourage the use of non-automobile transportation modes by providing residential and commercial uses in a dense walkable urban environment that is well-served by local and regional transit.

The Modified Project is consistent with both the City's *Pedestrian Master Plan* (PMP) and *Bicycle Master Plan* by not making major modifications to existing pedestrian or bicycle facilities in the surrounding areas and would not adversely affect installation of future facilities. Further, the Modified Project would adhere to City of Oakland SCA that requires the preparation and implementation of a TDM Plan because the Modified Project would generate more than 50 peak hour trips. The proposed TDM Plan for the Modified Project is presented in Appendix 3 to this CEQA document.

Overall, the Modified Project would not conflict with adopted City policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities. This is a less than significant impact; no mitigation measures are required.

[25] There are 18 bus lines serving close stops along Broadway, including AC Transit's trunk Routes 1/1R, 72/72M/72R, and 51A, plus local buses, night buses, Transbay buses and the Free B shuttle.

Parking Considerations

Amendments to the CEQA Guidelines subsequent to the certification of the 2000 EIR have removed parking as an environmental topic requiring analysis for CEQA compliance. Accordingly, the fact that the Original Project was found to have a significant impact related to insufficient parking supply relative to current and cumulative demand levels is now a moot issue in terms of CEQA compliance. Even so, it should be noted that the Modified Project would provide 232 off-street parking spaces in the building, (approximately one space for 91 percent of the residential units); no parking is provided specifically for the ground floor commercial space. As shown in **Table 16**, the proposed amount of off-street parking for the residential portion of the Modified Project would be less than required under current provisions of Oakland's Planning Code but would be consistent with provisions relating to the ground floor commercial retail space.[26]

Although parking does not relate to environmental impacts required for evaluation under CEQA, this section summarizes the Project's proposed parking supply for automobiles and bicycles.

Parking Supply and Demand

Table 15 summarizes automobile parking demand for the Modified Project. Based on the five-year, 2009-2013 American Community Survey (ACS) data, average automobile ownership in Downtown Oakland[27] is about 0.54 vehicles per unit, which corresponds to peak parking demand of about 137 vehicles for the residents. There could be additional parking demand for the visitors of the residents, which is not captured in the residential parking demand. Commercial uses on the site are expected to generate demand for an additional fifteen vehicles using parking demand rates from the Institute of Transportation Engineers' (ITE) *Parking Generation, 4th Edition* reference. These rates were adjusted using City standard factors for transit, bicycle and walk trips in this portion of the City. Overall, the site is expected to have a parking surplus of approximately 95 residential spaces and a deficit of 15 commercial spaces. Any demand generated by the commercial portions of the site would need to be accommodated in local on-street parking or in other area parking garages that are open to the public.

Table 15. Automobile Parking Supply and Demand

Use	Units[1]	Parking Demand Rate	Parking Demand	Parking Supply	Difference
Residential	254 DU	0.54[2]	137[4]	232	+95
Restaurant / Retail Commercial	6.9 KSF	2.14[3]	15	0	-15

1 DU = dwelling unit; KSF = 1,000 square feet

2 Average automobile ownership per residential unit in Downtown Oakland based on 2013 ACS.

3 ITE Parking Demand, 4th Edition, Land Use Code 820 (Rate = 3.76 spaces/KSF), adjusted by 43% to account for transit, walk and bike trips per City Guidelines.

4 This does not take into account potential parking demand for visitors of the residential units.

SOURCE: Fehr & Peers, 2015.

Table 16 presents the off-street automobile parking requirement for the Modified Project. Based on City of Oakland Municipal Code requirements, the Project would be required to provide 254 parking spaces

[26] Oakland Municipal Code 17.116,060

[27] Census tracts for Downtown Oakland were selected as tracts 4028, 4029, 4030, and 4031.

for the residential use; commercial uses in this portion of the central business district do not need to provide parking. Since the Project would provide 232 parking spaces, there would be a deficit of 22 parking spaces.

Table 16. Automobile Parking Supply and Code Requirements

Use	Units[1]	Code Requirement
Residential	254 DU	254[2]
Restaurant / Retail Commercial	6.9 KSF	0[3]
Total Parking Required		254
Parking Supply		232
Parking Surplus (Deficit)		**(22)**

1 DU = dwelling unit; KSF = 1,000 square feet.

2 City Municipal Code Section 17.116.060 for multi-family dwellings in Zone CBD-P.

3 City Municipal Code Section 17.116.080 for commercial uses in Zone CBD-P.

SOURCE: Fehr & Peers, 2015.

The 2000 EIR found that the Original Project would have a parking deficit of 292 off-street parking spaces at Project buildout. Mitigation Measure B.3 required the Project sponsor to implement a variety of measures designed to address the parking deficit. However, without the certainty that the measures would fully meet parking demand, the impact was found to be significant and unavoidable (SU). Although parking is no longer considered for evaluation under CEQA, the number of parking spaces proposed for the Modified Project would continue to be less than current Oakland Planning Code standards.

The Modified Project would provide 232 parking spaces compared with a code requirement of 254 spaces. While Mitigation Measure B.3 from the 2000 EIR is no longer applicable, the Modified Project would need a Conditional Use Permit to allow the proposed parking deficit. The TDM Plan (see Appendix 3) recommends less than 1 parking space per dwelling because, characteristic of Downtown Oakland, the Project site is "…rich with non-automotive transportation options and nearby amenities…" resulting in the generation of fewer auto trips and a lower demand for parking than comparable developments elsewhere. The proposed TDM program aims to promote use of transit and car share programs and facilitate use of bicycles to decrease usage of the automobile as a primary mode of travel for the developments' residents.

Bicycle Parking Supply and City Code Bicycle Parking Requirements

Chapter 17.117 of the Oakland Municipal Code requires long-term and short-term bicycle parking for new buildings. Long-term bicycle parking includes lockers or locked enclosures and short-term bicycle parking includes bicycle racks. The Code requires one long-term space for every four multi-family dwelling units and one short-term space for every 20 multi-family dwelling units. The Code requires the minimum level of bicycle parking, two long and two short-term spaces, for the commercial component of the Modified Project.

The Modified Project would provide 66 long-term secured bicycle spaces on the ground floor and 16 short-term bicycle parking spaces on the sidewalk fronting the main pedestrian entrance. As shown in

Table 17, City Code requires 66 long-term bicycle parking spaces and 16 short-term bicycle parking spaces. Therefore, the Modified Project would meet both long-term and short-term bicycle space requirements. Per City Code, short-term bicycle parking is required to be within 50 feet of the main entrance and be visible from that location. Short-term parking would be provided with bicycle racks positioned outside the building along the sidewalk frontages, potentially requiring an easement or encroachment permit if within the public right-of-way.

The 2000 EIR did not consider or evaluate the demand or supply of bicycle parking as an environmental topic. As shown in **Table 17**, the City Code now requires a specified number of long- and short-term spaces for bicycles. The Modified Project would provide the required number of long-term bicycle parking and a deficit of seven (7) spaces relative to the required amount of short-term bicycle parking.

Loading Requirements

In accordance with City Municipal Code Section 17.116.140, two loading spaces would be required for the residential component and no loading spaces for the non-residential component. Due to site constraints, the Project can provide one loading space, accessed from the 17th Street garage entry; a minor variance would be required for the lack of the required second loading space.

It should be noted that trucks would be required to back (pulling in forwards would not be geometrically possible) into the proposed loading dock. In order to accomplish this maneuver, the truck would have to pull past the driveway on 17th Street and back into the loading facility. This would require a break in traffic to be provided. Figure 20 illustrates the truck turning templates for an SU-30 vehicle at the facility. An SU-30 vehicle is the largest truck which could fit in the loading dock, and is representative of the typical vehicle which residents would use for moving and neighborhood commercial establishments would use for deliveries.

Site Access/Project Driveway

Access to the proposed Project's parking garage would be provided through a right-in/right-out driveway on 17th Street, which would be used by Project residents and for deliveries. The driveway would be located further away from Broadway by eliminating a conflict between these users on a busy arterial. The two existing driveways to be removed by the project are each approximately 22 feet wide while the proposed new driveway on 17th Street would be 30 feet in width. Multiple pedestrian entrances would be provided along Broadway and 17th Street.

Maximum vehicle queues exiting the Project driveway were calculated to be four vehicles in the PM peak hour and three vehicles in the AM peak hour under 2040 Plus Project conditions. This would be the maximum queue that would be expected to occur during peak periods of site departure. Such a queue could be accommodated internal to the Project's garage leading to the egress location. The maximum vehicle queue entering the Project driveway was calculated to be two vehicles during both the AM and PM peak hours under 2040 Plus Project conditions. This queue would be accommodated in the Project's driveway and would not extend into 17th Street. It would quickly dissipate as the vehicles enter the Project site. Queues during the majority of the day would be expected to be considerably lower than this maximum queue. The following non-CEQA treatment recommendations are suggested for the driveway's interface with the 17th Street sidewalk:

- Provide special sidewalk treatment highlighting the sidewalk within the driveways.
- Provide a stop bar, "STOP" marking, and signage for exiting drivers to look both ways for pedestrians at the Project exit prior to the sidewalk.

On-Street Parking

On-street parking would not be by the Project. Elimination of the existing curb cuts on Broadway and 17th Street would off-set the potential loss of a parking space at the new driveway location on 17th Street. There would be no net loss of on-street parking spaces as a result of the development.

Table 17. Bicycle Parking Supply and Code Requirements

		Long-Term		Short-Term	
Use	**Units[1]**	**Spaces per Unit**	**Total Spaces Required**	**Spaces per Unit**	**Total Spaces Required**
Residential	254 DU	1 per 4 DU	64	1 per 20 DU	13
Commercial	6.9 KSF	Min. of 2	2	Min. of 2	2
Total Required Bicycle Spaces			66		15
Total Bicycle Spaces Provided			66		16
Bicycle Parking Surplus (deficit)			**0**		**1**

1 DU = dwelling unit; KSF = 1,000 square feet.

2 Based on Oakland Municipal Code Sections 17.117.090 and 17.117.110.

SOURCE: Fehr & Peers, 2015.

Applicable Mitigation Measures and/or SCAs

The Modified Project would implement recommended TDM program and strategies.

In addition, the Modified Project will adhere to SCAs related to City review and approval of all improvements proposed in the public right-of-way, reduction of vehicle traffic and parking demand generated by development projects, and construction traffic and parking management, as identified in Attachment A, at the end of the CEQA Checklist. For reference, these are SCA TRA-1 (Construction Activity in the Public Right of Way), SCA TRA-2 (Bicycle Parking) and SCA TRA-3 (Transportation and Parking Demand Management (TDM)).

Conclusion

The Modified Project would not result in significant impacts to the Project study intersections, either under the Existing Plus Project conditions or Year 2040 Plus Project conditions.

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR and the other Program EIRs, implementation of the Modified Project would not substantially increase the severity of significant impacts identified in the 2000 EIR or the other Program EIRs, nor would it result in new significant impacts related to transportation and circulation that were not identified in the 2000 EIR or the other Program EIR, as summarized below.

The Modified Project would provide fewer off-street parking for cars than required by the City's Planning Code. The deficiency would either be sanctioned through approval of a Conditional Use Permit or the Project would include the required number of spaces through the use of stacking devices. In either case, the Project's proposed parking for cars would fully resolve the one aspect of the Original Project that was found to result in a significant environmental impact, and Mitigation Measure B.3 from the 2000 EIR would not be applicable.

The transportation assessment prepared for the Modified Project concluded that when combined with other under construction, approved, and proposed development projects in the Plan area, traffic impacts resulting from the Project would be less than significant and no mitigation is required.

Figure 13. Existing Lane Configurations, Traffic Control and Peak Hour Traffic Volumes

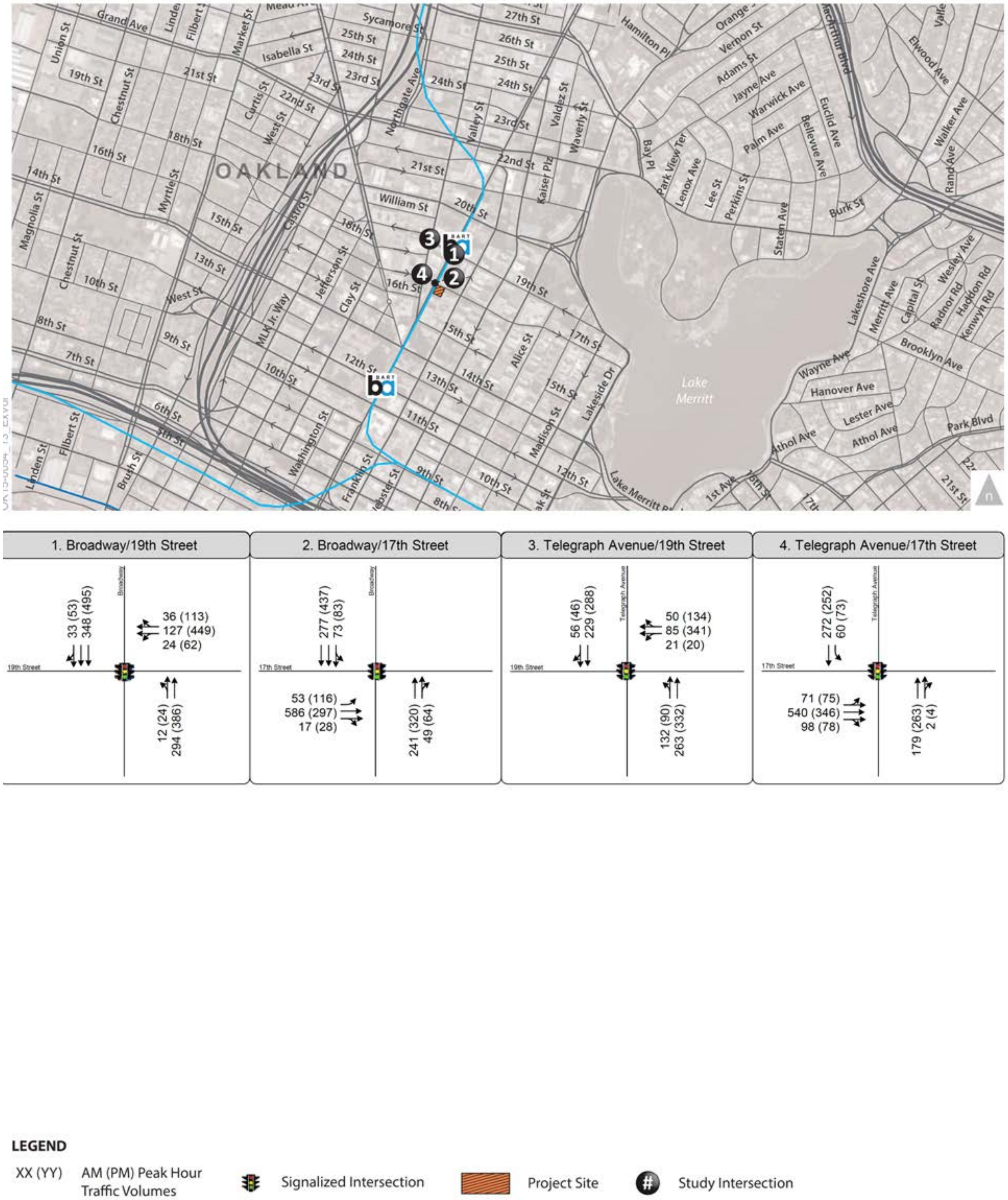
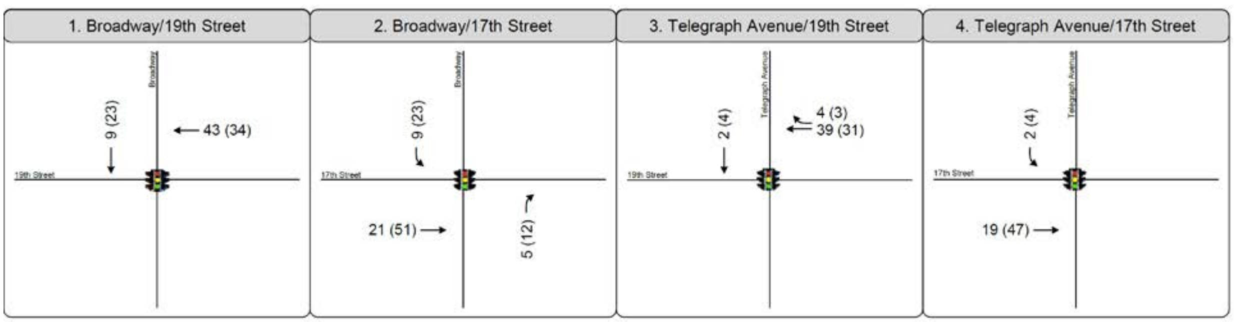


Figure 14. Project Trip Distribution

Figure 15. Peak Hour Project Trip Assignment



LEGEND

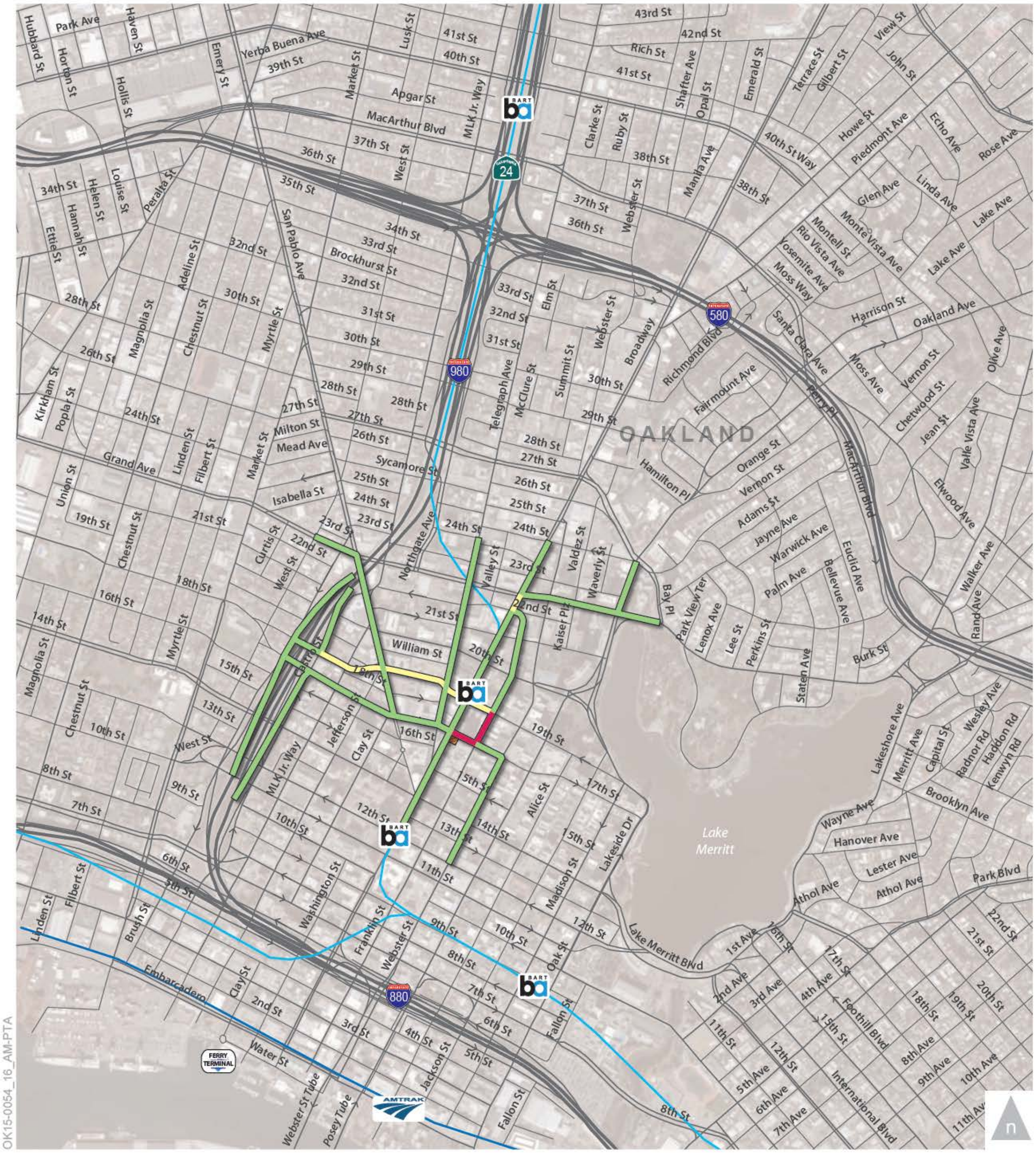
XX (YY) AM (PM) Peak Hour Traffic Volumes

Signalized Intersection

Project Site

Study Intersection

Figure 16. AM Peak Hour Trip Assignment



LEGEND

Project Site

Project Trip Assignment

Greater than 50

25 to 50

5 to 25

Figure 17. PM Peak Hour Project Trip Assignment

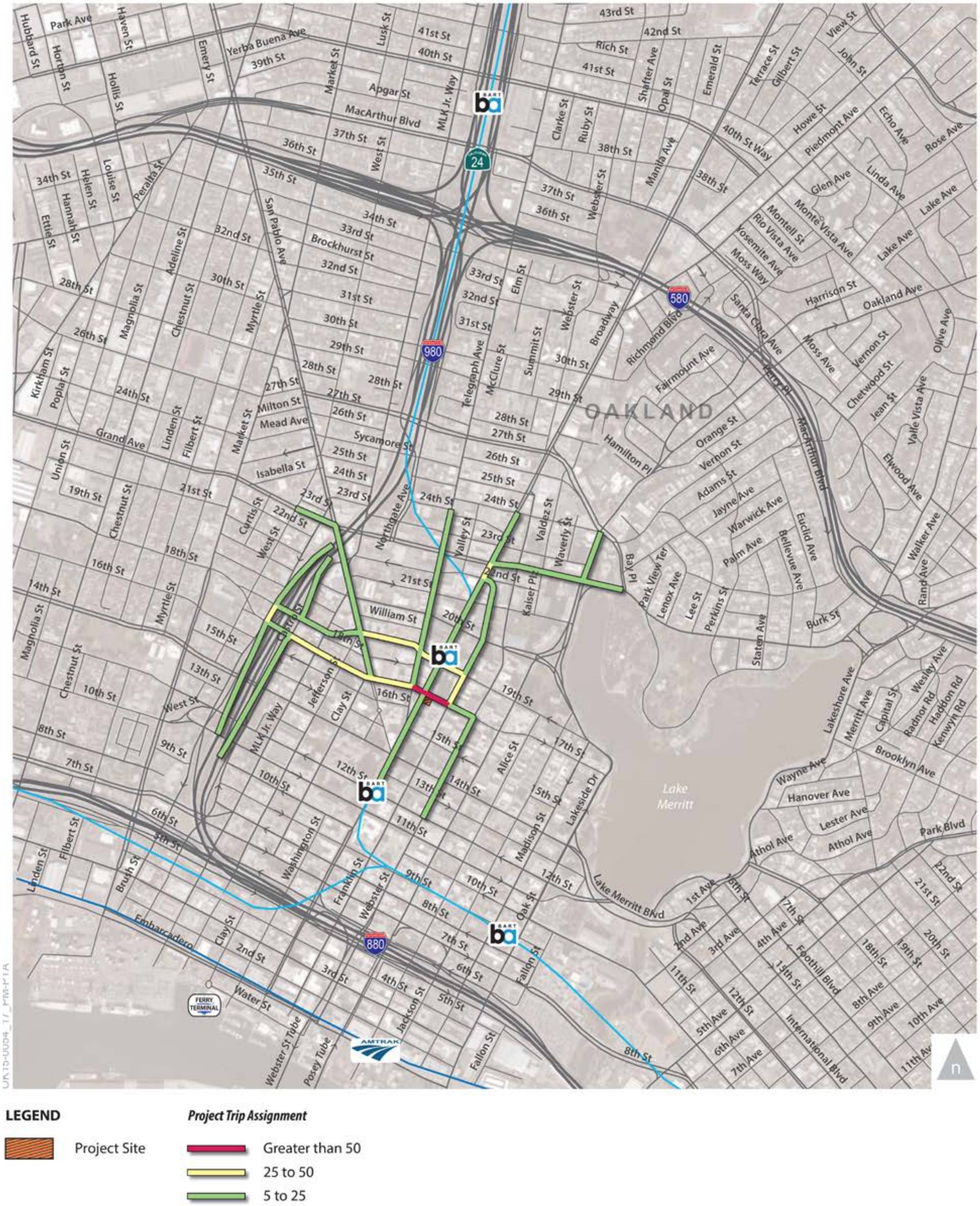


Figure 18. Existing Plus Project Lane Configurations, Traffic Control and Peak Hour Traffic Volumes

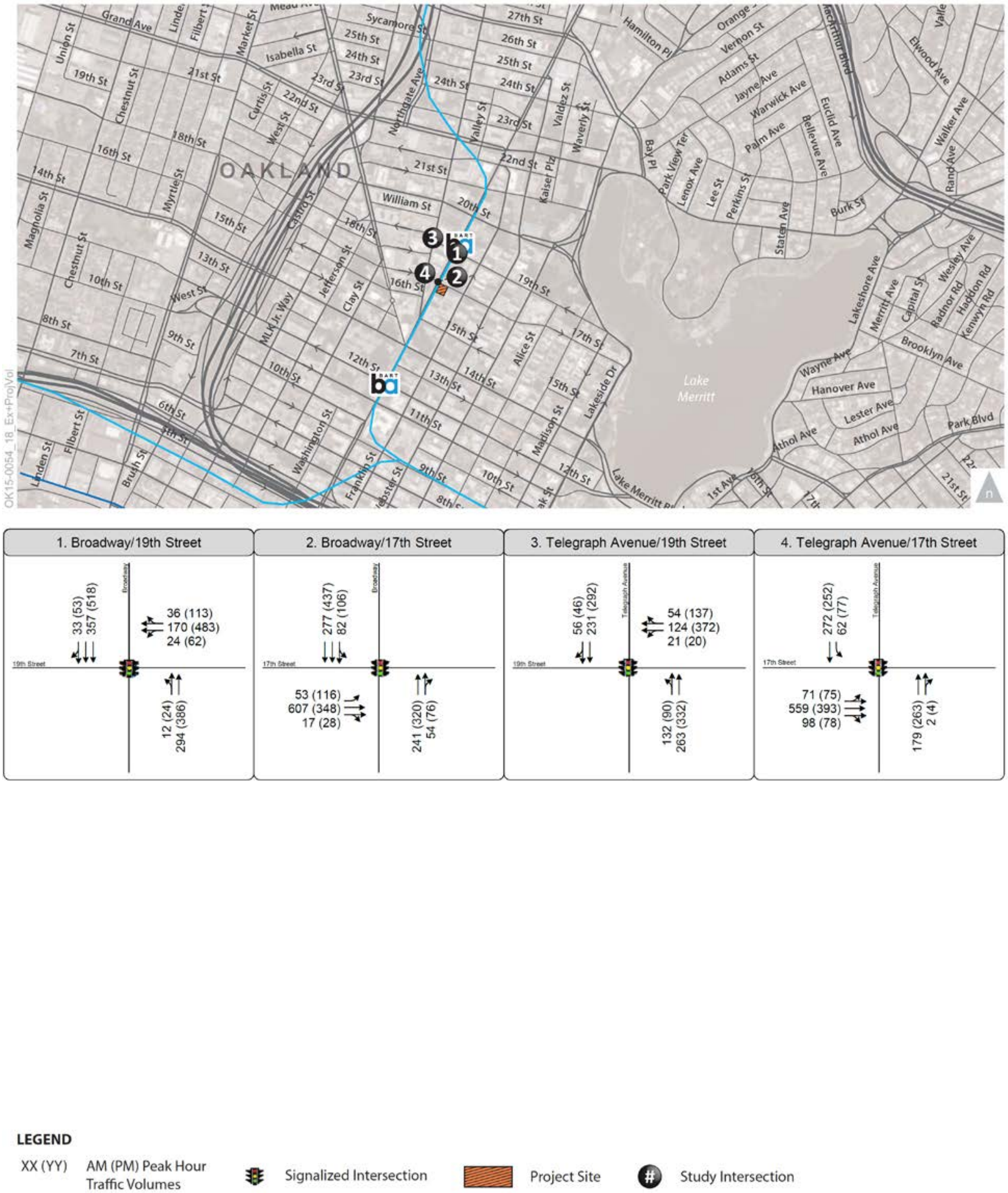


Figure 19. 2040 No Project and 2040 Plus Project Lane Configurations, Traffic Control and Peak Hour Traffic Volumes

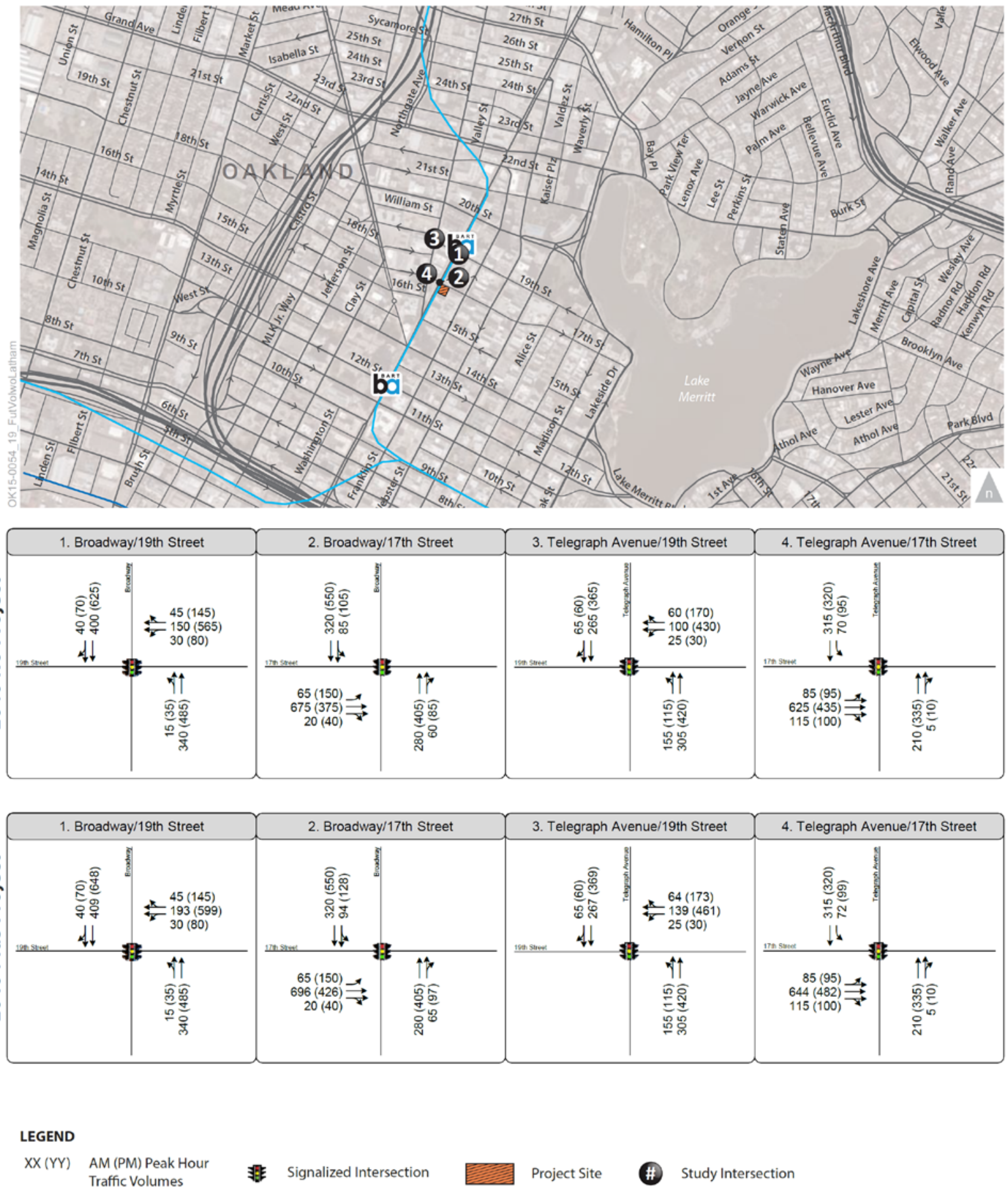
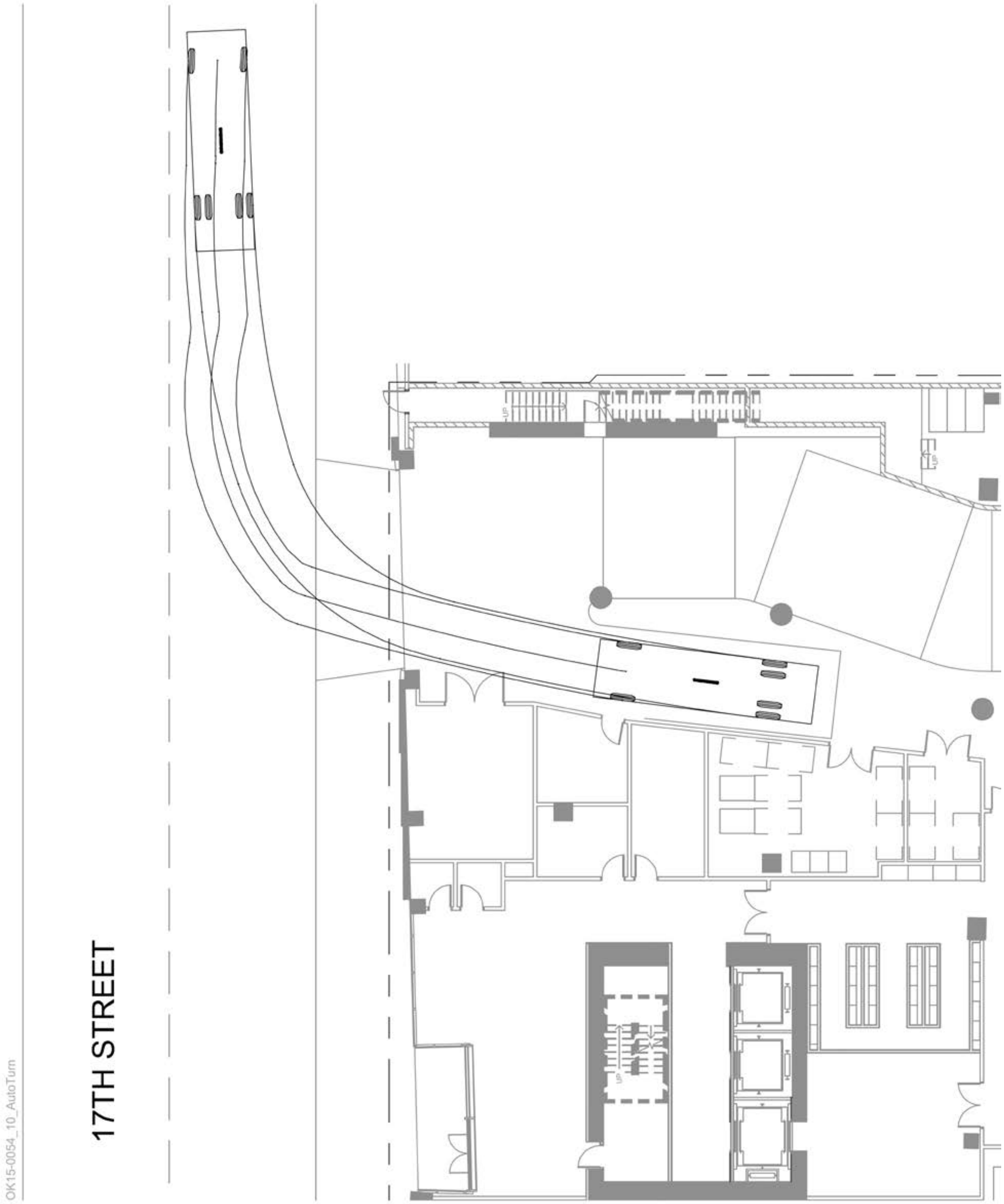


Figure 20. Project Site Truck Access



14. Utilities and Service Systems Would the project:	**Equal or Less Severity of Impact Previously Identified in the Previous CEQA Documents**	**Substantial Increase in Severity of Previously Identified Significant Impact in Previous CEQA Documents**	**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.	☒	☐	☐

Water, Wastewater, and Stormwater (Criteria14a and 14b)

Previous EIR Conclusions

The water and sanitary sewer demand and stormwater facilities, as well as solid waste and energy associated with the Original Project were addressed in the 2000 EIR and determined to not result in significant impacts. No mitigation was required. 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; and would not result in a shortfall in water supply or wastewater treatment capacity.

The Housing Element EIR and 2011 Redevelopment Plan EIR considered in this analysis found less-than-significant impacts related to water, wastewater, or stormwater facilities, finding no mitigation measures warranted with adherence to certain City of Oakland SCAs. The LUTE EIR identified a significant effect regarding these topics and identified mitigation measures that reduced the effects to less than significant. The 1998 LUTE EIR, which was certified prior to the City adoption of SCAs, identified mitigation measures that are functionally equivalent to the SCAs that would reduce potential effects on public services to less than significant.

Modified Project Assessment

As previously described in this CEQA Checklist (see *11. Population and Housing*, and *12. Public Services, Parks and Recreation Facilities*), development would increase density and population in the area but 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. The Project has been accounted for in the water demand projections associated with development of the Original Project. Further, the development would occur in an urban area already served by public service utilities and infrastructure.

No changes with respect to the environmental issues listed above have occurred. The Modified 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. Therefore, the Modified Project would not result in any new or more substantial effect on water and sewer services. The impact would remain less than significant.

As previously discussed (see *8 Hydrology and Water Quality*), new development of the Modified Project would likely decrease storm drain runoff through the Modified Project's incorporation of City of Oakland SCAs intended to reduce runoff (and maintain stormwater quality). Development of the Modified Project may increase sewer demand, and implementation of SCAs requiring stormwater control during and after construction would address potential impacts on stormwater treatment and sanitary sewer infrastructure.

Applicable Mitigation Measures and/or SCAs

As indicated in Attachment A, applicable SCAs include SCA HYD1 (State Construction General Permit), SCA HYD-2 (Site Design Measures to Reduce Stormwater Runoff), UTIL-5 (Sanitary Sewer System), SCA UTIL-6 (Storm Drain System), and SCA UTIL-7 (Recycled Water). The impact of the Modified Project regarding stormwater and sanitary sewer infrastructure would remain less than significant as identified in the 2000 EIR. No mitigation measures would apply.

Solid Waste Services (Criterion 14c)

Previous EIR Conclusions

Original Project impacts related to solid waste were addressed in the 2000 EIR and determined to not result in significant impacts and no mitigation was required. The 2000 EIR determined that development of the Original Project would not require or result in the expansion of existing solid waste facilities, would not overburden landfill(s), and would comply with federal, state, and local statutes related to solid waste.

Most of the Program EIRs considered in this analysis found less-than-significant impacts related to solid waste, adhering to City of Oakland SCAs; no mitigation measures were warranted. The LUTE EIR identified a significant effect regarding solid waste and identified a mitigation measure that reduced the effect to less than significant. The 1998 LUTE EIR, which was certified prior to the City adoption of SCAs, identified mitigation measures that are functionally equivalent to the SCAs that would reduce potential effects on public services to less than significant.

Modified Project Assessment

Nonhazardous solid waste from normal day-to-day operation of the Modified 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 development with the Modified Project, as determined in the 2000 EIR.

Applicable Mitigation Measures and/or SCAs

The Modified Project will 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 applicable SCA is SCA UTIL-1 (Construction and Demolition Waste Reduction and Recycling) and SCA UTIL-3 (Recycling Collection and Storage Space). The impact regarding solid waste services would remain less than significant as identified in the 2000 EIR. No mitigation measures would apply.

Energy (Criterion 14d)

Previous EIR Conclusions

The 2000 EIR did not address impacts related to energy standards or use.

Since information regarding energy usage was known, or could have been known, when the 2000 EIR or other the Program EIRs was being prepared, it is not legally "new information" as specifically defined under CEQA.

The Program EIRs considered in this analysis all found less-than-significant impacts related to energy; with adherence to City of Oakland SCAs; no mitigation measures were warranted.

Modified Project Assessment

The Modified Project would comply with the standards of Title 24 of the California Code of Regulations. City of Oakland SCAs pertaining to compliance with CalGREEN and the Green Building Ordinance would require construction projects to incorporate energy-conserving design measures. The Modified Project's impact regarding energy would be less than significant.

Applicable Mitigation Measures and/or SCAs

City of Oakland SCAs pertaining to compliance with CalGREEN and the Green Building Ordinance would require construction projects to incorporate energy-conserving design measures. The applicable SCA is SCA UTIL-4 (Green Building Requirements). The Modified Project's impact regarding energy would be less than significant.

Conclusion

Based on an examination of the analysis, findings, and conclusions of the 2000 EIR and the other Program EIRs, implementation of the Modified Project would not substantially increase the severity of significant impacts identified in the 2000 EIR or other Program EIRs, nor would it result in new significant impacts related to utilities and service systems that were not identified in the 2000 EIR or the other Program EIRs. The 2000 EIR did not identify any mitigation measures related to utilities and service systems, and none would be required for the Modified Project. The scope of environmental review of projects that qualify for a Community Plan Exemption or for Infill Streamlining pursuant to sections 15183 and 15183.3 of the CEQA Guidelines is limited to project-specific environmental effects which are peculiar to the Project or site or are potentially significant off-site or cumulative impacts which were not discussed in the Previous CEQA Documents. The Modified Project would not result in significant off-site or cumulative effects related to cultural resources not previously discussed.

X. 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.)

Housing Element Update

City of Oakland, *Draft EIR for the 2007-2015 Housing Element Update*, 2009.

City of Oakland, *Final EIR for the 2007-2015 Housing Element Update*, 2010.

City of Oakland, *2015-2023 Housing Element Addendum to the 2010 Housing Element EIR*, 2014.

Central District Urban Renewal Plan Amendment (Redevelopment Plan)

Oakland Redevelopment Agency, *Draft EIR for the Proposed Amendments to the Central District Urban Renewal Plan*, March 2011.

Oakland Redevelopment Agency, *Final EIR for the Proposed Amendments to the Central District Urban Renewal Plan,* June 2011.

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

General Plan Land Use and Transportation Element

City of Oakland, *1998 LUTE Draft EIR,* 1997.

City of Oakland, *1998 LUTE Final EIR*, February 1998.

City of Oakland, 2007. *Land Use and Transportation Element of the Oakland General Plan,* March 24, 1998, amended to June 21, 2007.

Plan Bay Area

Metropolitan Transportation Commission and Association of Bay Area Governments, 2013. *Plan Bay Area, Strategy for a Sustainable Region*. Adopted July 18, 2013.

Oakland Planning Code

City of Oakland, 2013. *City of Oakland Planning Code. CEDA: Planning and Zoning*. http://www2.oaklandnet.com/oakca1/groups/ceda/documents/report/oak032032.pdf, accessed August 14, 2015.

1640 Broadway Project EIR and Technical Reports

City of Oakland, August 2000, *1640 Broadway Mixed Use Development Project, Draft Environmental Impact Report,* Final Environmental Impact Report, ER 00-02.

Fehr & Peers, *1640 Broadway Project –Transportation Impact Analysis*, (LOS Worksheets), October 28, 2015

Fehr & Peers, *Transportation and Parking Demand Management (TDM) Plan for 1640 Broadway Development in Oakland*, December 9, 2015.

Illingworth & Rodkin, *1640 Broadway Mixed-Use Residential Development Project, Oakland, California*, November 2, 2015 *Results of Air Quality Modeling, Health Risk Screening and Greenhouse Gas and Climate Change Screening Modeling*

RWDI, *1640 Broadway, Oakland, California Pedestrian Wind Conditions Consultation, Wind Tunnel Tests*, December 3, 2015

RWDI, *1640 Broadway Oakland, CA Sun-Shadow Study*, September 2, 2015

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 Analysis prepared for the Modified 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 recommended in the 2000 EIR. The SCAMMRP also includes the City's Standard Conditions of Approval ("SCAs") imposed by the City on all projects with locational or other characteristics shared by the Modified Project; the City's intent in imposing these Standard Conditions of Approval is to minimize potential adverse effects that could result from implementation of the Project and to ensure the conditions are implemented and monitored. The SCAMMRP also identifies the mitigation monitoring requirements for each mitigation measure and SCA.

This CEQA Analysis is also based on the analysis in the following Program EIRs that apply to the Modified Project: Oakland's 1998 General Plan Land Use and Transportation Element (LUTE) EIR, the 2010 General Plan Housing Element Update EIR and 2014 Addendum, and the 2011 Central District Urban Renewal Plan Amendments EIR (or "Redevelopment Plan EIR"). However, none of the mitigation measures or SCAs from these is included in this SCAMMRP because an updated and equally effective mitigation measure or SCA, is identified in the 2000 EIR or in this CEQA Analysis for the Modified Project. Thus, the revised /current SCAs are designed to and will reduce impacts to less than significant levels. 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 Analysis were inadvertently omitted, they are automatically incorporated herein by reference.

- The first column of the SCAMMRP table identifies the mitigation measure from the 2000 EIR that continues to apply to the Project or the Standard Condition of Approval (SCA) that is applicable to the Project pursuant to City of Oakland policy. While a mitigation measure or SCA can apply to more than one topic, it is listed in its entirety only under its primary topic where it first appears. The SCAs are identified by a number that is consistent with the most recent update or revision to the City's *Standard Conditions of Approval and Uniformly Applied Development Standards* document.[28]
- The second column identifies the monitoring schedule or timing applicable the Project.
- The third column names the party responsible for monitoring the required action for the Project.

The Project sponsor is responsible for compliance with any recommendations identified in City-approved technical reports 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 or the Bureau of Building. Prior to the

[28] Standard Conditions Of Approval, Department Of Planning and Building, Bureau of Planning, Adopted by the Oakland City Council on 11/03/08 (Ordinance No. 12899 C.M.S.) Revised July 22, 2015.

issuance of a demolition, grading, and/or construction permit, the Project sponsor shall pay the applicable mitigation and monitoring fee to the City in accordance with the City's Master Fee Schedule.

<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">Aesthetics, Shadow and Wind</td></tr>
<tr><td>AES-1 (SCA-17, 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.</td><td>Prior to approval of construction-related permit.</td><td>City of Oakland Bureau of Planning</td></tr>
<tr><td>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.</td><td>Prior to building permit final.</td><td>City of Oakland Bureau of Planning</td></tr>
<tr><td>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.</td><td>Ongoing</td><td>City of Oakland Bureau of Building</td></tr>
</table>

<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>AES-2 (SCA-18, Lighting Plan)
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. .</td><td>Prior to building permit final.</td><td>City of Oakland Bureau of Building</td></tr>
<tr><td colspan="3">Air Quality</td></tr>
<tr><td>SCA AIR-1 (SCA-19, Construction-Related Air Pollution Controls, Dust and Equipment Emissions; (Replaces Mitigation Measure C.1 from the 2000 EIR))
The project applicant shall implement all of the following applicable air pollution control measures during construction of the project:
a) Water all exposed surfaces of active construction areas at least twice daily. Watering should be sufficient to prevent airborne dust from leaving the site. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water should be used whenever possible.
b) Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer).
c) All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
d) Pave all roadways, driveways, sidewalks, etc. within one month of site grading or as soon as feasible. In addition, building pads should be laid within one month of grading or as soon as feasible unless seeding or soil binders are used.
e) Enclose, cover, water twice daily, or apply (non-toxic) soil stabilizers to exposed stockpiles (dirt, sand, etc.).
f) Limit vehicle speeds on unpaved roads to 15 miles per hour.
g) Idling times on all diesel-fueled commercial vehicles over 10,000 lbs. shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics</td><td>During construction.</td><td>City of Oakland Bureau of Building</td></tr>
</table>

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	Responsibility
control measure Title 13, Section 2485, of the California Code of Regulations). Clear signage to this effect shall be provided for construction workers at all access points. h) Idling times on all diesel-fueled off-road vehicles over 25 horsepower shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes and fleet operators must develop a written idling policy as required by Title 13, Section 2449 of the California Code of Regulations ("California Air Resources Board Off-Road Diesel Regulations"). i) All construction equipment shall be maintained and properly tuned in accordance with the manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. j) Portable equipment shall be powered by electricity if available. If electricity is not available, propane or natural gas shall be used if feasible. Diesel engines shall only be used if electricity is not available and it is not feasible to use propane or natural gas. k) All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe. l) All excavation, grading, and demolition activities shall be suspended when average wind speeds exceed 20 mph. m) Install sandbags or other erosion control measures to prevent silt runoff to public roadways. n) Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for one month or more). o) Designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holidays and weekend periods when work may not be in progress. p) Install appropriate wind breaks (e.g., trees, fences) on the windward side(s) of actively disturbed areas of the construction site to minimize windblown dust. Wind breaks		

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	**Responsibility**
must have a maximum 50 percent air porosity. q) Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established. r) Activities such as excavation, grading, and other ground-disturbing construction activities shall be phased to minimize the amount of disturbed surface area at any one time. s) All trucks and equipment, including tires, shall be washed off prior to leaving the site. t) Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel. u) All equipment to be used on the construction site and subject to the requirements of Title 13, Section 2449, of the California Code of Regulations ("California Air Resources Board Off-Road Diesel Regulations") must meet emissions and performance requirements one year in advance of any fleet deadlines. Upon request by the City, the project applicant shall provide written documentation that fleet requirements have been met. v) Use low VOC (i.e., ROG) coatings beyond the local requirements (i.e., BAAQMD Regulation 8, Rule 3: Architectural Coatings). w) All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of NO_X and PM. x) Off-road heavy diesel engines shall meet the California Air Resources Board's most recent certification standard. y) Post a publicly-visible large on-site sign that includes the contact name and phone number for the project complaint manager responsible for responding to dust complaints and the telephone numbers of the City's Code Enforcement unit and the Bay Area Air Quality Management District. When contacted, the project complaint manager shall respond and take corrective action within 48 hours.		
SCA AIR-2 (SCA-20, Exposure to Air Pollution (Toxic Air	.	City of Oakland

<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>

Contaminants))

a) Health Risk Reduction Measures

The project applicant shall incorporate appropriate measures into the project design in order to reduce the potential health risk due to exposure to toxic air contaminants. The project applicant shall choose one of the following methods:

i. The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with California Air Resources Board (CARB) and Office of Environmental Health and Hazard Assessment requirements to determine the health risk of exposure of project residents/occupants/users to air pollutants. The HRA shall be submitted to the City for review and approval. If the HRA concludes that the health risk is at or below acceptable levels, then health risk reduction measures are not required. If the HRA concludes that the health risk exceeds acceptable levels, health risk reduction measures shall be identified to reduce the health risk to acceptable levels. Identified risk reduction measures shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City.

\- or -

ii. The project applicant shall incorporate the following health risk reduction measures into the project. These features shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City:

- Installation of air filtration to reduce cancer risks and Particulate Matter (PM) exposure for residents and other sensitive populations in the project that are in close proximity to sources of air pollution. Air filter devices shall be rated MERV-13 or higher. As part of implementing this measure, an ongoing maintenance plan for the building's HVAC air filtration system shall be required.
- Where appropriate, install passive electrostatic filtering systems, especially those with low air

</td><td>Note: Health Risk Assessment has been prepared; see Appendix 1b to this CEQA document. Thus, this SCA has been satisfied.</td><td>Bureau of Planning</td></tr>
</table>

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	**Responsibility**
velocities (i.e., 1 mph). • Phasing of residential developments when proposed within 500 feet of freeways such that homes nearest the freeway are built last, if feasible. • The project shall be designed to locate sensitive receptors as far away as feasible from the source(s) of air pollution. Operable windows, balconies, and building air intakes shall be located as far away from these sources as feasible. If near a distribution center, residents shall be located as far away as feasible from a loading dock or where trucks concentrate to deliver goods. • Sensitive receptors shall be located on the upper floors of buildings, if feasible. • Planting trees and/or vegetation between sensitive receptors and pollution source, if feasible. Trees that are best suited to trapping PM shall be planted, including one or more of the following: Pine (Pinus nigra var. maritima), Cypress (X Cupressocyparis leylandii), Hybrid popular (Populus deltoids X trichocarpa), and Redwood (Sequoia sempervirens). • Sensitive receptors shall be located as far away from truck activity areas, such as loading docks and delivery areas, as feasible. • Existing and new diesel generators shall meet CARB's Tier 4 emission standards, if feasible. • Emissions from diesel trucks shall be reduced through implementing the following measures, if feasible: o Installing electrical hook-ups for diesel trucks at loading docks. o Requiring trucks to use Transportation Refrigeration Units (TRU) that meet Tier 4 emission standards. o Requiring truck-intensive projects to use advanced exhaust technology (e.g., hybrid) or alternative fuels. o Prohibiting trucks from idling for more than two minutes. o Establishing truck routes to avoid sensitive receptors in the project. A truck route program,		

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	**Responsibility**
along with truck calming, parking, and delivery restrictions, shall be implemented. ***b. Maintenance of Health Risk Reduction Measures*** The project applicant shall maintain, repair, and/or replace installed health risk reduction measures, including but not limited to the HVAC system (if applicable), on an ongoing and as-needed basis. Prior to occupancy, the project applicant shall prepare and then distribute to the building manager/operator an operation and maintenance manual for the HVAC system and filter including the maintenance and replacement schedule for the filter.	On Going	City of Oakland Bureau of Building
SCA AIR-3 (SCA-21, Stationary Sources of Air Pollution (Toxic Air Contaminants) The project applicant shall incorporate appropriate measures into the project design in order to reduce the potential health risk due to on-site stationary sources of toxic air contaminants. The project applicant shall choose one of the following methods: a. The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with California Air Resources Board (CARB) and Office of Environmental Health and Hazard Assessment requirements to determine the health risk associated with proposed stationary sources of pollution in the project. The HRA shall be submitted to the City for review and approval. If the HRA concludes that the health risk is at or below acceptable levels, then health risk reduction measures are not required. If the HRA concludes the health risk exceeds acceptable levels, health risk reduction measures shall be identified to reduce the health risk to acceptable levels. Identified risk reduction measures shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City. - or - b. The project applicant shall incorporate the following health risk reduction measures into the project. These features shall be submitted to the City for review and approval and	Note: Health Risk Assessment has been prepared; see Appendix 1 to this CEQA document. Thus, this SCA has been satisfied.	City of Oakland Bureau of Planning

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	Responsibility
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.		
SCA AIR-4 (SCA-22, Truck-Related Risk Reduction Measures (Toxic Air Contaminants) ***a. Truck Loading Docks*** The project applicant shall locate proposed truck loading docks as far from nearby sensitive receptors as feasible. ***b. Truck Fleet Emission Standards*** The project applicant shall comply with all applicable California Air Resources Board (CARB) requirements to control emissions from diesel engines and demonstrate compliance to the satisfaction of the City. Methods to comply include, but are not limited to, new clean diesel trucks, lower-tier diesel engine trucks with added Particulate Matter (PM) filters, hybrid trucks, alternative energy trucks, or other methods that achieve the applicable CARB emission standard. Compliance with this requirement shall be verified through CARB's Verification Procedures for In-Use Strategies to Control Emissions from Diesel Engines.	Prior approval of construction-related permit Prior to building permit final; ongoing	City of Oakland Bureau of Planning (Initial Approval); Bureau of Building (Monitoring & Inspections)
Biological Resources		
SCA GEO-1 (SCA-34, Soils Report (See *Geology, Soils and Geohazards*, below))	See Below	See Below
SCA HAZ-1 (SCA-39, Hazardous Materials Related to Construction (*See Hazards and Hazardous Materials, below))*	See Below	See Below
SCA HYD-1 (SCA-46, State Construction General Permit (See *Hydrology and Water Quality*, below)**)**	See Below	See Below

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	Responsibility
SCA HYD-2 (SCA-48, Site Design Measures to Reduce Stormwater Runoff (See *Hydrology and Water Quality*, below)) **SCA HYD-3 (SCA-44, Erosion and Sedimentation Control Measures for Construction** (See *Hydrology and Water Quality*, below)**)**		
Cultural Resources		
SCA CUL-1 (SCA-29, Archaeological and Paleontological Resources – Discovery During Construction) 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	During construction	City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	**Responsibility**
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 Modified Project. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods are practicable. Because the intent of the ARDTP is to save as much of the archaeological resource as possible, including moving the resource, if feasible, preparation and implementation of the ARDTP would reduce the potential adverse impact to less than significant. The project applicant shall implement the ARDTP at his/her expense. In the event of excavation of paleontological resources, the project applicant shall submit an excavation plan prepared by a qualified paleontologist to the City for review and approval. All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and/or a report prepared by a qualified paleontologist, as appropriate, according to current professional standards and at the expense of the project applicant.		
SCA CUL-2 (SCA-31, Human Remains – Discovery During Construction) 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	During construction	City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	Responsibility
applicable) shall be completed expeditiously and at the expense of the project applicant.		
Geology, Soils and Geohazards		
SCA GEO-1 (SCA-34, Soils Report) 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
SCA GEO-2 (SCA-33, Construction-Related Permit(s)) 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
Greenhouse Gases and Climate Change		
None Required		
Hazards and Hazardous Materials		
SCA HAZ-1 (SCA-39, Hazardous Materials Related to Construction) 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;	During construction	City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	**Responsibility**
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.		
SCA HAZ-2 (SCA-40, Site Contamination) ***a. Environmental Site Assessment Required*** The project applicant shall submit a Phase I Environmental Site Assessment report, and Phase II Environmental Site Assessment report if warranted by the Phase I report, for the project site for review and approval by the City. The report(s) shall be prepared by a qualified environmental assessment professional and include recommendations for remedial action, as appropriate, for hazardous materials. The project applicant shall implement the approved recommendations and submit to the City evidence of approval for any proposed remedial action and required clearances by the	Prior to approval of construction-related permit Prior to approval of construction-related permit During	Oakland Fire Department (initial approval) Oakland Fire Department (monitoring/ inspection) City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	Responsibility
applicable local, state, or federal regulatory agency. ***b. Health and Safety Plan Required*** The project applicant shall submit a Health and Safety Plan for the review and approval by the City in order to protect project construction workers from risks associated with hazardous materials. The project applicant shall implement the approved Plan. ***c. Best Management Practices (BMPs) Required for Contaminated Sites*** The project applicant shall ensure that Best Management Practices (BMPs) are implemented by the contractor during construction to minimize potential soil and groundwater hazards. These shall include the following: i) Soil generated by construction activities shall be stockpiled on-site in a secure and safe manner. All contaminated soils determined to be hazardous or non-hazardous waste must be adequately profiled (sampled) prior to acceptable reuse or disposal at an appropriate off-site facility. Specific sampling and handling and transport procedures for reuse or disposal shall be in accordance with applicable local, state, and federal requirements. ii) Groundwater pumped from the subsurface shall be contained on-site in a secure and safe manner, prior to treatment and disposal, to ensure environmental and health issues are resolved pursuant to applicable laws and policies. Engineering controls shall be utilized, which include impermeable barriers to prohibit groundwater and vapor intrusion into the building.	Construction	City of Oakland Bureau of Building
Hydrology and Water Quality		
SCA HYD-1 (SCA-46, State Construction General Permit) The project applicant shall comply with the requirements of the Construction General Permit issued by the State Water Resources Control Board (SWRCB). The project applicant shall submit a Notice of Intent (NOI), Stormwater Pollution Prevention Plan (SWPPP), and other required Permit Registration Documents to SWRCB. The project applicant shall	Prior to approval of construction-related permit	State Water Resources Control Board; evidence of compliance submitted to Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	**Responsibility**
submit evidence of compliance with Permit requirements to the City.		
SCA HYD-2 (SCA-48, Site Design Measures to Reduce Stormwater Runoff) Pursuant to Provision C.3 of the Municipal Regional Stormwater Permit issued under the National Pollutant Discharge Elimination System (NPDES), the project applicant is encouraged to incorporate appropriate site design measures into the project to reduce the amount of stormwater runoff. These measures may include, but are not limited to, the following: a. Minimize impervious surfaces, especially directly connected impervious surfaces and surface parking areas; b. Utilize permeable paving in place of impervious paving where appropriate; c. Cluster structures; d. Direct roof runoff to vegetated areas; e. Preserve quality open space; and f. Establish vegetated buffer areas.	Ongoing	N/A
SCA HYD-3 (SCA-49, Source Control Measures to Limit Stormwater Pollution) Pursuant to Provision C.3 of the Municipal Regional Stormwater Permit issued under the National Pollutant Discharge Elimination System (NPDES), the project applicant is encouraged to incorporate appropriate source control measures to limit pollution in stormwater runoff. These measures may include, but are not limited to, the following: a. Stencil storm drain inlets "No Dumping – Drains to Bay;" b. Minimize the use of pesticides and fertilizers; c. Cover outdoor material storage areas, loading docks, repair/maintenance bays and fueling areas; d. Cover trash, food waste, and compactor enclosures; and e. Plumb the following discharges to the sanitary sewer system, subject to City approval: f. Discharges from indoor floor mats, equipment, hood	Ongoing	N/A

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	**Responsibility**
filter, wash racks, and, covered outdoor wash racks for restaurants; g. Dumpster drips from covered trash, food waste, and compactor enclosures; h. Discharges from outdoor covered wash areas for vehicles, equipment, and accessories; i. Swimming pool water, if discharge to on-site vegetated areas is not feasible; and j. Fire sprinkler teat water, if discharge to on-site vegetated areas is not feasible.		
SCA HYD-4 (SCA-50, NPDES C.3 Stormwater Requirements for Regulated Projects) ***a. Post-Construction Stormwater Management Plan*** 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*** The project applicant shall enter into a maintenance	Prior to approval of construction-related permit	City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	**Responsibility**
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.	Prior to building permit final	City of Oakland Bureau of Building
Also **SCA GEO-1 and SCA GEO-2.** See *Geology, Soils* above.		
Noise		
SCA NOI-1 (SCA-58, Construction Days/Hours (*Note: This SCA replaces Mitigation Measure D.1a from the 2000 EIR)***)** The project applicant shall comply with the following restrictions concerning construction days and hours: a. Construction activities are limited to between 7:00 a.m. and 7:00 p.m. Monday through Friday, except that pier drilling and/or other extreme noise generating activities greater than 90 dBA shall be limited to between 8:00 a.m. and 4:00 p.m. b. Construction activities are limited to between 9:00 a.m. and 5:00 p.m. on Saturday. In residential zones and within 300 feet of a residential zone, construction activities are allowed from 9:00 a.m. to 5:00 p.m. only within the interior of the building with the doors and windows closed. No pier drilling or other extreme noise generating activities greater than 90 dBA are allowed on Saturday.	During construction	City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	**Responsibility**
c. No construction is allowed on Sunday or federal holidays. Construction activities include, but are not limited to, truck idling, moving equipment (including trucks, elevators, etc.) or materials, deliveries, and construction meetings held on-site in a non-enclosed area. Any construction activity proposed outside of the above days and hours for special activities (such as concrete pouring which may require more continuous amounts of time) shall be evaluated on a case-by-case basis by the City, with criteria including the urgency/emergency nature of the work, the proximity of residential or other sensitive uses, and a consideration of nearby residents'/occupants' preferences. The project applicant shall notify property owners and occupants located within 300 feet at least 14 calendar days prior to construction activity proposed outside of the above days/hours. When submitting a request to the City to allow construction activity outside of the above days/hours, the project applicant shall submit information concerning the type and duration of proposed construction activity and the draft public notice for City review and approval prior to distribution of the public notice.		
SCA NOI-2 (SCA-59, Construction Noise (*Note: This SCA replaces Mitigation Measure D1.b from the 2000 EIR)* 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	During construction	City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	**Responsibility**
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.		
SCA NOI-3 (SCA-60, Extreme Construction Noise *(Note: This SCA replaces Mitigation Measure D1.c from the 2000 EIR)* ***a. Construction Noise Management Plan Required*** Prior to any extreme noise generating construction activities (e.g., pier drilling, pile driving and other activities generating greater than 90dBA), the project applicant shall submit a Construction Noise Management Plan prepared by a qualified acoustical consultant for City review and approval that contains a set of site-specific noise attenuation measures to further reduce construction impacts associated with extreme noise generating activities. The project applicant shall implement the approved Plan during construction. Potential attenuation measures include, but are not limited to, the following: i. Erect temporary plywood noise barriers around the construction site, particularly along on sites adjacent to residential buildings; ii. Implement “quiet” pile driving technology (such as pre-drilling of piles, the use of more than one pile driver to shorten the total pile driving duration), where feasible, in consideration of geotechnical and structural requirements and conditions;	Prior to approval of construction-related permit	City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	Responsibility
iii. Utilize noise control blankets on the building structure as the building is erected to reduce noise emission from the site; iv. Evaluate the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings by the use of sound blankets for example and implement such measure if such measures are feasible and would noticeably reduce noise impacts; and v. Monitor the effectiveness of noise attenuation measures by taking noise measurements. b. ***Public Notification Required*** The project applicant shall notify property owners and occupants located within 300 feet of the construction activities at least 14 calendar days prior to commencing extreme noise generating activities. Prior to providing the notice, the project applicant shall submit to the City for review and approval the proposed type and duration of extreme noise generating activities and the proposed public notice. The public notice shall provide the estimated start and end dates of the extreme noise generating activities and describe noise attenuation measures to be implemented.	During construction	City of Oakland Bureau of Building
SCA NOI-4, (SCA-61, Project-Specific Construction Noise Reduction Measures) 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 noise impacts. The project applicant shall implement the approved Plan during construction.	Prior to approval of construction-related permit	City of Oakland Bureau of Building
SCA NOI-5 (SCA-62, Construction Noise Complaints *(Note: This SCA replaces Mitigation Measure NOI D.1d from the 2000 EIR)*** 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	Prior to approval of construction-related permit	City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	**Responsibility**
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.		
SCA NOI-6 (SCA-63, Exposure to Community Noise) The project applicant shall submit a Noise Reduction Plan prepared by a qualified acoustical engineer for City review and approval that contains noise reduction measures (e.g., sound-rated window, wall, and door assemblies) to achieve an acceptable interior noise level in accordance with the land use compatibility guidelines of the Noise Element of the Oakland General Plan. The applicant shall implement the approved Plan during construction. To the maximum extent practicable, interior noise levels shall not exceed the following: a. 45 dBA: Residential activities, civic activities, hotels b. 50 dBA: Administrative offices; group assembly activities c. 55 dBA: Commercial activities d. 65 dBA: Industrial activities	Prior to approval of construction-related permit	City of Oakland Bureau of Building
SCA NOI-7 (SCA-64, Operational Noise) 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 during project operations for each phase.	City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring: Schedule	Mitigation Implementation/ Monitoring: Responsibility
Transportation and Circulation		
SCA TRA-1 (SCA-68, Construction Activity in the Public Right of Way *(Note: This SCA replaces Mitigation Measure B.6 from the 2000 EIR)* ***a. Obstruction Permit Required*** The project applicant shall obtain an obstruction permit from the City prior to placing any temporary construction-related obstruction in the public right-of-way, including City streets and sidewalks. ***b. Traffic Control Plan Required*** In the event of obstructions to vehicle or bicycle travel lanes, the project applicant shall submit a Traffic Control Plan to the City for review and approval prior to obtaining an obstruction permit. The project applicant shall submit evidence of City approval of the Traffic Control Plan with the application for an obstruction permit. The Traffic Control Plan shall contain a set of comprehensive traffic control measures for auto, transit, bicycle, and pedestrian detours, including detour signs if required, lane closure procedures, signs, cones for drivers, and designated construction access routes. The project applicant shall implement the approved Plan during construction. ***c. Repair of City Streets*** The project applicant shall repair any damage to the public right-of way, including streets and sidewalks caused by project construction at his/her expense within one week of the occurrence of the damage (or excessive wear), unless further damage/excessive wear may continue; in such case, repair shall occur prior to approval of the final inspection of the construction-related permit. All damage that is a threat to public health or safety shall be repaired immediately.	Prior to approval of construction-related permit Prior to approval of construction-related permit Initial Approval: Public Works Department Prior to building permit final	Initial Approval: Public Works Department Monitoring: City of Oakland Bureau of Building City of Oakland Public Works Department, Traffic Services Division Monitoring: City of Oakland Bureau of Building
SCA TRA-2 (SCA-69, Bicycle Parking (*Note: this SCA replaces Mitigation Measure B.5 from the 2000 EIR)* 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	Prior to approval of construction-related permit	

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	**Responsibility**
for construction-related permits shall demonstrate compliance with the requirements.		
SCA TRA-3 (SCA-71, Transportation and Parking Demand Management) Note: this SCA replaces Mitigation Measure B.3 from the 2000 EIR. ***a. Transportation and Parking Demand Management (TDM) Plan Required*** The project applicant shall submit a Transportation and Parking Demand Management (TDM) Plan for review and approval by the City. i. The goals of the TDM Plan shall be the following: • Reduce vehicle traffic and parking demand generated by the project to the maximum extent practicable, consistent with the potential traffic and parking impacts of the project. • Achieve the following project vehicle trip reductions (VTR): o Projects generating 50-99 net new a.m. or p.m. peak hour vehicle trips: 10 percent VTR o Projects generating 100 or more net new a.m. or p.m. peak hour vehicle trips: 20 percent VTR • Increase pedestrian, bicycle, transit, and carpool/vanpool modes of travel. All four modes of travel shall be considered, as appropriate. • Enhance the City's transportation system, consistent with City policies and programs. ii. 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.	Note: A TDM Plan has already been prepared (Appendix 3). If adopted, this SCA would be satisfied.	City of Oakland Bureau of Planning

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

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	**Responsibility**
• On-site carpooling and/or vanpool program that includes preferential (discounted or free) parking for carpools and vanpools. • Distribution of information concerning alternative transportation options. • Parking spaces sold/leased separately for residential units. Charge employees for parking, or provide a cash incentive or transit pass alternative to a free parking space in commercial properties. • Parking management strategies including attendant/valet parking and shared parking spaces. • Requiring tenants to provide opportunities and the ability to work off-site. • Allow employees or residents to adjust their work schedule in order to complete the basic work requirement of five eight-hour workdays by adjusting their schedule to reduce vehicle trips to the worksite (e.g., working four, ten-hour days; allowing employees to work from home two days per week). • Provide or require tenants to provide employees with staggered work hours involving a shift in the set work hours of all employees at the workplace or flexible work hours involving individually determined work hours. • The TDM Plan shall indicate the estimated VTR for each strategy, based on published research or guidelines where feasible. For TDM Plans containing ongoing operational VTR strategies, the Plan shall include an ongoing monitoring and enforcement program to ensure the Plan is implemented on an ongoing basis during project operation. If an annual compliance report is required, as explained below, the TDM Plan shall also specify the topics to be addressed in the annual report. ***b. TDM Implementation – Physical Improvements*** For VTR strategies involving physical improvements, the project applicant shall obtain the necessary permits/approvals from the City and install the	Prior to building permit final Ongoing	City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	**Responsibility**
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.		
Utilities and Service Systems		
SCA UTIL-1 (SCA-74, Construction and Demolition Waste Reduction and Recycling) 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	Prior to issuance of construction-related permit	City of Oakland Public Works Department, Environmental Services Division (Initial approval and monitoring & inspection)

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	**Responsibility**
Green Building Resource Center. Current standards, FAQs, and forms are available on the City's website and in the Green Building Resource Center.		
SCA UTIL-2 (SCA-75, Underground Utilities) 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 (SCA-76, Recycling Collection and Storage Space) 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 Building
SCA UTIL-4 (SCA-77, Green Building Requirements) **a. Compliance with Green Building Requirements During Plan-Check** The project applicant shall comply with the requirements of the California Green Building Standards (CALGreen) mandatory measures and the applicable requirements of the City of Oakland Green Building Ordinance (chapter 18.02 of the Oakland Municipal Code). i. The following information shall be submitted to the City for review and approval with the application for a	Prior to approval of construction-related permit	City of Oakland Bureau of Building

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	Responsibility
building permit: • Documentation showing compliance with Title 24 of the current version of the California Building Energy Efficiency Standards. • Completed copy of the final green building checklist approved during the review of the Planning and Zoning permit. • Copy of the Unreasonable Hardship Exemption, if granted, during the review of the Planning and Zoning permit. • Permit plans that show, in general notes, detailed design drawings, and specifications as necessary, compliance with the items listed in subsection (ii) below. • Copy of the signed statement by the Green Building Certifier approved during the review of the Planning and Zoning permit that the project complied with the requirements of the Green Building Ordinance. • Signed statement by the Green Building Certifier that the project still complies with the requirements of the Green Building Ordinance, unless an Unreasonable Hardship Exemption was granted during the review of the Planning and Zoning permit. • Other documentation as deemed necessary by the City to demonstrate compliance with the Green Building Ordinance. ii. The set of plans in subsection (i) shall demonstrate compliance with the following: • CALGreen mandatory measures. • All pre-requisites per the green building checklist approved during the review of the Planning and Zoning permit, or, if applicable, all the green building measures approved as part of the Unreasonable Hardship Exemption granted during the review of the Planning and Zoning permit. • All green building points identified on the checklist		

<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>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.</td><td></td><td></td></tr>
<tr><td>b. Compliance with Green Building Requirements During Construction
The project applicant shall comply with the applicable requirements of CALGreen and the Oakland Green Building Ordinance during construction of the project.
The following information shall be submitted to the City for review and approval:
i. Completed copies of the green building checklists approved during the review of the Planning and Zoning permit and during the review of the building permit.
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.</td><td>During construction</td><td>City of Oakland Bureau of Building</td></tr>
<tr><td>c. Compliance with Green Building Requirements After Construction
Within sixty (60) days of the final inspection of the building permit for the project, the Green Building Certifier shall submit the appropriate documentation to [INSERT: Build It Green or Green Building Certification Institute] and attain the minimum required certification/point level. Within one year of the final inspection of the building permit for the project, the applicant shall submit to the Bureau of Planning the Certificate from the organization listed above demonstrating certification and compliance with the minimum point/certification level noted above.</td><td>After project completion, as specified</td><td>Bureau of Planning (initial approval)</td></tr>
</table>

Standard Conditions of Approval/Mitigation Measures	Mitigation Implementation/ Monitoring	
	Schedule	**Responsibility**
SCA UTIL-5 (SCA-79, Sanitary Sewer System) The project applicant shall prepare and submit a Sanitary Sewer Impact Analysis to the City for review and approval in accordance with the City of Oakland Sanitary Sewer Design Guidelines. The Impact Analysis shall include an estimate of pre-project and post-project wastewater flow from the project site. In the event that the Impact Analysis indicates that the net increase in project wastewater flow exceeds City-projected increases in wastewater flow in the sanitary sewer system, the project applicant shall pay the Sanitary Sewer Impact Fee in accordance with the City's Master Fee Schedule for funding improvements to the sanitary sewer system.	Prior to approval of construction-related permit	Public Works Department, Department of Engineering and Construction
SCA UTIL-6 (SCA-80, Storm Drain System) 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 (SCA-81, Recycled Water) Pursuant to section 16.08.030 of the Oakland Municipal Code, the project applicant shall provide for the use of recycled water in the project for landscape irrigation purposes unless the City determines that there is a higher and better use for the recycled water, the use of recycled water is not economically justified for the project, or the use of recycled water is not financially or technically feasible for the project. The project applicant shall contact the New Business Office of the East Bay Municipal Utility District (EBMUD) for a recycled water feasibility assessment by the Office of Water Recycling. If recycled water is to be provided in the project, the project drawings submitted for construction-related permits shall include the proposed recycled water system and the project applicant shall install the recycled water system during construction.	Prior to approval of construction-related permit	City of Oakland Bureau of Planning; Monitoring by Bureau of Building

ATTACHMENT B: CRITERIA FOR USE OF ADDENDUM, PER CEQA GUIDELINES SECTIONS 15162, 15164 AND 15168

Section15164(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 III of this document, the analysis in the 2000 EIR is considered for this assessment under Sections 15162 and 15164. The 2008 LUTE EIR, and for the housing components of the Modified Project, the 2010 General Plan Housing Element Update EIR and 2014 Addendum are Program EIRs considered for this assessment of an Addendum, pursuant to Section 15162 and 15164. The 2011 Redevelopment Plan Amendments EIR analysis is a Program EIR specifically considered for this assessment, pursuant to CEQA Guidelines Section 15168 and Section 15180.

Project Modifications

In October 2000, the Oakland Planning Commission certified the EIR and approved the 1640 Broadway Mixed Use Development Project. The Original Project analyzed in the 2000 EIR consisted of a high-rise mixed-use project involving ground floor commercial uses, eight floors of commercial office space and thirteen floors of loft-type and conventional residential apartments. The project included seven floors (or partial floors) of off-street parking (two below grade and five above grade), offering a total of 284 parking spaces for cars and space for up to 241 bicycles. The total enclosed space in the building was approximately 432,341 square feet, achieving a height of 389 feet tall.

One of the alternatives considered in the EIR was a "Residential Only" alternative. The Residential Only alternative would have replaced the eight floors of commercial office space with additional residential apartment, raising the total unit count from 146 to approximately 255. In the Residential Only alternative, the total parking would remain at 284 spaces for cars, and the building would retain the same height (389 feet).

The Modified Project proposes a modification to the Residential Only alternative that was evaluated in the 2000 EIR and the Residential Project approved in 2005. The Modified Project would consist of approximately 413,600 square feet of total enclosed space, of which approximately 5,000 square feet would be retail commercial space on the ground floor, 254 residential units would occupy floors 6 – 32, and parking for 232 cars and 66 bicycles would be provided on floors 2 – 5 (all above grade). The Modified Project would have approximately the same amount of commercial retail space, less overall total gross building area, the same number of residential apartments and fewer off-street parking spaces than required by Oakland's Municipal Code. .

Aside from architectural details, the proposed massing of the Modified Project would be similar to the Original Project (including the Residential Only alternative). The base of the building in both cases would occupy the entire site, up to the highest parking level. At that point, the building would step back, leaving an open plaza or amenity level above. In both cases, the building form would rise from that level but the Original Project proposed an "L" shape tower whereas the Modified Project proposes a rectangular tower, situated at the corner of 17th Street and Broadway, with nearly repetitive floors rising to a second amenity level at floor 33. The building height of the Modified Project would reach approximately 380 feet at the mechanical floor level compared with 389 feet as proposed originally.

Overall, the Modified Project would represent a minor change to the Residential Alternative to the Original Project as considered in the 2000 EIR and the Residential Project approved in 2005.

Conditions for Addendum

None of the following conditions for preparation of a subsequent EIR per Sections 15162(a) and 15168 apply to the Modified Project:

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

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

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

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

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

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

Project Consistency with Sections 15162 and 15168 of the CEQA Guidelines

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

Furthermore, as demonstrated in the CEQA Checklist, the Modified Project would not result in any new significant environmental impacts, result in any substantial increases in the significance of previously identified effects, or necessitate implementation of additional or considerably different mitigation measures than those identified in the 2000 EIR, nor render any mitigation measures or alternatives found not to be feasible, feasible. The effects of the Modified Project would be substantially the same as those reported in the 2000 EIR. The Modified Project would eliminate the significant and unavoidable impact that was previously identified in the 2000 EIR.

The analysis presented in this CEQA Checklist, combined with the prior 2000 EIR analysis, demonstrates that the Modified Project would not result in significant impacts that were not previously identified in the EIR. The Modified Project would not result in a substantial increase in the significance of impacts, nor would it contribute considerably to cumulative effects that were not already accounted for in the certified 2000 EIR. Overall, and except for the elimination of the significant and unavoidable impact related to off-site parking deficiency, the Modified 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 EIR are applicable.

ATTACHMENT C: PROJECT CONSISTENCY WITH COMMUNITY PLAN OR ZONING, PER CEQA GUIDELINES SECTION 15183

Section 15183(a) of the CEQA Guidelines states that "…projects which are consistent with the development density established by the existing zoning, community plan, or general plan policies for which an 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."

As discussed in detail in Section III of this document, the analysis in the 1998 LUTE EIR and the 2010 Housing Element Update EIR and its 2014 Addendum, are considered the qualified planning level CEQA documents for this assessment, pursuant to CEQA Guidelines Section 15183.

Modified Project

The Modified Project would be located in developed urbanized Downtown Oakland. The Modified Project would consist of 254 dwelling units including a mix of studio, one, two and three bedroom units. The building would be up to approximately 380 feet tall; parking for vehicles and bicycles would be provided onsite, and approximately 5,000 square feet of small local-serving commercial uses - such as a small restaurant or retail space would occur at the street level. The Project site is currently used as a surface parking lot for approximately 75 cars.

Project Consistency

As determined by the City of Oakland Bureau of Planning, the proposed land uses are permitted in the zoning district in which the Project is located, and is consistent with the bulk, density, and land uses envisioned for the Project site and in Downtown Oakland, as outlined below.

The General Plan land use designation for the site is Central Business District (CBD). This designation applies to areas suitable for high density mixed use urban center with a mix of large-scale offices, commercial, urban (high-rise) residential, among others, in the central Downtown core of the city. The proposed residential Project would be consistent with this designation.

The site is zoned Central Business District Central Pedestrian Zone (CBD-P). The Modified Project would be consistent with the purposes of this district, which is generally intended to create, maintain, and enhance areas of the CBD appropriate for a range of ground-floor commercial activities. Upper-story spaces are intended to be available for residential uses. The Modified Project would develop ground-floor commercial retail/restaurant space.

The proposed building would be up to approximately 380 feet in height, with a five -level base of approximately 59 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 proposed 254 dwelling units is consistent with the residential density that was been approved for the site previously and found to be in conformity with applicable density limits consistently with each subsequent project approvals that has occurred since the original approval in 2000.

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

ATTACHMENT D: INFILL PERFORMANCE STANDARDS, PER CEQA GUIDELINES SECTION 15183.3

CEQA Guidelines Section 15183.3(b) and CEQA Guidelines Appendix M establish eligibility requirements for projects to qualify as infill projects. **Table D-1**, below, shows how the Modified Project satisfies each of the applicable requirements.

As discussed in detail in Section III of this document, the analysis in the 1998 LUTE EIR and the 2010 Housing Element Update EIR and its 2014 Addendum, are considered the Program EIRs for this assessment, pursuant to CEQA Guidelines Section 15183.3.

Table D-1
Project Infill Eligibility

CEQA Eligibility Criteria		Eligible?/ Notes for Modified Project
1.	Be located in an urban area on a site that either has been previously developed or that adjoins existing qualified urban uses on at least seventy-five percent of the site's perimeter. For the purpose of this subdivision "adjoin" means the infill project is immediately adjacent to qualified urban uses or is only separated from such uses by an improved right-of-way. (CEQA Guidelines Section 15183.3[b][1])	Yes. The Project site had been previously developed as a post office which was removed in the mid - 1940s; a small restaurant occupied a portion of the site subsequently but was removed by the 1990s. Since that time has been used as a surface parking lot for daily public use. The site adjoins existing urban uses, including high-and mid-rise commercial office buildings, as described in the Project Description, (Section IV).
2.	Satisfy the performance Standards provided in Appendix M (CEQA Guidelines Section 15183.3[b][2]) as presented in 2a and 2b below:	—
2a.	**Renewable Energy.** *Non-Residential Projects.* All nonresidential projects shall include onsite renewable power generation, such as solar photovoltaic, solar thermal, and wind power generation, or clean back-up power supplies, where feasible. *Residential Projects.* Residential projects are also encouraged to include such on site renewable power generation.	Yes. According to Section IV (G) of CEQA Appendix M, for mixed-use projects "…the performance standards in this section that apply to the predominant use shall govern the entire project." The Project will be mixed use with retail and/or restaurant uses at the ground floor level and residential uses above. The Project sponsor shall prepare, for City review and approval, a feasibility assessment of onsite renewable power generation options. If determined feasible by the City, the Project sponsor shall implement onsite renewable power generation. The Project would be

Table D-1 **Project Infill Eligibility**		
CEQA Eligibility Criteria		**Eligible?/ Notes for Modified Project**
		designed to meet CALGreen, Title 24, and any amendments required by the City.
	Soil and Water Remediation. If the project site is included on any list compiled pursuant to Section 65962.5 of the Government Code, the project shall document how it has remediated the site, if remediation is completed. Alternatively, the project shall implement the recommendations provided in a preliminary endangerment assessment or comparable document that identifies remediation appropriate for the site.	The Project site is not included on any list compiled pursuant to Section 65962.5 of the Government Code.
	Residential Units Near High-Volume Roadways and Stationary Sources. If a project includes residential units located within 500 feet, or other distance determined to be appropriate by the local agency or air district based on local conditions, of a high volume roadway or other significant sources of air pollution, the project shall comply with any policies and standards identified in the local general plan, specific plan, zoning code, or community risk reduction plan for the protection of public health from such sources of air pollution. If the local government has not adopted such plans or policies, the project shall include measures, such as enhanced air filtration and project design, that the lead agency finds, based on substantial evidence, will promote the protection of public health from sources of air pollution. Those measures may include, among others, the recommendations of the California Air Resources Board, air districts, and the California Air Pollution Control Officers Association.	Yes. As discussed in Section *2. Air Quality* of the CEQA Checklist, air quality screening and health risk assessments were prepared for the Modified Project with regard to the effects both of high volume roadways and stationary sources of TACs. Based on the "2040 Plus Project with Latham Square" volumes from the project traffic report, Broadway has an average daily traffic (ADT) volume of 19,090 adjacent to the Project. Using the BAAQMD Roadway Screening Analysis Calculator for Alameda County for north-south directional roadways and at a distance of approximately 100 feet to the first floor of proposed residences, estimated cancer risk from Broadway at the Project site would be 9.5 per million and $PM_{2.5}$ concentration would be 0.19 µg/m3. Chronic or acute hazard index (HI) for both roadways would be below 0.03. Potential risk from both roadways would be below the BAAQMD significance thresholds for community risk from single sources. With regard to stationary sources, the BAAQMD's screening-level tool identified multiple stationary TAC sources within 1,000

Table D-1
Project Infill Eligibility

CEQA Eligibility Criteria		**Eligible?/ Notes for Modified Project**
		feet of the Project site where screening risk exceeded BAAQMD thresholds. BAAQMD was contacted to obtain emissions data and information for specific facilities. A detailed health risk assessment was conducted for the Project, presented in the Air Quality section of the CEQA Checklist and in the technical report by Illingworth & Rodkin (Appendix 1 to this CEQA document). The results show cumulative cancer risks at the Project site below the significance criterion of 10 in one million and below BAAQMD significance thresholds of 0.3 µg/m3 for $PM_{2.5}$ and 1.0 for a Hazard Index. No air pollution mitigation measures are required to be implemented for the Modified Project.
2b.	*Additional Performance Standards by Project Type.* In addition to implementing all the features described in 2a above, the project must meet eligibility requirements provided below by project type.	
	Residential. A residential project must meet **<u>one</u>** of the following: A. *Projects achieving below average regional per capita vehicle miles traveled (VMT).* A residential project is eligible if it is located in a "low vehicle travel area" within the region; B. *Projects located within ½ mile of an Existing Major Transit Stop or High Quality Transit Corridor.* A residential project is eligible if it is located within ½ mile of an existing major transit stop or an existing stop along a high quality transit corridor; **<u>or</u>** C. *Low - Income Housing.* A residential or mixed-use project consisting of 300 or fewer residential units all of which are affordable to low income households is eligible if the developer of the development project provides sufficient legal commitments to the lead agency to	Yes. The Modified Project is eligible under Section (B). The Modified Project site is well-served by multiple transit providers. Transit service providers in the Project vicinity include Bay Area Rapid Transit (BART) and AC Transit. The nearest BART station to Project site is the 19th Street BART Station, with the closest entrance being about one block northeast. AC Transit operates multiple major bus routes in the vicinity of the Project, on Broadway, 17th Street, and 19th Street. Additional buses, including the Oakland Free Broadway shuttle ("Free B"), operate along Broadway with the nearest stops at Broadway and 19th Streets, about 530 feet north of the Project site. The Transbay ferry from Jack London Square is approximately one mile south. Broadway qualifies as a "High Quality Transit Corridor," as defined by Section II of CEQA, with fixed route bus service at intervals no longer

Table D-1
Project Infill Eligibility

CEQA Eligibility Criteria		**Eligible?/ Notes for Modified Project**
	ensure the continued availability and use of the housing units for lower income households, as defined in Section 50079.5 of the Health and Safety Code, for a period of at least 30 years, at monthly housing costs, as determined pursuant to Section 50053 of the Health and Safety Code.	than 15 minutes during peak commute hours. The AC Transit Line 51A runs along Broadway adjacent to the Project site, and has service intervals no longer than 15 minutes during peak commute hours. Other bus routes in the Project vicinity further satisfy this criterion.
	Commercial/Retail. A commercial/retail project must meet **one** of the following: A. *Regional Location.* A commercial project with no single-building floor-plate greater than 50,000 square feet is eligible if it locates in a "low vehicle travel area"; **or** B. *Proximity to Households.* A project with no single-building floor-plate greater than 50,000 square feet located within ½mile of 1,800 households is eligible.	Not Applicable. According to Section IV (G) of CEQA Appendix M, for mixed-use projects "…the performance standards in this Section that apply to the predominant use shall govern the entire project." The predominant use is residential. This criterion does not apply to the Project.
	Office Building. An office building project must meeting **one** of the following: A. *Regional Location.* Office buildings, both commercial and public, are eligible if they locate in a low vehicle travel area; **or** B. *Proximity to a Major Transit Stop.* Office buildings, both commercial and public, within ½ mile of an existing major transit stop, or ¼ mile of an existing stop along a high quality transit corridor, are eligible.	Not Applicable.
	Schools. Elementary schools within 1 mile of 50 percent of the projected student population are eligible. Middle schools and high schools within 2 miles of 50 percent of the projected student population are eligible. Alternatively, any school within ½ mile of an existing major transit stop or an existing stop along a high quality transit corridor is eligible. Additionally, to be eligible, all schools shall provide parking and storage for bicycles	Not Applicable.

Table D-1 Project Infill Eligibility		
CEQA Eligibility Criteria		**Eligible?/ Notes for Modified Project**
	and scooters, and shall comply with the requirements of Sections 17213, 17213.1, and 17213.2 of the California Education Code.	
	Transit. Transit stations, as defined in Section 15183.3(e)(1), are eligible.	Not Applicable
	Small Walkable Community Projects. Small walkable community projects, as defined in Section 15183.3, subdivision (e)(6), that implement the project features in 2a above are eligible.	Not Applicable
3.	Be consistent with the general use designation, density, building intensity, and applicable policies specified for the project area in either a sustainable communities strategy or an alternative planning strategy, **except** as provided in CEQA Guidelines Sections 15183.3(b)(3)(A) or (b)(3)(B) below: (b)(3)(A). Only where an infill project is proposed within the boundaries of a metropolitan planning organization for which a sustainable communities strategy or an alternative planning strategy will be, but is not yet in effect, a residential infill project must have a density of at least 20 units per acre, and a retail or commercial infill project must have a floor area ratio of at least 0.75; **or** (b)(3)(B). Where an infill project is proposed outside of the boundaries of a metropolitan planning organization, the infill project must meet the definition of a "small walkable community project" in CEQA Guidelines §15183.3(f)(5). (CEQA Guidelines Section 15183.3[b][3])	Yes (see explanation below table)
	Note:	

Table D-1 Project Infill Eligibility	
CEQA Eligibility Criteria	**Eligible?/ Notes for Modified Project**
	Where a project includes some combination of residential, commercial and retail, office building, transit station, and/or schools, the performance standards in this section that apply to the predominant use shall govern the entire project.

Explanation for Eligibility Criterion 3 (from Table D-1 above)

The adopted Plan Bay Area (2013) serves as the sustainable communities strategy for the Bay Area, per Senate Bill 375. As defined by the Plan, Priority Development Areas (PDAs) are areas where new development will support the needs of residents and workers in a pedestrian-friendly environment served by transit. The Modified Project is considered within the “Oakland Downtown & Jack London Square” PDA – the area bounded generally by 28th Street on the north, I-980 on the west, the Oakland Estuary on the south, and Lake Merritt on the east, excepting the Chinatown area between 6th and 11th Streets east of Franklin Street. The Modified Project is consistent with the Oakland General Plan and the Planning Code, as discussed in Attachment C.

- The General Plan land use designation for the site is Central Business District (CBD). This 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 proposed residential mixed use Project would be consistent with this designation.
- The site is zoned Central Business District - Pedestrian (CBD-P). The Modified Project would be consistent with the purposes of this district, which is generally intended to create, maintain, and enhance areas of the Central Business District for ground-level, pedestrian-oriented, active storefront uses. Upper story spaces are intended to be available for a wide range of office and residential activities. The Modified Project would develop ground-floor commercial retail/restaurant space with upper level residential use.
- The Modified Project would develop one building up to approximately 380 feet height, with a five-level base of approximately 59 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 proposed up to 254 dwelling units would be consistent with the previously approved residential density for the Project site.

Appendix 1a and 1b:

Results of Air Quality Modeling, Health Risk Screening and Greenhouse Gas and Climate Change Screening Modeling

Illingworth & Rodkin, Inc.

November 2, 2015

APPENDIX 1

1640 BROADWAY MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT OAKLAND, CALIFORNIA

November 2, 2015

♦ ♦ ♦

Prepared for:

Nathaniel Taylor
Lamphier-Gregory
1944 Embarcadero
Oakland, CA 94606

Prepared by:

Joshua D. Carman and
William Popenuck

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
1 Willowbrook Court, Suite 120
Petaluma, CA 94954
(707) 794-0400

Project: 15-111

APPENDIX 1A

Significance Thresholds

The BAAQMD identified significance thresholds for exposure to TACs and fine particulate matter ($PM_{2.5}$) as part of its May 2011 CEQA Air Quality Guidelines[1] that were called into question by an order issued March 5, 2012, in *California Building Industry Association v. BAAQMD* (Alameda Superior Court Case No. RGI0548693). The order requires BAAQMD to set aside its approval of the thresholds until it has conducted environmental review under CEQA. In August 2013, the Appellate Court struck down the lower court's order to set aside the thresholds. However, this litigation remains pending as the California Supreme Court recently accepted a portion of CBIA's petition to review the appellate court's decision to uphold BAAQMD's adoption of the thresholds. The specific portion of the argument to be considered is in regard to whether CEQA requires consideration of the effects of the environment on a project (as contrasted to the effects of a proposed project on the environment). Those issues are not relevant to the scientific basis of BAAQMD's analysis of what levels of pollutants should be deemed significant. Therefore, the significance thresholds contained in the 2011 CEQA Air Quality Guidelines are applied to this project and are summarized in Table 1 below.

Greenhouse Gas Emissions

The significance thresholds identified in the City of Oakland CEQA Thresholds of Significance Guidelines (October 28, 2013) for GHGs are used in this analysis. The thresholds are as follows:

- For a project involving a stationary source, produce total emissions of more than 10,000 metric tons (MT) of CO_2e annually.
- For a project involving a land use development, produce total emissions of more than 1,100 MT of CO_2e annually AND more than 4.6 metric tons of CO_2e per service population annually.[2]

The City's thresholds of significance pertaining to greenhouse gas/global climate change are generally based on the thresholds adopted by BAAQMD in June 2010. Pursuant to CEQA, lead agencies must apply appropriate thresholds based on substantial evidence in the record. The City's thresholds rely upon the technical and scientific basis for BAAQMD's 2010 thresholds. Use of the City's thresholds is consistent with and authorized by CEQA Guidelines section 15064. The City's thresholds have not been challenged and remain in effect.

---

[1] BAAQMD, 2011. *BAAQMD CEQA Air Quality Guidelines*. May.

[2] Note: the project's expected GHG emissions during construction should be annualized over a period of 40 years and then added to the expected emissions during operation for comparison to the threshold. A 40-year period is used because 40 years is considered the average life expectancy of a building before it is remodeled with considerations for increased energy efficiency. The thresholds are based on the BAAQMD thresholds. The BAAQMD thresholds were originally developed for project operation impacts only. Therefore, combining both the construction emissions and operation emissions for comparison to the threshold represents a conservative analysis of potential GHG impacts.

Table 1. Air Quality Significance Thresholds

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs./day)	Average Daily Emissions (lbs./day)	Annual Average Emissions (tons/year)
Criteria Air Pollutants			
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82	82	15
$PM_{2.5}$	54	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
Community Risks and Hazards for New Sources (Single Source) and Receptors			
Excess Cancer Risk	Greater than 10.0 per one million		
Chronic or Acute Hazard Index	Greater than 1.0		
Incremental annual average $PM_{2.5}$	Greater than 0.3 $\mu g/m^3$		
Community Risks and Hazards for New Sources (Cumulative from all sources within 1,000 foot zone of influence) and Receptors			
Excess Cancer Risk	Greater than 100 per one million		
Chronic Hazard Index	Greater than 10.0		
Annual Average $PM_{2.5}$	Greater than 0.8 $\mu g/m^3$		
Greenhouse Gas Emissions from Land Use Projects			
GHG Annual Emissions	1,100 metric tons or 4.6 metric tons per capita		

Note: ROG = reactive organic gases, NOx = nitrogen oxides, PM_{10} = course particulate matter or particulates with an aerodynamic diameter of 10 micrometers (µm) or less, $PM_{2.5}$ = fine particulate matter or particulates with an aerodynamic diameter of 2.5µm or less; and GHG = greenhouse gas.

Air Quality Modeling Methods and Results

The Bay Area is considered a non-attainment area for ground-level ozone and $PM_{2.5}$ under both the Federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for PM_{10} under the California Clean Air Act, but not the federal act. The area has attained both State and federal ambient air quality standards for carbon monoxide. As part of an effort to attain and maintain ambient air quality standards for ozone and PM_{10}, the BAAQMD has established thresholds of significance for these air pollutants and their precursors. These thresholds are for ozone precursor pollutants (ROG and NOx), PM_{10}, and $PM_{2.5}$ apply to both construction period and operational period impacts.

Land Use Descriptions

The California Emissions Estimator Model (CalEEMod) Version 2013.2.2 was used to predict emissions from construction and operation of the site assuming full build-out of the project. The project land use types and size, and trip generation rate were input to CalEEMod. The land uses and project size included the following:

- “Condo/Townhouse High Rise” at 254 Dwelling Units with lot acreage of 0.51 acres;
- “High Turnover (Sit Down Restaurant) at 3,800 square feet;
- “Strip Mall” at 3,100 square feet; and
- “Enclosed Parking with Elevator” at 326 spaces

The total project acreage of 0.51 acres was assigned to the “Condo/Townhouse High Rise” use.

Construction Period Emissions

CalEEMod provides annual emission estimates for construction for both on-site and off-site construction activities. On-site activities are primarily made up of construction equipment emissions, while off-site activity includes worker, hauling and vendor traffic. A construction build-out scenario, including equipment list was provided. According to this schedule, construction would begin in 2016 and be completed in 2018. Construction phases included demolition, site preparation, grading/excavation, building-exterior, building–interior/architectural coating, and paving. The schedule and equipment usage estimates provided were input to CalEEMod. The CalEEMod default horsepower and load factors were used for each piece of construction equipment. Note that the crane proposed for building construction would be electric and line power would be available to avoid the use of diesel generators.

Demolition of the project site is anticipated to involve the export of approximately 550 tons of pavement. The model computes demolition truck trips based on the tonnage to be hauled. Hauling truck trips are estimated at 20 miles (one way), although they may be much shorter due to the close proximity of a landfill. Hauling truck trips associated with import and export of soil material were estimated by CalEEMod. The project applicant provided an estimate of 8,500 cubic yards soil export. The model estimates the number of truck trips based on these quantities and assumes a 20-mile one-way trip. The project is estimated to require 1,800 round trips for cement deliveries and 110 cubic yards of asphalt (or 7 delivery truck round trips). Cement and asphalt deliveries trip lengths were set at the same distance as vendor trip lengths (i.e., 7.3 miles). CalEEMod also estimates worker and vendor trips during construction. The default model-assigned trips and travel lengths were used in this analysis.

The applicant provided anticipated start date and phase durations for construction of the project. Based on this information, the modeling scenario assumes that the project would be built out over a period of approximately 23 months beginning in August 2016, or an estimated 506 construction workdays (based on an average of 22 workdays per month). Average daily emissions were computed by dividing the total construction emissions by the number of construction days. Table 2 shows total construction emissions in tons and average daily emissions in pounds per day of ROG, NO_X, PM_{10} exhaust, and $PM_{2.5}$ exhaust. As indicated in Table 2, predicted project emissions would not exceed the BAAQMD significance thresholds.

Construction activities, particularly during site preparation and grading would temporarily generate fugitive dust in the form of PM_{10} and $PM_{2.5}$. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. Fugitive dust emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. Fugitive dust emissions would also depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site. The BAAQMD CEQA Air Quality Guidelines consider these impacts to be less than significant if best management practices are employed to reduce these emissions.

Table 2. Construction Period Emissions

Scenario	**ROG**	**NOx**	**PM_{10} Exhaust**	**$PM_{2.5}$ Exhaust**
Construction emissions (tons)	3.75 tons	3.40 tons	0.12 tons	0.11 tons
Average daily emissions (pounds)[1]	14.8 lbs.	13.4 lbs.	0.5 lbs.	0.4 lbs.
BAAQMD Thresholds (pounds per day)	*54* lbs.	*54* lbs.	*82* lbs.	*54* lbs.
Exceed Threshold?	**No**	**No**	**No**	**No**
Notes: [1] Assumes 506 workdays.				

<u>Project Operational Period Emissions</u>

Operational air emissions from the project would be generated primarily from autos driven by future residences, and retail users and employees. Evaporative emissions from architectural coatings and maintenance products (classified as consumer products) are typical emissions from these types of uses. CalEEMod was used to predict emissions from operation of the proposed project assuming full build-out. The same model run used to compute construction period emissions was used to predict operational emissions.

Model Year

Emissions associated with vehicle travel depend on the year of analysis because emission control technology requirements are phased-in over time. Therefore, the earlier the year analyzed in the model, the higher the emission rates utilized by CalEEMod. The earliest year the project could possibly be constructed and begin fully operating would be 2019. Emissions associated with build-out later than 2019 would be lower.

Trip Generation Rates

CalEEMod allows the user to enter specific vehicle trip generation rates, which were input to the model using the daily trip generation rate provided in the project traffic report. The trip rates accounted for a 43 percent non-auto reduction per City of Oakland *Transportation Impact Study Guidelines*. Weekend rates used in CalEEMod were adjusted proportionally to the weekday rate. The default trip lengths and trip types specified by CalEEMod were used.

Energy

Default rates for energy consumption were assumed in the model. CalEEMod has a default rate of 641.3 pounds of CO_2 per megawatt of electricity produced, which is based on PG&E's 2008 emissions rate. The PG&E rate was updated to be the most recent rate reported in the California Climate Registry that was for 2012, which is 445 pounds of CO_2 per megawatt of electricity produced.[3] Default model assumptions for GHG emissions associated with area sources, solid waste generation and water/wastewater use were applied to the project.

The 2013 Title 24 Building Standards recently became effective July 1, 2014 and are predicted to use 25 percent less energy for lighting, heating, cooling, ventilation, and water heating for residential and 30 percent less energy for non-residential than the 2008 standards that CalEEMod consumption rates are based upon.[4] Therefore, the CalEEMod runs were adjusted to account for the greater energy efficiency.

Other Inputs

Default model assumptions for GHG emissions associated with area sources and solid waste generation were applied to the project. No new wood-burning fireplaces are allowed in the Bay Area, but it was assumed that new residences could include gas-powered fireplaces.

---

[3] See Climate Registry most current version of default emissions factors: http://www.theclimateregistry.org/?s=pacific+gas. Accessed: July 29, 2015

[4] California Energy Commission, 2014. *New Title 24 Standards Will Cut Residential Energy Use by 25 Percent, Save Water, and Reduce Greenhouse Gas Emissions*. July. Available online: http://www.energy.ca.gov/releases/2014_releases/2014-07-01_new_title24_standards_nr.html. Accessed: July 29, 2015.

Project Generator

The only source of stationary air pollutants identified with build-out of the project is one emergency back-up generator located on the 34th floor. According to the applicant, the maximum back-up power needs envisioned for this type of project would not be larger than 600 kW, provided by an approximate 805 horsepower engine, based on a similar project. It is assumed for this assessment that the generator would be driven by a diesel-fueled engine.

The emergency back-up generator would be used for backup power in emergency conditions. The generator will be operated for testing and maintenance purposes, with a maximum of 50 hours per year of non-emergency operation under normal conditions allowed by BAAQMD. During testing periods the engine would typically be run for less than one hour. The engine would be required to meet CARB and U.S. EPA emission standards. The engine will consume commercially available California low-sulfur diesel fuel.

Emissions from the testing and maintenance of the generator were calculated using CARB's OFFROAD emissions model for large compression-ignited engines above 25 hp. Results of generator modeling are included in Table 3 below. Table 3 reports the predicted emission in terms of annual emissions in tons and average daily operational emissions, assuming 365 days of operation per year. Note that emissions from existing uses are not included in this assessment, so the project's effect is really less. As shown in Table 3, average daily and annual emissions of ROG, NOx, PM_{10}, or $PM_{2.5}$ emissions associated with operation would not exceed the BAAQMD significance thresholds.

Table 3. Operational Emissions

Scenario	**ROG**	**NOx**	**PM_{10}**	**$PM_{2.5}$**
Annual Project Operational emissions (tons)	3.13 tons	2.48 tons	1.19 tons	0.36 tons
Annual Generator Emissions (tons)	<0.01 tons	0.05 tons	<0.01 tons	<0.01 tons
Total (tons)	<3.14 tons	2.53 tons	<1.20 tons	<0.37 tons
BAAQMD Thresholds (tons per year)	*10 tons*	*10 tons*	*15 tons*	*10 tons*
Exceed Threshold?	**No**	***No***	**No**	**No**
Average Daily Project Operational Emissions (pounds)[1]	17.2 lbs.	13.6 lbs.	6.5 lbs.	2.0 lbs.
Average Daily Generator Emissions (pounds)	<0.1 lbs.	0.3 lbs.	<0.1 lbs.	<0.1 lbs.
Total (pounds)	<17.3 lbs.	13.9 lbs.	<6.6 lbs.	<2.1 lbs.
BAAQMD Thresholds (pounds per day)	*54* lbs.	*54* lbs.	*82* lbs.	*54* lbs.
Exceed Threshold?	**No**	**No**	**No**	**No**

[1] Assumes 365-day operation.

Greenhouse Gas Modeling Methods and Results

CalEEMod was used to predict GHG emissions from construction and operation of the site assuming full build-out of the project. The project land use types and size and other project-specific information were input to the model, as described above. CalEEMod output worksheets are included below.

Service Population

Project service population is the sum of future residences and full-time employees. The future number of residences was estimated at 640 based on the latest US Census data,[5] and the number of future employees was estimated to be 17 based on approximately 2.5 employees per 1,000 sf, for a total service population of 657.

Construction Emissions

Construction GHG emissions were calculated using the same CalEEMod run as described under Impact 2. GHG emissions associated with construction were computed to be 1,083 MT of CO_2e, anticipated to occur over the entire construction period. These are the emissions from on-site operation of construction equipment, vendor and haul truck trips, and worker trips. Neither BAAQMD nor the City have an adopted threshold of significance for construction-related GHG emissions, though the District recommends quantifying emissions and disclosing that GHG emissions would occur during construction. BAAQMD also encourages the incorporation of best management practices to reduce GHG emissions during construction where feasible and applicable. Best management practices assumed to be incorporated into construction of the proposed project include, but are not limited to: using local building materials of at least 10 percent and recycling or reusing at least 50 percent of construction waste or demolition materials. The City recommends annualizing the project's expected GHG emissions during construction over a period of 40 years and then adding to the expected emissions during operation for comparison to the operational threshold, as discussed below.

Operational Emissions

The CalEEMod model, along with the project vehicle trip generation rates, was used to predict daily emissions associated with operation of the fully-developed site under the proposed project. In 2019, annual emissions resulting from operation of the proposed project are predicted to be 2,094 MT of CO_2e. These emissions would exceed the BAAQMD threshold of 1,100 MT of CO_2e/yr and, therefore, the GHG efficiency threshold was used to assess project impacts. As shown in Table 4, project service population emissions would be 3.2 MT of CO_2e/year/service population, which is below the BAAQMD significance threshold.

[5] United States Census Bureau, 2015. *Oakland (city), California QuickFacts, Persons per Household (2009-2013)*. Available online: http://quickfacts.census.gov/qfd/states/06/0653000.html. Accessed: July 29, 2015.

Table 4. Annual Project GHG Emissions (CO_2e) in Metric Tons

Source Category	2019 Project Emissions
Area	15
Energy Consumption	637
Mobile	1,290
Solid Waste Generation	75
Water Usage	50
Project Construction[1]	27
Project Total	2,094
Service Population Emissions[2]	3.2
BAAQMD Threshold	4.6 MT CO_2e/year/S.P.

Notes: [1] Annualized construction emissions over a 40-year period per City of Oakland requirements.
[2] Based on a project service population of 657 future residents and employees. S.P. = service population.

Project Generator

As discussed above, the project would include one emergency diesel generator, assumed to be up to 600 kW/805 hp. The generator would be tested routinely, up to 50 hours per year. Emissions from the testing and maintenance of the generator was calculated using CARB's OFFROAD emissions model for large compression-ignited engines above 25 hp and included the CARB Low Carbon Fuel Standard (LCFS) rules. Results of generator modeling indicate annual CO_2 emissions of 11 MT. The BAAQMD threshold for stationary sources requiring permits is 10,000 annual MT. Therefore, project stationary GHG emissions would be well below this threshold. Details of the generator modeling are included below.

Construction Schedule, CalEEMod Input and Output Data and Worksheets

Project Name:		**1640 Broadway, Oakland**						
	Project Size	355101	s.f. residential	0.513	total project acres disturbed			
		6897	s.f. retail					
		0	s.f. office/commerical					
		0	s.f. other, specify:					
		117267	s.f. parking garage	or spaces __326				
	Construction Hours	7	am to	5	pm			
Qty	**Description**	**HP**	**Load Factor**	**Hours/day**	**Total Work Days**	**Avg. Hours per day**	**Annual Hours**	**Comments**
	Demolition	**Start Date:**	**7/31/2016**	**Total work days:**	11			**Overall Import/Export Volumes**
		End Date:	8/15/2016					
1	Rubber-Tired Dozers	255	0.3953	6	6	3.3	36	Square footage of buildings to be demolished
2	Tractors/Loaders/Backhoes	97	0.3685	8	10	7.3	160	(or total tons to be hauled)
1	Excavator	350	0.3685	8	8	5.8	64	_0_ Hauling volume (tons)
1	Excavator	350	0.3685	6	10	5.5	60	Any pavement demolished and hauled? _550 tons
	Site Preparation	**Start Date:**	**8/16/2016**	**Total work days:**	34			
		End Date:	10/1/2016					
2	Tractors/Loaders/Backhoes	97	0.3685	8	30	7.1	480	
1	Brore/Drill Rig	205	0.5	8	25	5.9	200	
1	Sweepers/Scrubbers	64	0.46	6	30	5.3	180	
	Grading / Excavation	**Start Date:**	**10/1/2016**	**Total work days:**	26			
		End Date:	11/7/2016					**Soil Hauling Volume**
1	Rubber Tired Dozers	255	0.3953	8	25	7.7	200	Export volume = **8,500** cubic yards?
1	Tractors/Loaders/Backhoes	97	0.3685	8	25	7.7	200	Import volume = **0** cubic yards?
1	Excavator	162	0.38	8	25	7.7	200	
1	Rough Terrain Forklifts	100	0.4	6	15	3.5	90	
1	Sweepers/Scrubbers	64	0.46	6	25	5.8	150	
	Trenching	**Start Date:**	**12/1/2016**	**Total work days:**	26			
		End Date:	1/5/2017					
1	Trenchers	80	0.5	6	25	5.8	150	
1	Mini Excavator	175	0.38	6	25	5.8	150	
	Building - Structure	**Start Date:**	**12/1/2016**	**Total work days:**	306			**Cement Trucks? 1800 Total Round-Trips**
		End Date:	2/1/2018					
1	Cranes	226	0.2881	8	104	2.7	832	Electric? (Y/N) __Y_ Otherwise assumed diesel
1	Forklifts	89	0.201	2	47	0.3	94	Liquid Propane (LPG)? (Y/N) __N_ Otherwise Assumed diesel
1	Rough Terrain Forklifts	100	0.4	4	47	0.6	188	Liquid Propane (LPG)? (Y/N) __N_ Otherwise Assumed diesel
1	Sweepers/Scrubbers	64	0.46	1	104	0.3	104	
	Building - Exterior	**Start Date:**	**4/1/2017**	**Total work days:**	260			
		End Date:	4/1/2018					
1	Cranes	226	0.2881	8	250	7.7	2000	Electric? (Y/N) __Y_ Otherwise assumed diesel
1	Forklifts	89	0.201	2	47	0.4	94	Liquid Propane (LPG)? (Y/N) __N_ Otherwise Assumed diesel
1	Rough Terrain Forklifts	100	0.4	4	47	0.7	188	Liquid Propane (LPG)? (Y/N) __N_ Otherwise Assumed diesel
2	Welders	46	0.45	8	47	1.4	752	
1	Sweepers/Scrubbers	64	0.46	1	250	1.0	250	
Building - Interior/Architectural Coating		**Start Date:**	**9/1/2017**	**Total work days:**	216			
		End Date:	7/1/2018					
5	Air Compressors	78	0.48	3	50	0.7	750	
5	Aerial Lifts	62	0.31	8	25	0.9	1000	
5	Concrete/industrial saws	81	0.73	8	25	0.9	1000	
1	Forklifts	89	0.201	3	45	0.6	135	
1	Rough Terrain Forklifts	100	0.4	3	45	0.6	135	
1	Sweepers/Scrubbers	64	0.46	1	208	1.0	208	
	Paving	**Start Date:**	**4/1/2018**	**Total work days:**	15			
		End Date:	4/22/2018					
4	Cement and Mortar Mixers	9	0.56	8	2	1.1	64	
1	Pavers	125	0.4154	8	3	1.6	24	**Asphalt? 110 cubic yards or ___ round trips?**
1	Rollers	80	0.3752	6	3	1.2	18	
1	Tractors/Loaders/Backhoes	97	0.3685	8	2	1.1	16	
1	Paving Equipment	130	0.36	8	3	1.6	24	

1640 Broadway, Oakland

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	326.00	Space	0.00	117,267.00	0
High Turnover (Sit Down Restaurant)	3.80	1000sqft	0.00	3,800.00	0
Condo/Townhouse High Rise	254.00	Dwelling Unit	0.51	355,101.00	726
Strip Mall	3.10	1000sqft	0.00	3,100.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	445	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Using PG&E current, verified CO2 intensity factor

Land Use - Lot acreage and sf provided by project applicant

Construction Phase - Anticipated phasing schedule provided by project applicant

Off-road Equipment - Proposed equipment list provided by project applicant

Off-road Equipment - Proposed equipment list provided by project applicant. Electric cranes.

Off-road Equipment - Proposed equipment list provided by project applicant. Electric cranes.

Off-road Equipment - Proposed equipment list provided by project applicant

Off-road Equipment - Proposed equipment list provided by project applicant

Off-road Equipment - Proposed equipment list provided by project applicant

Off-road Equipment - Proposed equipment list provided by project applicant

Off-road Equipment - Proposed equipment list provided by project applicant

Trips and VMT - Bldg. Structure: 3,600 one-way cement truck trips. Paving: 110 CY asphalt @ 16CY/truck = 14 one-way trips. Vendor trip lengths for cement and asphalt trucks.

Demolition - 550 tons pavement demo

Grading - 8,500 CY soil export

Vehicle Trips - Trip rates based on project traffic report

Woodstoves - No woodstoves, no wood fireplaces, possible gas-powered fireplaces

Energy Use - 2013 Title 24 standards 25% more efficient for residential and 30% more efficient for non-residential than 2008 standards

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	216.00
tblConstructionPhase	NumDays	100.00	306.00
tblConstructionPhase	NumDays	100.00	260.00
tblConstructionPhase	NumDays	10.00	11.00
tblConstructionPhase	NumDays	2.00	26.00
tblConstructionPhase	NumDays	5.00	15.00
tblConstructionPhase	NumDays	1.00	34.00
tblConstructionPhase	PhaseEndDate	1/28/2019	7/1/2018
tblConstructionPhase	PhaseEndDate	3/9/2018	2/1/2018
tblConstructionPhase	PhaseEndDate	1/31/2019	4/1/2018
tblConstructionPhase	PhaseEndDate	7/20/2018	4/22/2018
tblConstructionPhase	PhaseEndDate	9/30/2016	10/1/2016
tblConstructionPhase	PhaseEndDate	12/13/2016	1/5/2017
tblConstructionPhase	PhaseStartDate	4/2/2018	9/1/2017
tblConstructionPhase	PhaseStartDate	1/6/2017	12/1/2016
tblConstructionPhase	PhaseStartDate	2/2/2018	4/1/2017
tblConstructionPhase	PhaseStartDate	10/2/2016	10/1/2016
tblConstructionPhase	PhaseStartDate	7/2/2018	4/1/2018
tblConstructionPhase	PhaseStartDate	11/8/2016	12/1/2016

tblEnergyUse	LightingElect	1,001.10	750.83
tblEnergyUse	LightingElect	2.63	1.84
tblEnergyUse	LightingElect	6.01	4.21
tblEnergyUse	LightingElect	5.51	3.86
tblEnergyUse	T24E	135.74	101.81
tblEnergyUse	T24E	3.92	2.74
tblEnergyUse	T24E	3.26	2.28
tblEnergyUse	T24E	2.74	1.92
tblEnergyUse	T24NG	21,338.24	16,003.68
tblEnergyUse	T24NG	41.99	29.39
tblEnergyUse	T24NG	4.10	2.87
tblFireplaces	FireplaceWoodMass	92.40	0.00
tblFireplaces	NumberGas	139.70	254.00
tblFireplaces	NumberNoFireplace	78.74	0.00
tblFireplaces	NumberWood	35.56	0.00
tblGrading	AcresOfGrading	0.00	0.50
tblGrading	MaterialExported	0.00	8,500.00
tblLandUse	LandUseSquareFeet	130,400.00	117,267.00
tblLandUse	LandUseSquareFeet	254,000.00	355,101.00
tblLandUse	LotAcreage	2.93	0.00
tblLandUse	LotAcreage	0.09	0.00
tblLandUse	LotAcreage	3.97	0.51
tblLandUse	LotAcreage	0.07	0.00
tblOffRoadEquipment	HorsePower	162.00	350.00
tblOffRoadEquipment	HorsePower	162.00	350.00
tblOffRoadEquipment	HorsePower	162.00	175.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	0.70
tblOffRoadEquipment	UsageHours	6.00	1.10
tblOffRoadEquipment	UsageHours	6.00	0.30
tblOffRoadEquipment	UsageHours	6.00	0.40
tblOffRoadEquipment	UsageHours	7.00	1.60
tblOffRoadEquipment	UsageHours	7.00	1.20
tblOffRoadEquipment	UsageHours	1.00	3.30
tblOffRoadEquipment	UsageHours	1.00	7.70
tblOffRoadEquipment	UsageHours	6.00	7.30
tblOffRoadEquipment	UsageHours	6.00	7.70
tblOffRoadEquipment	UsageHours	7.00	1.10
tblOffRoadEquipment	UsageHours	8.00	7.10
tblProjectCharacteristics	CO2IntensityFactor	641.35	445
tblProjectCharacteristics	OperationalYear	2014	2019
tblTripsAndVMT	HaulingTripLength	20.00	7.30
tblTripsAndVMT	HaulingTripLength	20.00	7.30
tblTripsAndVMT	HaulingTripNumber	0.00	3,600.00
tblTripsAndVMT	HaulingTripNumber	0.00	14.00
tblVehicleTrips	ST_TR	7.16	4.08
tblVehicleTrips	ST_TR	158.37	90.27
tblVehicleTrips	ST_TR	42.04	124.02
tblVehicleTrips	SU_TR	6.07	3.46

tblVehicleTrips	SU_TR	131.84	75.15
tblVehicleTrips	SU_TR	20.43	60.27
tblVehicleTrips	WD_TR	6.59	3.73
tblVehicleTrips	WD_TR	127.15	72.37
tblVehicleTrips	WD_TR	44.32	130.65
tblWoodstoves	NumberCatalytic	1.27	0.00
tblWoodstoves	NumberNoncatalytic	1.27	0.00
tblWoodstoves	WoodstoveDayYear	10.82	0.00
tblWoodstoves	WoodstoveWoodMass	954.80	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0996	0.9696	0.8919	1.6300e-003	0.1310	0.0447	0.1757	0.0555	0.0411	0.0966	0.0000	145.5167	145.5167	0.0220	0.0000	145.9790
2017	1.6433	1.8374	4.8589	9.5900e-003	0.5850	0.0489	0.6339	0.1572	0.0463	0.2034	0.0000	758.8538	758.8538	0.0348	0.0000	759.5854
2018	2.0049	0.5947	1.2365	2.5600e-003	0.1464	0.0266	0.1730	0.0391	0.0259	0.0649	0.0000	198.7293	198.7293	0.0129	0.0000	199.0006
Total	**3.7477**	**3.4017**	**6.9872**	**0.0138**	**0.8624**	**0.1202**	**0.9826**	**0.2517**	**0.1133**	**0.3650**	**0.0000**	**1,103.0998**	**1,103.0998**	**0.0698**	**0.0000**	**1,104.5650**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.2460	0.0220	1.8985	1.0000e-004		0.0113	0.0113		0.0112	0.0112	0.0000	15.2978	15.2978	3.2700e-003	2.2000e-004	15.4360
Energy	0.0293	0.2517	0.1195	1.6000e-003		0.0202	0.0202		0.0202	0.0202	0.0000	633.0938	633.0938	0.0279	9.9400e-003	636.7620
Mobile	0.8572	2.2106	8.7081	0.0175	1.1314	0.0301	1.1615	0.3041	0.0277	0.3318	0.0000	1,288.7227	1,288.7227	0.0466	0.0000	1,289.7014
Waste						0.0000	0.0000		0.0000	0.0000	33.5585	0.0000	33.5585	1.9833	0.0000	75.2067
Water						0.0000	0.0000		0.0000	0.0000	5.6891	27.1077	32.7968	0.5861	0.0142	49.4950
Total	**3.1325**	**2.4843**	**10.7261**	**0.0192**	**1.1314**	**0.0615**	**1.1929**	**0.3041**	**0.0592**	**0.3632**	**39.2475**	**1,964.2221**	**2,003.4696**	**2.6472**	**0.0243**	**2,066.6010**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/31/2016	8/15/2016	5	11	
2	Site Preparation	Site Preparation	8/16/2016	10/1/2016	5	34	
3	Grading	Grading	10/1/2016	11/7/2016	5	26	
4	Trenching	Trenching	12/1/2016	1/5/2017	5	26	
5	Building Structure	Building Construction	12/1/2016	2/1/2018	5	306	
6	Building Exterior	Building Construction	4/1/2017	4/1/2018	5	260	
7	Architectural Coating	Architectural Coating	9/1/2017	7/1/2018	5	216	
8	Paving	Paving	4/1/2018	4/22/2018	5	15	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 719,080; Residential Outdoor: 239,693; Non-Residential Indoor: 186,251; Non-Residential Outdoor: 62,084

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	1	5.80	350	0.38
Demolition	Excavators	1	5.50	350	0.38
Demolition	Rubber Tired Dozers	1	3.30	255	0.40
Demolition	Tractors/Loaders/Backhoes	2	7.30	97	0.37
Site Preparation	Bore/Drill Rigs	1	5.90	205	0.50
Site Preparation	Graders	0	8.00	174	0.41
Site Preparation	Sweepers/Scrubbers	1	5.30	64	0.46
Site Preparation	Tractors/Loaders/Backhoes	2	7.10	97	0.37
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Excavators	1	7.70	162	0.38
Grading	Rough Terrain Forklifts	1	3.50	100	0.40
Grading	Rubber Tired Dozers	1	7.70	255	0.40
Grading	Sweepers/Scrubbers	1	5.80	64	0.46
Grading	Tractors/Loaders/Backhoes	1	7.70	97	0.37
Trenching	Excavators	1	5.80	175	0.38
Trenching	Trenchers	1	5.80	80	0.50
Building Structure	Cranes	0	4.00	226	0.29
Building Structure	Forklifts	1	0.30	89	0.20
Building Structure	Rough Terrain Forklifts	1	0.60	100	0.40
Building Structure	Sweepers/Scrubbers	1	0.30	64	0.46
Building Structure	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Exterior	Cranes	0	4.00	226	0.29
Building Exterior	Forklifts	1	0.40	89	0.20
Building Exterior	Rough Terrain Forklifts	1	0.70	100	0.40
Building Exterior	Sweepers/Scrubbers	1	1.00	64	0.46
Building Exterior	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Exterior	Welders	2	1.40	46	0.45

Architectural Coating	Aerial Lifts	5	0.90	62	0.31
Architectural Coating	Air Compressors	5	0.70	78	0.48
Architectural Coating	Concrete/Industrial Saws	5	0.90	81	0.73
Architectural Coating	Forklifts	1	0.60	89	0.20
Architectural Coating	Rough Terrain Forklifts	1	0.60	100	0.40
Architectural Coating	Sweepers/Scrubbers	1	1.00	64	0.46
Paving	Cement and Mortar Mixers	4	1.10	9	0.56
Paving	Pavers	1	1.60	125	0.42
Paving	Paving Equipment	1	1.60	130	0.36
Paving	Rollers	1	1.20	80	0.38
Paving	Tractors/Loaders/Backhoes	1	1.10	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	54.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	10.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	1,063.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	2	5.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Structure	3	235.00	48.00	3,600.00	12.40	7.30	7.30	LD_Mix	HDT_Mix	HHDT
Building Exterior	5	235.00	48.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	18	47.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	14.00	12.40	7.30	7.30	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2016

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Fugitive Dust					5.8800e-003	0.0000	5.8800e-003	8.9000e-004	0.0000	8.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0101	0.1154	0.0705	1.4000e-004		5.6300e-003	5.6300e-003		5.1800e-003	5.1800e-003	0.0000	13.1848	13.1848	3.9800e-003	0.0000	13.2683
Total	**0.0101**	**0.1154**	**0.0705**	**1.4000e-004**	**5.8800e-003**	**5.6300e-003**	**0.0115**	**8.9000e-004**	**5.1800e-003**	**6.0700e-003**	**0.0000**	**13.1848**	**13.1848**	**3.9800e-003**	**0.0000**	**13.2683**

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Hauling	6.0000e-004	8.1000e-003	6.6200e-003	2.0000e-005	4.6000e-004	1.1000e-004	5.6000e-004	1.3000e-004	1.0000e-004	2.2000e-004	0.0000	1.8632	1.8632	1.0000e-005	0.0000	1.8635
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.7000e-004	4.0000e-004	3.9100e-003	1.0000e-005	6.5000e-004	1.0000e-005	6.5000e-004	1.7000e-004	1.0000e-005	1.8000e-004	0.0000	0.5903	0.5903	3.0000e-005	0.0000	0.5910
Total	**8.7000e-004**	**8.5000e-003**	**0.0105**	**3.0000e-005**	**1.1100e-003**	**1.2000e-004**	**1.2100e-003**	**3.0000e-004**	**1.1000e-004**	**4.0000e-004**	**0.0000**	**2.4535**	**2.4535**	**4.0000e-005**	**0.0000**	**2.4545**

3.3 Site Preparation - 2016

Unmitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	0.0192	0.2017	0.1222	2.3000e-004		0.0128	0.0128		0.0118	0.0118	0.0000	21.8818	21.8818	6.6000e-003	0.0000	22.0204
Total	**0.0192**	**0.2017**	**0.1222**	**2.3000e-004**	**2.7000e-004**	**0.0128**	**0.0131**	**3.0000e-005**	**0.0118**	**0.0118**	**0.0000**	**21.8818**	**21.8818**	**6.6000e-003**	**0.0000**	**22.0204**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	9.6000e-004	9.2900e-003	2.0000e-005	1.5400e-003	1.0000e-005	1.5600e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.4036	1.4036	8.0000e-005	0.0000	1.4053
Total	**6.5000e-004**	**9.6000e-004**	**9.2900e-003**	**2.0000e-005**	**1.5400e-003**	**1.0000e-005**	**1.5600e-003**	**4.1000e-004**	**1.0000e-005**	**4.2000e-004**	**0.0000**	**1.4036**	**1.4036**	**8.0000e-005**	**0.0000**	**1.4053**

3.4 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0758	0.0000	0.0758	0.0415	0.0000	0.0415	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0297	0.3167	0.2376	2.6000e-004		0.0176	0.0176		0.0162	0.0162	0.0000	24.5009	24.5009	7.3900e-003	0.0000	24.6561
Total	**0.0297**	**0.3167**	**0.2376**	**2.6000e-004**	**0.0758**	**0.0176**	**0.0934**	**0.0415**	**0.0162**	**0.0577**	**0.0000**	**24.5009**	**24.5009**	**7.3900e-003**	**0.0000**	**24.6561**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0119	0.1595	0.1303	4.0000e-004	8.9700e-003	2.0900e-003	0.0111	2.4600e-003	1.9200e-003	4.3800e-003	0.0000	36.6769	36.6769	2.7000e-004	0.0000	36.6826
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	9.6000e-004	9.2300e-003	2.0000e-005	1.5300e-003	1.0000e-005	1.5500e-003	4.1000e-004	1.0000e-005	4.2000e-004	0.0000	1.3953	1.3953	8.0000e-005	0.0000	1.3970
Total	**0.0125**	**0.1604**	**0.1396**	**4.2000e-004**	**0.0105**	**2.1000e-003**	**0.0126**	**2.8700e-003**	**1.9300e-003**	**4.8000e-003**	**0.0000**	**38.0722**	**38.0722**	**3.5000e-004**	**0.0000**	**38.0796**

3.5 Trenching - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.7800e-003	0.0770	0.0520	7.0000e-005		4.9200e-003	4.9200e-003		4.5300e-003	4.5300e-003	0.0000	6.9004	6.9004	2.0800e-003	0.0000	6.9441
Total	**7.7800e-003**	**0.0770**	**0.0520**	**7.0000e-005**		**4.9200e-003**	**4.9200e-003**		**4.5300e-003**	**4.5300e-003**	**0.0000**	**6.9004**	**6.9004**	**2.0800e-003**	**0.0000**	**6.9441**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	3.1000e-004	3.0000e-003	1.0000e-005	5.0000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.4000e-004	0.0000	0.4541	0.4541	3.0000e-005	0.0000	0.4546
Total	**2.1000e-004**	**3.1000e-004**	**3.0000e-003**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.4541**	**0.4541**	**3.0000e-005**	**0.0000**	**0.4546**

3.5 Trenching - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.3500e-003	0.0131	9.4200e-003	1.0000e-005		8.4000e-004	8.4000e-004		7.8000e-004	7.8000e-004	0.0000	1.2350	1.2350	3.8000e-004	0.0000	1.2429
Total	**1.3500e-003**	**0.0131**	**9.4200e-003**	**1.0000e-005**		**8.4000e-004**	**8.4000e-004**		**7.8000e-004**	**7.8000e-004**	**0.0000**	**1.2350**	**1.2350**	**3.8000e-004**	**0.0000**	**1.2429**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Worker	3.0000e-005	5.0000e-005	4.9000e-004	0.0000	9.0000e-005	0.0000	9.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0794	0.0794	0.0000	0.0000	0.0795
Total	**3.0000e-005**	**5.0000e-005**	**4.9000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0794**	**0.0794**	**0.0000**	**0.0000**	**0.0795**

3.6 Building Structure - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.4000e-004	4.4200e-003	3.3400e-003	0.0000		3.1000e-004	3.1000e-004		2.9000e-004	2.9000e-004	0.0000	0.4259	0.4259	1.3000e-004	0.0000	0.4286
Total	**4.4000e-004**	**4.4200e-003**	**3.3400e-003**	**0.0000**		**3.1000e-004**	**3.1000e-004**		**2.9000e-004**	**2.9000e-004**	**0.0000**	**0.4259**	**0.4259**	**1.3000e-004**	**0.0000**	**0.4286**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9700e-003	0.0161	0.0272	4.0000e-005	8.5100e-003	1.9000e-004	8.7000e-003	2.1100e-003	1.7000e-004	2.2900e-003	0.0000	3.3904	3.3904	3.0000e-005	0.0000	3.3910
Vendor	6.3300e-003	0.0534	0.0756	1.3000e-004	3.4100e-003	8.0000e-004	4.2200e-003	9.8000e-004	7.4000e-004	1.7200e-003	0.0000	11.5065	11.5065	9.0000e-005	0.0000	11.5084
Worker	9.8900e-003	0.0146	0.1412	2.8000e-004	0.0235	2.0000e-004	0.0237	6.2400e-003	1.8000e-004	6.4300e-003	0.0000	21.3427	21.3427	1.2100e-003	0.0000	21.3681
Total	**0.0182**	**0.0841**	**0.2440**	**4.5000e-004**	**0.0354**	**1.1900e-003**	**0.0366**	**9.3300e-003**	**1.0900e-003**	**0.0104**	**0.0000**	**36.2396**	**36.2396**	**1.3300e-003**	**0.0000**	**36.2675**

3.6 Building Structure - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.7200e-003	0.0477	0.0391	5.0000e-005		3.3000e-003	3.3000e-003		3.0400e-003	3.0400e-003	0.0000	4.9551	4.9551	1.5200e-003	0.0000	4.9869
Total	**4.7200e-003**	**0.0477**	**0.0391**	**5.0000e-005**		**3.3000e-003**	**3.3000e-003**		**3.0400e-003**	**3.0400e-003**	**0.0000**	**4.9551**	**4.9551**	**1.5200e-003**	**0.0000**	**4.9869**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0223	0.1716	0.3126	4.4000e-004	0.0107	1.9800e-003	0.0127	2.9000e-003	1.8200e-003	4.7300e-003	0.0000	39.3825	39.3825	3.2000e-004	0.0000	39.3893
Vendor	0.0702	0.5653	0.8574	1.4900e-003	0.0404	8.2200e-003	0.0486	0.0116	7.5600e-003	0.0192	0.0000	133.7008	133.7008	1.0400e-003	0.0000	133.7227
Worker	0.1035	0.1547	1.4832	3.3100e-003	0.2773	2.2600e-003	0.2796	0.0738	2.0800e-003	0.0758	0.0000	242.6242	242.6242	0.0130	0.0000	242.8979
Total	**0.1959**	**0.8916**	**2.6532**	**5.2400e-003**	**0.3283**	**0.0125**	**0.3408**	**0.0883**	**0.0115**	**0.0997**	**0.0000**	**415.7074**	**415.7074**	**0.0144**	**0.0000**	**416.0098**

3.6 Building Structure - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.6000e-004	3.7100e-003	3.5300e-003	0.0000		2.4000e-004	2.4000e-004		2.2000e-004	2.2000e-004	0.0000	0.4501	0.4501	1.4000e-004	0.0000	0.4531
Total	**3.6000e-004**	**3.7100e-003**	**3.5300e-003**	**0.0000**		**2.4000e-004**	**2.4000e-004**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.4501**	**0.4501**	**1.4000e-004**	**0.0000**	**0.4531**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.9600e-003	0.0145	0.0280	4.0000e-005	8.5300e-003	1.8000e-004	8.7100e-003	2.1200e-003	1.7000e-004	2.2900e-003	0.0000	3.5722	3.5722	3.0000e-005	0.0000	3.5728
Vendor	6.0900e-003	0.0473	0.0758	1.4000e-004	3.7200e-003	7.0000e-004	4.4300e-003	1.0700e-003	6.5000e-004	1.7200e-003	0.0000	12.1290	12.1290	9.0000e-005	0.0000	12.1310
Worker	8.4800e-003	0.0128	0.1221	3.1000e-004	0.0256	2.0000e-004	0.0258	6.8100e-003	1.9000e-004	6.9900e-003	0.0000	21.5643	21.5643	1.1000e-003	0.0000	21.5875
Total	**0.0165**	**0.0746**	**0.2259**	**4.9000e-004**	**0.0379**	**1.0800e-003**	**0.0389**	**0.0100**	**1.0100e-003**	**0.0110**	**0.0000**	**37.2655**	**37.2655**	**1.2200e-003**	**0.0000**	**37.2913**

3.7 Building Exterior - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0243	0.1270	0.1167	1.5000e-004		9.4800e-003	9.4800e-003		9.0700e-003	9.0700e-003	0.0000	12.7125	12.7125	3.3200e-003	0.0000	12.7822

Total	**0.0243**	**0.1270**	**0.1167**	**1.5000e-004**		**9.4800e-003**	**9.4800e-003**		**9.0700e-003**	**9.0700e-003**	**0.0000**	**12.7125**	**12.7125**	**3.3200e-003**	**0.0000**	**12.7822**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0526	0.4240	0.6430	1.1200e-003	0.0303	6.1600e-003	0.0364	8.6900e-003	5.6700e-003	0.0144	0.0000	100.2756	100.2756	7.8000e-004	0.0000	100.2920
Worker	0.0776	0.1160	1.1124	2.4800e-003	0.2080	1.6900e-003	0.2097	0.0553	1.5600e-003	0.0569	0.0000	181.9681	181.9681	9.7800e-003	0.0000	182.1734
Total	**0.1302**	**0.5400**	**1.7555**	**3.6000e-003**	**0.2382**	**7.8500e-003**	**0.2461**	**0.0640**	**7.2300e-003**	**0.0712**	**0.0000**	**282.2437**	**282.2437**	**0.0106**	**0.0000**	**282.4654**

3.7 Building Exterior - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.0200e-003	0.0382	0.0379	5.0000e-005		2.6700e-003	2.6700e-003		2.5600e-003	2.5600e-003	0.0000	4.2043	4.2043	1.0500e-003	0.0000	4.2264
Total	**7.0200e-003**	**0.0382**	**0.0379**	**5.0000e-005**		**2.6700e-003**	**2.6700e-003**		**2.5600e-003**	**2.5600e-003**	**0.0000**	**4.2043**	**4.2043**	**1.0500e-003**	**0.0000**	**4.2264**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0165	0.1280	0.2053	3.7000e-004	0.0101	1.9000e-003	0.0120	2.9000e-003	1.7500e-003	4.6500e-003	0.0000	32.8493	32.8493	2.6000e-004	0.0000	32.8547
Worker	0.0230	0.0348	0.3307	8.3000e-004	0.0693	5.4000e-004	0.0699	0.0184	5.0000e-004	0.0189	0.0000	58.4033	58.4033	2.9900e-003	0.0000	58.4662
Total	**0.0395**	**0.1628**	**0.5360**	**1.2000e-003**	**0.0794**	**2.4400e-003**	**0.0819**	**0.0213**	**2.2500e-003**	**0.0236**	**0.0000**	**91.2526**	**91.2526**	**3.2500e-003**	**0.0000**	**91.3209**

3.8 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.2530					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0269	0.2077	0.1864	3.0000e-004		0.0148	0.0148		0.0146	0.0146	0.0000	25.8702	25.8702	3.8000e-003	0.0000	25.9500
Total	**1.2799**	**0.2077**	**0.1864**	**3.0000e-004**		**0.0148**	**0.0148**		**0.0146**	**0.0146**	**0.0000**	**25.8702**	**25.8702**	**3.8000e-003**	**0.0000**	**25.9500**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8500e-003	0.0102	0.0981	2.2000e-004	0.0183	1.5000e-004	0.0185	4.8800e-003	1.4000e-004	5.0200e-003	0.0000	16.0505	16.0505	8.6000e-004	0.0000	16.0686
Total	**6.8500e-003**	**0.0102**	**0.0981**	**2.2000e-004**	**0.0183**	**1.5000e-004**	**0.0185**	**4.8800e-003**	**1.4000e-004**	**5.0200e-003**	**0.0000**	**16.0505**	**16.0505**	**8.6000e-004**	**0.0000**	**16.0686**

3.8 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.8941					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0360	0.2839	0.2792	4.5000e-004		0.0191	0.0191		0.0188	0.0188	0.0000	38.9517	38.9517	5.4300e-003	0.0000	39.0658
Total	**1.9301**	**0.2839**	**0.2792**	**4.5000e-004**		**0.0191**	**0.0191**		**0.0188**	**0.0188**	**0.0000**	**38.9517**	**38.9517**	**5.4300e-003**	**0.0000**	**39.0658**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Worker	9.1800e-003	0.0139	0.1323	3.3000e-004	0.0277	2.2000e-004	0.0280	7.3800e-003	2.0000e-004	7.5800e-003	0.0000	23.3613	23.3613	1.2000e-003	0.0000	23.3865
Total	**9.1800e-003**	**0.0139**	**0.1323**	**3.3000e-004**	**0.0277**	**2.2000e-004**	**0.0280**	**7.3800e-003**	**2.0000e-004**	**7.5800e-003**	**0.0000**	**23.3613**	**23.3613**	**1.2000e-003**	**0.0000**	**23.3865**

3.9 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.6300e-003	0.0162	0.0138	2.0000e-005		8.9000e-004	8.9000e-004		8.2000e-004	8.2000e-004	0.0000	1.9195	1.9195	5.6000e-004	0.0000	1.9313
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.6300e-003**	**0.0162**	**0.0138**	**2.0000e-005**		**8.9000e-004**	**8.9000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**1.9195**	**1.9195**	**5.6000e-004**	**0.0000**	**1.9313**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-004	7.2000e-004	1.3900e-003	0.0000	4.0000e-005	1.0000e-005	5.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1771	0.1771	0.0000	0.0000	0.1772
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	6.8000e-004	6.5000e-003	2.0000e-005	1.3600e-003	1.0000e-005	1.3700e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.1470	1.1470	6.0000e-005	0.0000	1.1483
Total	**5.5000e-004**	**1.4000e-003**	**7.8900e-003**	**2.0000e-005**	**1.4000e-003**	**2.0000e-005**	**1.4200e-003**	**3.7000e-004**	**2.0000e-005**	**3.9000e-004**	**0.0000**	**1.3242**	**1.3242**	**6.0000e-005**	**0.0000**	**1.3254**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Unmitigated	0.8572	2.2106	8.7081	0.0175	1.1314	0.0301	1.1615	0.3041	0.0277	0.3318	0.0000	1,288.7227	1,288.7227	0.0466	0.0000	1,289.7014

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse High Rise	947.42	1,036.32	878.84	2,121,468	2,121,468
Enclosed Parking with Elevator	0.00	0.00	0.00		
High Turnover (Sit Down Restaurant)	275.01	343.03	285.57	332,105	332,105
Strip Mall	405.02	384.46	186.84	571,215	571,215
Total	1,627.44	1,763.81	1,351.25	3,024,788	3,024,788

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse High Rise	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43
Strip Mall	9.50	7.30	7.30	16.60	64.40	19.00	45	40	15

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.542590	0.062129	0.167184	0.110637	0.030730	0.004573	0.019109	0.050292	0.001784	0.003671	0.005678	0.000201	0.001421

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	343.6638	343.6638	0.0224	4.6300e-003	345.5706
NaturalGas Unmitigated	0.0293	0.2517	0.1195	1.6000e-003		0.0202	0.0202		0.0202	0.0202	0.0000	289.4300	289.4300	5.5500e-003	5.3100e-003	291.1914

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Condo/Townhouse High Rise	4.81449e+006	0.0260	0.2218	0.0944	1.4200e-003		0.0179	0.0179		0.0179	0.0179	0.0000	256.9195	256.9195	4.9200e-003	4.7100e-003	258.4830
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	598158	3.2300e-003	0.0293	0.0246	1.8000e-004		2.2300e-003	2.2300e-003		2.2300e-003	2.2300e-003	0.0000	31.9200	31.9200	6.1000e-004	5.9000e-004	32.1143
Strip Mall	11067	6.0000e-005	5.4000e-004	4.6000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5906	0.5906	1.0000e-005	1.0000e-005	0.5942
Total		**0.0293**	**0.2517**	**0.1195**	**1.6000e-003**		**0.0202**	**0.0202**		**0.0202**	**0.0202**	**0.0000**	**289.4300**	**289.4300**	**5.5400e-003**	**5.3100e-003**	**291.1914**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse High Rise	1.01054e+006	203.9754	0.0133	2.7500e-003	205.1071
Enclosed Parking with Elevator	559364	112.9068	7.3600e-003	1.5200e-003	113.5332
High Turnover (Sit Down Restaurant)	104348	21.0625	1.3700e-003	2.8000e-004	21.1794
Strip Mall	28334	5.7192	3.7000e-004	8.0000e-005	5.7509
Total		**343.6638**	**0.0224**	**4.6300e-003**	**345.5706**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Unmitigated	2.2460	0.0220	1.8985	1.0000e-004		0.0113	0.0113		0.0112	0.0112	0.0000	15.2978	15.2978	3.2700e-003	2.2000e-004	15.4360

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3147					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.8718					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.2300e-003	0.0000	7.0000e-005	0.0000		8.5000e-004	8.5000e-004		8.4000e-004	8.4000e-004	0.0000	12.2112	12.2112	2.3000e-004	2.2000e-004	12.2855
Landscaping	0.0583	0.0220	1.8984	1.0000e-004		0.0104	0.0104		0.0104	0.0104	0.0000	3.0867	3.0867	3.0400e-003	0.0000	3.1505
Total	**2.2460**	**0.0220**	**1.8985**	**1.0000e-004**		**0.0113**	**0.0113**		**0.0112**	**0.0112**	**0.0000**	**15.2978**	**15.2978**	**3.2700e-003**	**2.2000e-004**	**15.4360**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Unmitigated	32.7968	0.5861	0.0142	49.4950

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e

Land Use	Mgal	MT/yr			
Condo/Townhouse High Rise	16.5491 / 10.4331	30.6960	0.5409	0.0131	46.1087
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	1.15343 / 0.0736231	1.6777	0.0377	9.1000e-004	2.7494
Strip Mall	0.229625 / 0.140738	0.4231	7.5100e-003	1.8000e-004	0.6369
Total		**32.7968**	**0.5861**	**0.0142**	**49.4950**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Unmitigated	33.5585	1.9833	0.0000	75.2067

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			

Condo/Townhouse High Rise	116.84	23.7175	1.4017	0.0000	53.1524
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	45.22	9.1793	0.5425	0.0000	20.5713
Strip Mall	3.26	0.6618	0.0391	0.0000	1.4830
Total		**33.5585**	**1.9833**	**0.0000**	**75.2067**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

1640 Broadway, Oakland

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	326.00	Space	0.00	117,267.00	0
High Turnover (Sit Down Restaurant)	3.80	1000sqft	0.00	3,800.00	0
Condo/Townhouse High Rise	254.00	Dwelling Unit	0.51	355,101.00	726
Strip Mall	3.10	1000sqft	0.00	3,100.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 63

Climate Zone 5 **Operational Year** 2019

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 445 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Land Use - Lot acreage and sf provided by project applicant

Construction Phase - Anticipated phasing schedule provided by project applicant

Off-road Equipment - Proposed equipment list provided by project applicant

Off-road Equipment - Proposed equipment list provided by project applicant. Electric cranes.

Off-road Equipment - Proposed equipment list provided by project applicant. Electric cranes.

Off-road Equipment - Proposed equipment list provided by project applicant

Off-road Equipment - Proposed equipment list provided by project applicant

Off-road Equipment - Proposed equipment list provided by project applicant

Off-road Equipment - Proposed equipment list provided by project applicant

Off-road Equipment - Proposed equipment list provided by project applicant

Trips and VMT - Bldg. Structure: 3,600 one-way cement truck trips. Paving: 110 CY asphalt @ 16CY/truck = 14 one-way trips. 0.5 mile trip lengths for TAC calc.

Demolition - 550 tons pavement demo

Grading - 8,500 CY soil export

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	5.00	216.00
tblConstructionPhase	NumDays	100.00	306.00
tblConstructionPhase	NumDays	100.00	260.00
tblConstructionPhase	NumDays	10.00	11.00
tblConstructionPhase	NumDays	2.00	26.00
tblConstructionPhase	NumDays	5.00	15.00
tblConstructionPhase	NumDays	1.00	34.00
tblConstructionPhase	PhaseEndDate	1/28/2019	7/1/2018
tblConstructionPhase	PhaseEndDate	3/9/2018	2/1/2018
tblConstructionPhase	PhaseEndDate	1/31/2019	4/1/2018
tblConstructionPhase	PhaseEndDate	7/20/2018	4/22/2018
tblConstructionPhase	PhaseEndDate	9/30/2016	10/1/2016
tblConstructionPhase	PhaseEndDate	12/13/2016	1/5/2017
tblConstructionPhase	PhaseStartDate	4/2/2018	9/1/2017
tblConstructionPhase	PhaseStartDate	1/6/2017	12/1/2016
tblConstructionPhase	PhaseStartDate	2/2/2018	4/1/2017
tblConstructionPhase	PhaseStartDate	10/2/2016	10/1/2016
tblConstructionPhase	PhaseStartDate	7/2/2018	4/1/2018
tblConstructionPhase	PhaseStartDate	11/8/2016	12/1/2016
tblGrading	AcresOfGrading	0.00	0.50
tblGrading	MaterialExported	0.00	8,500.00
tblLandUse	LandUseSquareFeet	130,400.00	117,267.00
tblLandUse	LandUseSquareFeet	254,000.00	355,101.00

tblLandUse	LotAcreage	2.93	0.00
tblLandUse	LotAcreage	0.09	0.00
tblLandUse	LotAcreage	3.97	0.51
tblLandUse	LotAcreage	0.07	0.00
tblOffRoadEquipment	HorsePower	162.00	350.00
tblOffRoadEquipment	HorsePower	162.00	350.00
tblOffRoadEquipment	HorsePower	162.00	175.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	5.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	0.70
tblOffRoadEquipment	UsageHours	6.00	1.10
tblOffRoadEquipment	UsageHours	6.00	0.30
tblOffRoadEquipment	UsageHours	6.00	0.40
tblOffRoadEquipment	UsageHours	7.00	1.60
tblOffRoadEquipment	UsageHours	7.00	1.20
tblOffRoadEquipment	UsageHours	1.00	3.30
tblOffRoadEquipment	UsageHours	1.00	7.70
tblOffRoadEquipment	UsageHours	6.00	7.30
tblOffRoadEquipment	UsageHours	6.00	7.70
tblOffRoadEquipment	UsageHours	7.00	1.10

tblOffRoadEquipment	UsageHours	8.00	7.10
tblProjectCharacteristics	CO2IntensityFactor	641.35	445
tblProjectCharacteristics	OperationalYear	2014	2019
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripLength	20.00	0.50
tblTripsAndVMT	HaulingTripNumber	0.00	3,600.00
tblTripsAndVMT	HaulingTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	VendorTripLength	7.30	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50
tblTripsAndVMT	WorkerTripLength	12.40	0.50

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0874	0.7527	0.7154	7.8000e-004	0.0842	0.0415	0.1257	0.0430	0.0382	0.0812	0.0000	72.3320	72.3320	0.0204	0.0000	72.7605
2017	1.5470	0.7510	2.4868	1.3400e-003	0.0267	0.0308	0.0575	7.3100e-003	0.0297	0.0370	0.0000	109.8536	109.8536	0.0122	0.0000	110.1100
2018	1.9866	0.4047	0.7263	7.0000e-004	6.7200e-003	0.0233	0.0300	1.8200e-003	0.0228	0.0246	0.0000	58.8338	58.8338	7.8700e-003	0.0000	58.9991
Total	**3.6211**	**1.9085**	**3.9284**	**2.8200e-003**	**0.1176**	**0.0957**	**0.2133**	**0.0521**	**0.0907**	**0.1428**	**0.0000**	**241.0194**	**241.0194**	**0.0405**	**0.0000**	**241.8696**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	7/31/2016	8/15/2016	5	11	
2	Site Preparation	Site Preparation	8/16/2016	10/1/2016	5	34	
3	Grading	Grading	10/1/2016	11/7/2016	5	26	
4	Trenching	Trenching	12/1/2016	1/5/2017	5	26	
5	Building Structure	Building Construction	12/1/2016	2/1/2018	5	306	
6	Building Exterior	Building Construction	4/1/2017	4/1/2018	5	260	
7	Architectural Coating	Architectural Coating	9/1/2017	7/1/2018	5	216	
8	Paving	Paving	4/1/2018	4/22/2018	5	15	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 719,080; Residential Outdoor: 239,693; Non-Residential Indoor: 186,251; Non-Residential Outdoor: 62,084

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	1	5.80	350	0.38
Demolition	Excavators	1	5.50	350	0.38
Demolition	Rubber Tired Dozers	1	3.30	255	0.40
Demolition	Tractors/Loaders/Backhoes	2	7.30	97	0.37
Site Preparation	Bore/Drill Rigs	1	5.90	205	0.50
Site Preparation	Graders	0	8.00	174	0.41
Site Preparation	Sweepers/Scrubbers	1	5.30	64	0.46
Site Preparation	Tractors/Loaders/Backhoes	2	7.10	97	0.37
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Excavators	1	7.70	162	0.38
Grading	Rough Terrain Forklifts	1	3.50	100	0.40
Grading	Rubber Tired Dozers	1	7.70	255	0.40
Grading	Sweepers/Scrubbers	1	5.80	64	0.46
Grading	Tractors/Loaders/Backhoes	1	7.70	97	0.37
Trenching	Excavators	1	5.80	175	0.38
Trenching	Trenchers	1	5.80	80	0.50
Building Structure	Cranes	0	4.00	226	0.29
Building Structure	Forklifts	1	0.30	89	0.20
Building Structure	Rough Terrain Forklifts	1	0.60	100	0.40
Building Structure	Sweepers/Scrubbers	1	0.30	64	0.46
Building Structure	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Exterior	Cranes	0	4.00	226	0.29
Building Exterior	Forklifts	1	0.40	89	0.20
Building Exterior	Rough Terrain Forklifts	1	0.70	100	0.40
Building Exterior	Sweepers/Scrubbers	1	1.00	64	0.46

Building Exterior	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Exterior	Welders	2	1.40	46	0.45
Architectural Coating	Aerial Lifts	5	0.90	62	0.31
Architectural Coating	Air Compressors	5	0.70	78	0.48
Architectural Coating	Concrete/Industrial Saws	5	0.90	81	0.73
Architectural Coating	Forklifts	1	0.60	89	0.20
Architectural Coating	Rough Terrain Forklifts	1	0.60	100	0.40
Architectural Coating	Sweepers/Scrubbers	1	1.00	64	0.46
Paving	Cement and Mortar Mixers	4	1.10	9	0.56
Paving	Pavers	1	1.60	125	0.42
Paving	Paving Equipment	1	1.60	130	0.36
Paving	Rollers	1	1.20	80	0.38
Paving	Tractors/Loaders/Backhoes	1	1.10	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	54.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	10.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	1,063.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Trenching	2	5.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Building Structure	3	235.00	48.00	3,600.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Building Exterior	5	235.00	48.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Architectural Coating	18	47.00	0.00	0.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	14.00	0.50	0.50	0.50	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8800e-003	0.0000	5.8800e-003	8.9000e-004	0.0000	8.9000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0101	0.1154	0.0705	1.4000e-004		5.6300e-003	5.6300e-003		5.1800e-003	5.1800e-003	0.0000	13.1848	13.1848	3.9800e-003	0.0000	13.2683
Total	**0.0101**	**0.1154**	**0.0705**	**1.4000e-004**	**5.8800e-003**	**5.6300e-003**	**0.0115**	**8.9000e-004**	**5.1800e-003**	**6.0700e-003**	**0.0000**	**13.1848**	**13.1848**	**3.9800e-003**	**0.0000**	**13.2683**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.1000e-004	8.2000e-004	5.1500e-003	0.0000	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0885	0.0885	0.0000	0.0000	0.0885
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	6.0000e-005	7.6000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0381	0.0381	0.0000	0.0000	0.0381
Total	**5.0000e-004**	**8.8000e-004**	**5.9100e-003**	**0.0000**	**4.0000e-005**	**0.0000**	**5.0000e-005**	**1.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.1266**	**0.1266**	**0.0000**	**0.0000**	**0.1267**

3.3 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0192	0.2017	0.1222	2.3000e-004		0.0128	0.0128		0.0118	0.0118	0.0000	21.8818	21.8818	6.6000e-003	0.0000	22.0204
Total	**0.0192**	**0.2017**	**0.1222**	**2.3000e-004**	**2.7000e-004**	**0.0128**	**0.0131**	**3.0000e-005**	**0.0118**	**0.0118**	**0.0000**	**21.8818**	**21.8818**	**6.6000e-003**	**0.0000**	**22.0204**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	1.3000e-004	1.8000e-003	0.0000	6.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0905	0.0905	1.0000e-005	0.0000	0.0907
Total	**4.4000e-004**	**1.3000e-004**	**1.8000e-003**	**0.0000**	**6.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0905**	**0.0905**	**1.0000e-005**	**0.0000**	**0.0907**

3.4 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0758	0.0000	0.0758	0.0415	0.0000	0.0415	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0297	0.3167	0.2376	2.6000e-004		0.0176	0.0176		0.0162	0.0162	0.0000	24.5009	24.5009	7.3900e-003	0.0000	24.6561

Total	0.0297	0.3167	0.2376	2.6000e-004	0.0758	0.0176	0.0934	0.0415	0.0162	0.0577	0.0000	24.5009	24.5009	7.3900e-003	0.0000	24.6561

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0500e-003	0.0161	0.1014	2.0000e-005	2.4000e-004	8.0000e-005	3.2000e-004	7.0000e-005	8.0000e-005	1.4000e-004	0.0000	1.7422	1.7422	3.0000e-005	0.0000	1.7429
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-004	1.3000e-004	1.7900e-003	0.0000	6.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0900	0.0900	1.0000e-005	0.0000	0.0902
Total	**6.4900e-003**	**0.0162**	**0.1032**	**2.0000e-005**	**3.0000e-004**	**8.0000e-005**	**3.9000e-004**	**9.0000e-005**	**8.0000e-005**	**1.6000e-004**	**0.0000**	**1.8322**	**1.8322**	**4.0000e-005**	**0.0000**	**1.8330**

3.5 Trenching - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.7800e-003	0.0770	0.0520	7.0000e-005		4.9200e-003	4.9200e-003		4.5300e-003	4.5300e-003	0.0000	6.9004	6.9004	2.0800e-003	0.0000	6.9441
Total	**7.7800e-003**	**0.0770**	**0.0520**	**7.0000e-005**		**4.9200e-003**	**4.9200e-003**		**4.5300e-003**	**4.5300e-003**	**0.0000**	**6.9004**	**6.9004**	**2.0800e-003**	**0.0000**	**6.9441**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4000e-004	4.0000e-005	5.8000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0293	0.0293	0.0000	0.0000	0.0293
Total	**1.4000e-004**	**4.0000e-005**	**5.8000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0293**	**0.0293**	**0.0000**	**0.0000**	**0.0293**

3.5 Trenching - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.3500e-003	0.0131	9.4200e-003	1.0000e-005		8.4000e-004	8.4000e-004		7.8000e-004	7.8000e-004	0.0000	1.2350	1.2350	3.8000e-004	0.0000	1.2429
Total	**1.3500e-003**	**0.0131**	**9.4200e-003**	**1.0000e-005**		**8.4000e-004**	**8.4000e-004**		**7.8000e-004**	**7.8000e-004**	**0.0000**	**1.2350**	**1.2350**	**3.8000e-004**	**0.0000**	**1.2429**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.0000e-005	1.0000e-005	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5.1200e-003	5.1200e-003	0.0000	0.0000	5.1300e-003
Total	**2.0000e-005**	**1.0000e-005**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**5.1200e-003**	**5.1200e-003**	**0.0000**	**0.0000**	**5.1300e-003**

3.6 Building Structure - 2016

<u>Unmitigated Construction On-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.4000e-004	4.4200e-003	3.3400e-003	0.0000		3.1000e-004	3.1000e-004		2.9000e-004	2.9000e-004	0.0000	0.4259	0.4259	1.3000e-004	0.0000	0.4286
Total	**4.4000e-004**	**4.4200e-003**	**3.3400e-003**	**0.0000**		**3.1000e-004**	**3.1000e-004**		**2.9000e-004**	**2.9000e-004**	**0.0000**	**0.4259**	**0.4259**	**1.3000e-004**	**0.0000**	**0.4286**

<u>Unmitigated Construction Off-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4700e-003	3.9100e-003	0.0247	1.0000e-005	5.9000e-004	2.0000e-005	6.1000e-004	1.5000e-004	2.0000e-005	1.6000e-004	0.0000	0.4242	0.4242	1.0000e-005	0.0000	0.4244
Vendor	4.5200e-003	0.0142	0.0662	2.0000e-005	2.5000e-004	9.0000e-005	3.4000e-004	7.0000e-005	8.0000e-005	1.5000e-004	0.0000	1.5593	1.5593	2.0000e-005	0.0000	1.5598

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Worker	6.6900e-003	2.0300e-003	0.0274	2.0000e-005	9.7000e-004	3.0000e-005	1.0000e-003	2.6000e-004	3.0000e-005	2.9000e-004	0.0000	1.3761	1.3761	1.4000e-004	0.0000	1.3790
Total	**0.0127**	**0.0202**	**0.1183**	**5.0000e-005**	**1.8100e-003**	**1.4000e-004**	**1.9500e-003**	**4.8000e-004**	**1.3000e-004**	**6.0000e-004**	**0.0000**	**3.3596**	**3.3596**	**1.7000e-004**	**0.0000**	**3.3632**

3.6 Building Structure - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.7200e-003	0.0477	0.0391	5.0000e-005		3.3000e-003	3.3000e-003		3.0400e-003	3.0400e-003	0.0000	4.9551	4.9551	1.5200e-003	0.0000	4.9869
Total	**4.7200e-003**	**0.0477**	**0.0391**	**5.0000e-005**		**3.3000e-003**	**3.3000e-003**		**3.0400e-003**	**3.0400e-003**	**0.0000**	**4.9551**	**4.9551**	**1.5200e-003**	**0.0000**	**4.9869**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0167	0.0432	0.2849	6.0000e-005	7.6000e-004	2.1000e-004	9.7000e-004	2.1000e-004	1.9000e-004	4.0000e-004	0.0000	4.9282	4.9282	9.0000e-005	0.0000	4.9302
Vendor	0.0503	0.1563	0.7550	2.1000e-004	2.9100e-003	9.1000e-004	3.8200e-003	8.5000e-004	8.3000e-004	1.6800e-003	0.0000	18.1291	18.1291	2.6000e-004	0.0000	18.1346
Worker	0.0727	0.0213	0.2913	2.2000e-004	0.0115	3.4000e-004	0.0118	3.0900e-003	3.1000e-004	3.4000e-003	0.0000	15.6493	15.6493	1.4500e-003	0.0000	15.6799
Total	**0.1397**	**0.2209**	**1.3311**	**4.9000e-004**	**0.0151**	**1.4600e-003**	**0.0166**	**4.1500e-003**	**1.3300e-003**	**5.4800e-003**	**0.0000**	**38.7066**	**38.7066**	**1.8000e-003**	**0.0000**	**38.7447**

3.6 Building Structure - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.6000e-004	3.7100e-003	3.5300e-003	0.0000		2.4000e-004	2.4000e-004		2.2000e-004	2.2000e-004	0.0000	0.4501	0.4501	1.4000e-004	0.0000	0.4531
Total	**3.6000e-004**	**3.7100e-003**	**3.5300e-003**	**0.0000**		**2.4000e-004**	**2.4000e-004**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.4501**	**0.4501**	**1.4000e-004**	**0.0000**	**0.4531**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4500e-003	3.7700e-003	0.0254	1.0000e-005	5.9000e-004	2.0000e-005	6.1000e-004	1.5000e-004	2.0000e-005	1.6000e-004	0.0000	0.4468	0.4468	1.0000e-005	0.0000	0.4470
Vendor	4.3300e-003	0.0136	0.0668	2.0000e-005	2.7000e-004	8.0000e-005	3.5000e-004	8.0000e-005	7.0000e-005	1.5000e-004	0.0000	1.6448	1.6448	2.0000e-005	0.0000	1.6453
Worker	6.1800e-003	1.7600e-003	0.0242	2.0000e-005	1.0600e-003	3.0000e-005	1.0900e-003	2.9000e-004	3.0000e-005	3.1000e-004	0.0000	1.3911	1.3911	1.2000e-004	0.0000	1.3936
Total	**0.0120**	**0.0191**	**0.1165**	**5.0000e-005**	**1.9200e-003**	**1.3000e-004**	**2.0500e-003**	**5.2000e-004**	**1.2000e-004**	**6.2000e-004**	**0.0000**	**3.4827**	**3.4827**	**1.5000e-004**	**0.0000**	**3.4860**

3.7 Building Exterior - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0243	0.1270	0.1167	1.5000e-004		9.4800e-003	9.4800e-003		9.0700e-003	9.0700e-003	0.0000	12.7125	12.7125	3.3200e-003	0.0000	12.7822
Total	**0.0243**	**0.1270**	**0.1167**	**1.5000e-004**		**9.4800e-003**	**9.4800e-003**		**9.0700e-003**	**9.0700e-003**	**0.0000**	**12.7125**	**12.7125**	**3.3200e-003**	**0.0000**	**12.7822**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0377	0.1173	0.5662	1.6000e-004	2.1800e-003	6.8000e-004	2.8600e-003	6.4000e-004	6.3000e-004	1.2600e-003	0.0000	13.5968	13.5968	2.0000e-004	0.0000	13.6010
Worker	0.0545	0.0160	0.2185	1.6000e-004	8.6000e-003	2.5000e-004	8.8500e-003	2.3200e-003	2.3000e-004	2.5500e-003	0.0000	11.7370	11.7370	1.0900e-003	0.0000	11.7599
Total	**0.0922**	**0.1333**	**0.7847**	**3.2000e-004**	**0.0108**	**9.3000e-004**	**0.0117**	**2.9600e-003**	**8.6000e-004**	**3.8100e-003**	**0.0000**	**25.3338**	**25.3338**	**1.2900e-003**	**0.0000**	**25.3609**

3.7 Building Exterior - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.0200e-003	0.0382	0.0379	5.0000e-005		2.6700e-003	2.6700e-003		2.5600e-003	2.5600e-003	0.0000	4.2043	4.2043	1.0500e-003	0.0000	4.2264

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Total	**7.0200e-003**	**0.0382**	**0.0379**	**5.0000e-005**		**2.6700e-003**	**2.6700e-003**		**2.5600e-003**	**2.5600e-003**	**0.0000**	**4.2043**	**4.2043**	**1.0500e-003**	**0.0000**	**4.2264**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0117	0.0367	0.1810	5.0000e-005	7.3000e-004	2.1000e-004	9.4000e-004	2.1000e-004	1.9000e-004	4.0000e-004	0.0000	4.4547	4.4547	7.0000e-005	0.0000	4.4561
Worker	0.0167	4.7700e-003	0.0656	5.0000e-005	2.8700e-003	8.0000e-005	2.9500e-003	7.7000e-004	8.0000e-005	8.5000e-004	0.0000	3.7676	3.7676	3.3000e-004	0.0000	3.7744
Total	**0.0285**	**0.0415**	**0.2466**	**1.0000e-004**	**3.6000e-003**	**2.9000e-004**	**3.8900e-003**	**9.8000e-004**	**2.7000e-004**	**1.2500e-003**	**0.0000**	**8.2223**	**8.2223**	**4.0000e-004**	**0.0000**	**8.2305**

3.8 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.2530					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0269	0.2077	0.1864	3.0000e-004		0.0148	0.0148		0.0146	0.0146	0.0000	25.8702	25.8702	3.8000e-003	0.0000	25.9500
Total	**1.2799**	**0.2077**	**0.1864**	**3.0000e-004**		**0.0148**	**0.0148**		**0.0146**	**0.0146**	**0.0000**	**25.8702**	**25.8702**	**3.8000e-003**	**0.0000**	**25.9500**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8100e-003	1.4100e-003	0.0193	1.0000e-005	7.6000e-004	2.0000e-005	7.8000e-004	2.0000e-004	2.0000e-005	2.2000e-004	0.0000	1.0353	1.0353	1.0000e-004	0.0000	1.0373
Total	**4.8100e-003**	**1.4100e-003**	**0.0193**	**1.0000e-005**	**7.6000e-004**	**2.0000e-005**	**7.8000e-004**	**2.0000e-004**	**2.0000e-005**	**2.2000e-004**	**0.0000**	**1.0353**	**1.0353**	**1.0000e-004**	**0.0000**	**1.0373**

3.8 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.8941					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0360	0.2839	0.2792	4.5000e-004		0.0191	0.0191		0.0188	0.0188	0.0000	38.9517	38.9517	5.4300e-003	0.0000	39.0658
Total	**1.9301**	**0.2839**	**0.2792**	**4.5000e-004**		**0.0191**	**0.0191**		**0.0188**	**0.0188**	**0.0000**	**38.9517**	**38.9517**	**5.4300e-003**	**0.0000**	**39.0658**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.6900e-003	1.9100e-003	0.0263	2.0000e-005	1.1500e-003	3.0000e-005	1.1800e-003	3.1000e-004	3.0000e-005	3.4000e-004	0.0000	1.5070	1.5070	1.3000e-004	0.0000	1.5098
Total	**6.6900e-003**	**1.9100e-003**	**0.0263**	**2.0000e-005**	**1.1500e-003**	**3.0000e-005**	**1.1800e-003**	**3.1000e-004**	**3.0000e-005**	**3.4000e-004**	**0.0000**	**1.5070**	**1.5070**	**1.3000e-004**	**0.0000**	**1.5098**

3.9 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.6300e-003	0.0162	0.0138	2.0000e-005		8.9000e-004	8.9000e-004		8.2000e-004	8.2000e-004	0.0000	1.9195	1.9195	5.6000e-004	0.0000	1.9313
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.6300e-003**	**0.0162**	**0.0138**	**2.0000e-005**		**8.9000e-004**	**8.9000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**1.9195**	**1.9195**	**5.6000e-004**	**0.0000**	**1.9313**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-005	1.9000e-004	1.2600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0222	0.0222	0.0000	0.0000	0.0222
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Worker	3.3000e-004	9.0000e-005	1.2900e-003	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0740	0.0740	1.0000e-005	0.0000	0.0741
Total	**4.0000e-004**	**2.8000e-004**	**2.5500e-003**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0962**	**0.0962**	**1.0000e-005**	**0.0000**	**0.0963**

APPENDIX 1B

Project impacts related to increased community risk can occur either by introducing a new sensitive receptor, such as a residential use, in proximity to an existing source of TACs or by introducing a new source of TACs with the potential to adversely affect existing sensitive receptors in the project vicinity. The BAAQMD recommends using a 1,000-foot screening radius around a project site for purposes of identifying community health risk from siting a new sensitive receptor or a new source of TACs. Operation and testing of the project emergency back-up generator was evaluated for risk to nearby sensitive receptors. In addition, construction activity would generate dust and equipment exhaust on a temporary basis that could affect nearby sensitive receptors that include residences. Impacts associated with project construction TAC emissions were assessed. The project would introduce new sensitive receptors to the area that would be exposed to emissions from nearby roadways and stationary sources. These impacts upon the project were assessed.

Construction Impacts

Construction equipment and associated heavy-duty truck traffic generate diesel exhaust, which is a known TAC. Diesel exhaust poses both potential health and nuisance impacts to nearby receptors. A community risk assessment of the project construction activities was conducted that evaluated potential health effects to sensitive receptors at nearby residences from construction emissions of diesel particulate matter (DPM) and $PM_{2.5}$.[6] A dispersion model was used to predict the off-site DPM concentrations resulting from project construction so that lifetime cancer risks could be predicted. The closest off-site sensitive receptors are several apartment buildings on Broadway about one block north of the project site. An additional apartment building is northeast of the project site on Webster Street. Figure 1 shows the project site and sensitive receptor locations used in the air quality dispersion modeling analysis where potential health impacts were evaluated.

<u>Construction Emissions</u>

The refined health risk assessment focused on modeling on-site construction activity. Construction period emissions were modeled using CalEEMod, as described in Impact 2 above. The CalEEMod model provided total annual $PM_{2.5}$ exhaust emissions (assumed to be diesel particulate matter) for the off-road construction equipment and for exhaust emissions from on-road vehicles (haul trucks, vendor trucks and worker vehicles), with total emissions of 0.091 tons (182 pounds). The on-road emissions are a result of haul truck travel, worker travel, and vendor deliveries during construction activities. A trip length of 0.5 miles was used to represent vehicle travel while at or near the construction site. It was assumed that these emissions from on-road vehicles traveling at or near the site would occur at the construction site. Fugitive $PM_{2.5}$ dust emissions were calculated by CalEEMod as 0.052 tons (104 pounds) for the overall construction period.

Dispersion Modeling

The U.S. EPA AERMOD dispersion model was used to predict concentrations of DPM and $PM_{2.5}$ concentrations at existing sensitive receptors in the vicinity of the project construction

[6] DPM is identified by California as a toxic air contaminant due to the potential to cause cancer.

area. The AERMOD dispersion model is a BAAQMD-recommended model for use in modeling analysis of these types of emission activities for CEQA projects.[7] Emission sources for the construction site were grouped into two categories, exhaust emissions of DPM and fugitive $PM_{2.5}$ dust emissions. The dispersion modeling utilized two area sources to represent the on-site construction emissions, one for DPM exhaust emissions and the other for fugitive $PM_{2.5}$ dust emissions. For the exhaust emissions from construction equipment, an emission release height of six meters was used for the area source. The elevated source height reflects the height of the equipment exhaust pipes plus an additional distance for the height of the exhaust plume above the exhaust pipes to account for plume rise of the exhaust gases. For modeling fugitive $PM_{2.5}$ emissions, a near-ground level release height of two meters was used for the area source. Emissions from vehicle travel around the project site were included in the modeled area sources. Construction emissions were modeled as occurring daily from 7 a.m. to 4 p.m., when the majority of construction activity involving equipment usage would occur.

The modeling used the a five-year data set (2009-2013) of hourly meteorological data from the Oakland International Airport, prepared for use with the AERMOD model by CARB for use in health risk assessments. Average annual DPM and $PM_{2.5}$ concentrations from construction activities during the 2016 through 2018 period were calculated using the model. DPM and $PM_{2.5}$ concentrations were calculated at nearby sensitive receptors. Receptor heights of 5.2 meters (17 feet) were used to represent residences in the apartments on Broadway and Webster Street above the street-level retail businesses. A grid of receptors with receptors spaced every 7 meters (23 feet) was placed over each apartment building to represent locations where residential exposures to construction emissions could occur.

Predicted Cancer Risk and Hazards

The maximum modeled DPM and $PM_{2.5}$ concentrations occurred at a receptor in the apartment building on Webster Street. The location of this receptor where the maximum concentrations occurred is identified on Figure 1. Increased cancer risks were calculated using the modeled DPM concentrations and BAAQMD-recommended risk assessment methods for infant (3rd trimester through 2 years of age), child (2 years through 16 years), and adult exposures.[8] The cancer risk calculations were based on applying the BAAQMD-recommended age sensitivity factors to the DPM exposures. Age-sensitivity factors reflect the greater sensitivity of infants and small children to cancer-causing TACs. BAAQMD-recommended exposure parameters were used for the cancer risk calculations.[9]

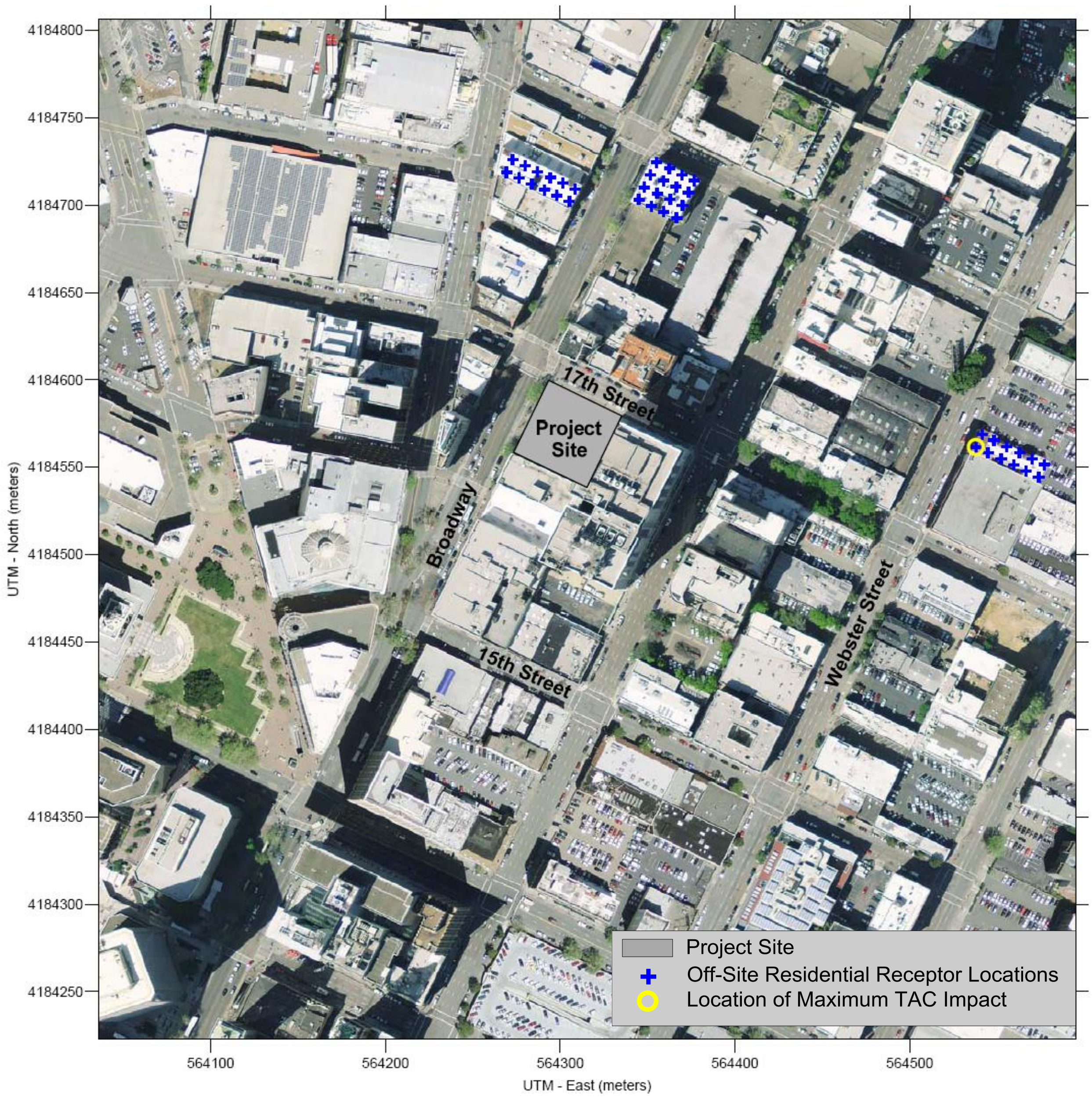
Results of this assessment indicate a maximum increased residential child cancer risk of 2.7 in one million and an increased residential adult cancer risk of 0.2 in one million. These increased cancer risks would be below the BAAQMD significance threshold of a cancer risk of greater than 10.0 in one million.

[7] Bay Area Air Quality Management District (BAAQMD), 2012. *Recommended Methods for Screening and Modeling Local Risks and Hazards, Version 3.0.* May.
[8] *Ibid*.
[9] Bay Area Air Quality Management District (BAAQMD), 2010. *Air Toxics NSR Program Health Risk Screening Analysis Guidelines*, January.

The maximum modeled annual $PM_{2.5}$ concentration was 0.02 $\mu g/m^3$ occurring at the same location where the maximum cancer risk occurred. This $PM_{2.5}$ concentration is below the BAAQMD significance threshold of 0.3 $\mu g/m^3$ used to judge the significance of health impacts from $PM_{2.5}$.

Potential non-cancer health effects due to chronic exposure to DPM were also evaluated. Non-cancer health hazards from TAC exposure are expressed in terms of a hazard index (HI), which is the ratio of the TAC concentration to a reference exposure level (REL). California's Office of Environmental Health and Hazards (OEHHA) has defined acceptable concentration levels for contaminants that pose non-cancer health hazards. TAC concentrations below the REL are not expected to cause adverse health impacts, even for sensitive individuals. The chronic inhalation REL for DPM is 5 $\mu g/m^3$. The maximum modeled annual DPM concentration was 0.015 $\mu g/m^3$ which is much lower than the REL. The maximum computed hazard index based on this DPM concentration is 0.003 which is much lower than the BAAQMD significance criterion of a hazard index greater than 1.0.

Figure 1 – Project Site, Residential Construction Receptor Locations, and Location of TAC Impacts



Project Operational Impacts

Impacts from Local Surface Streets

Traffic on high volume roadways is a source of TAC emissions that may adversely affect sensitive receptors in close proximity to the roadway. For roadways, BAAQMD has published a screening calculator to determine if roadways with traffic volumes of over 10,000 vehicles per day may have a significant effect on a proposed project. Based on the "2040 Plus Project with Latham Square" volumes from the project traffic report, Broadway has an average daily traffic (ADT) volume of 19,090 adjacent to the project. Using the BAAQMD *Roadway Screening Analysis Calculator* for Alameda County for north-south directional roadways and at a distance of approximately 100 feet to the first floor of proposed residences, estimated cancer risk from Broadway at the project site would be 9.5 per million and $PM_{2.5}$ concentration would be 0.19 $\mu g/m^3$. Chronic or acute hazard index (HI) for both roadways would be below 0.03. Potential risk from both roadways would be below the BAAQMD significance thresholds for community risk from single sources.

Impacts from Stationary Sources

Permitted stationary sources of air pollution near the project site were identified using BAAQMD's *Stationary Source Risk & Hazard Analysis Tool*. This mapping tool uses Google Earth to identify the location of stationary sources and their estimated risk and hazard impacts. In cases where screening risk exceeded BAAQMD thresholds, BAAQMD was contacted to obtain emissions data and information for specific facilities. BAAQMD correspondence[10] and stationary source emissions data and modeling results are contained below. The BAAQMD tool identified multiple sources that could affect the project site:

- Plant 13494, which are four emergency back-up generators located at 1587 Franklin Street operated by Pacific Bell/AT&T adjacent to the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentrations from a diesel generator was adjusted based on BAAQMD's *Risk and Hazards Emissions Screening Calculator (Beta Version)* and *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. However, even after using BAAQMD screening tools, screening level risk exceeds BAAQMD significance thresholds. Therefore, refined modeling of this source was conducted, as described below.
- Plant 14532, which are three emergency back-up generators located at 1600 Franklin Street operated by AC Transit about 250 feet east of the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentrations from a diesel generator was adjusted based on BAAQMD's *Risk and Hazards Emissions Screening Calculator (Beta Version)* and *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. However, even after using BAAQMD screening tools, screening level risk exceeds

[10] Correspondence between Joshua Carman, Illingworth & Rodkin, and Alison Kirk, BAAQMD, July 20 and 29, 2015.

BAAQMD significance thresholds. Therefore, refined modeling of this source was conducted, as described below.

- Plant 14607, which is an emergency back-up generator located at 300 Frank Ogawa Plaza operated by Rotunda Partners II about 400 feet west of the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentrations from a diesel generator was adjusted based on BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. According to BAAQMD screening data (and adjusted for distance), this facility would result in an excess cancer risk of 5.3 per million, $PM_{2.5}$ concentration of <0.01 $\mu g/m^3$ and HI of <0.01, all of which would be below BAAQMD thresholds of significance.
- Plant 14423, which is an emergency back-up generator located at 475 14^{th} Street operated by Oakland 14^{th} Office about 950 feet southwest of the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentrations from a diesel generator was adjusted based on BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. According to BAAQMD screening data (and adjusted for distance), this facility would result in an excess cancer risk of 2.8 per million, $PM_{2.5}$ concentration of <0.01 $\mu g/m^3$ and HI of <0.01, all of which would be below BAAQMD thresholds of significance.
- Plant 12765, which is an emergency back-up generator located at 1330 Broadway operated by MCI, dba Verizon Business about 900 feet southwest of the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentrations from a diesel generator was adjusted based on BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. According to BAAQMD screening data (and adjusted for distance), this facility would result in an excess cancer risk of 1.4 per million, $PM_{2.5}$ concentration of <0.01 $\mu g/m^3$ and HI of <0.01, all of which would be below BAAQMD thresholds of significance.
- Plant 14502, which are two emergency back-up generators located at 150 Frank Ogawa Plaza operated by City of Oakland, Environmental Services Division about 500 feet west of the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentrations from a diesel generator was adjusted based on BAAQMD's *Risk and Hazards Emissions Screening Calculator (Beta Version)* and *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. According to BAAQMD screening data (and adjusted for distance), this facility would result in an excess cancer risk of 1.1 per million, $PM_{2.5}$ concentration of <0.01 $\mu g/m^3$ and HI of <0.01, all of which would be below BAAQMD thresholds of significance.
- Plant 14503, which is an emergency back-up generator located at 1 Frank Ogawa Plaza operated by City of Oakland, Environmental Services Division about 700 feet west of the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentrations from a diesel generator was adjusted based on BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. According to BAAQMD screening data (and adjusted for distance), this facility would result in an excess cancer risk of 7.2 per million, $PM_{2.5}$ concentration of <0.01 $\mu g/m^3$ and HI of <0.01, all of which would be below BAAQMD thresholds of significance.

- Plant 17607, which is now Plant 20345, is an emergency back-up generator located at 1333 Broadway operated by CIM Properties about 900 feet southwest of the project site. However, correspondence with BAAQMD indicated that community risk posed by this source would be negligible.
- Plant 19281, which is an emergency back-up generator located at 1515 Clay Street operated by the State of California about 950 feet west of the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentrations from a diesel generator was adjusted based on BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. According to BAAQMD screening data (and adjusted for distance), this facility would result in an excess cancer risk of 1.1 per million, $PM_{2.5}$ concentration of 0.01 $\mu g/m^3$ and HI of <0.01, all of which would be below BAAQMD thresholds of significance.
- Plant 14173, which is an emergency back-up generator located at 1919 Webster Street operated by Pacific Gas & Electric about 800 feet northeast of the project site. At BAAQMD's direction, risk and $PM_{2.5}$ concentrations from a diesel generator was adjusted based on BAAQMD's *Distance Adjustment Multiplier Tool for Diesel Internal Combustion (IC) Engines*. According to BAAQMD screening data (and adjusted for distance), this facility would result in an excess cancer risk of 1.8 per million, $PM_{2.5}$ concentration of <0.01 $\mu g/m^3$ and HI of <0.01, all of which would be below BAAQMD thresholds of significance.
- Plant 18179, which was located at 1721 Webster Street and operated by Douglas Parking, has been closed since 2010 according to BAAQMD.
- Plant 10397, which is Le Magic drycleaners located at 1706 Franklin Street about 200 feet east of the project site. Note that Dry Cleaners are phasing out the use of perchloroethylene or "perc" (the TAC causing cancer risk) as required by State law. The use of TACs in dry cleaning operations will be completely phased out by 2023. Based on correspondence with BAAQMD staff, drycleaners are no longer a source of TACs that should be considered in community risk assessments.[11]

Modeling of the emergency back-up generators at 1587 Franklin Street (Plant 13494) and 1600 Franklin Street (Plant 14532) was conducted to assess cancer risks and annual $PM_{2.5}$ concentrations at residential receptor locations in the proposed project building. Figure 2 shows the locations of these buildings relative to the project site and the on-site project receptors used to represent locations of future project residents. Based on the BAAQMD emission inventory data the daily $PM_{2.5}$ and DPM emissions from the diesel engines are 0.0515 pounds per day (18.8 pounds per year) at 1587 Franklin Street and 0.0718 pounds per day (26.2 pounds per year) at 1600 Franklin Street.[12]

To obtain an estimate of potential excess cancer risks to future project residents from these sources, the AERMOD dispersion model was used. This modeling included the use of a five-

[11] Correspondence between James Reyff, Illingworth & Rodkin, and Virginia Lau, BAAQMD, August 19, 2015.
[12] Correspondence between Joshua Carman, Illingworth & Rodkin, and Alison Kirk, BAAQMD, July 20 and 29, 2015.

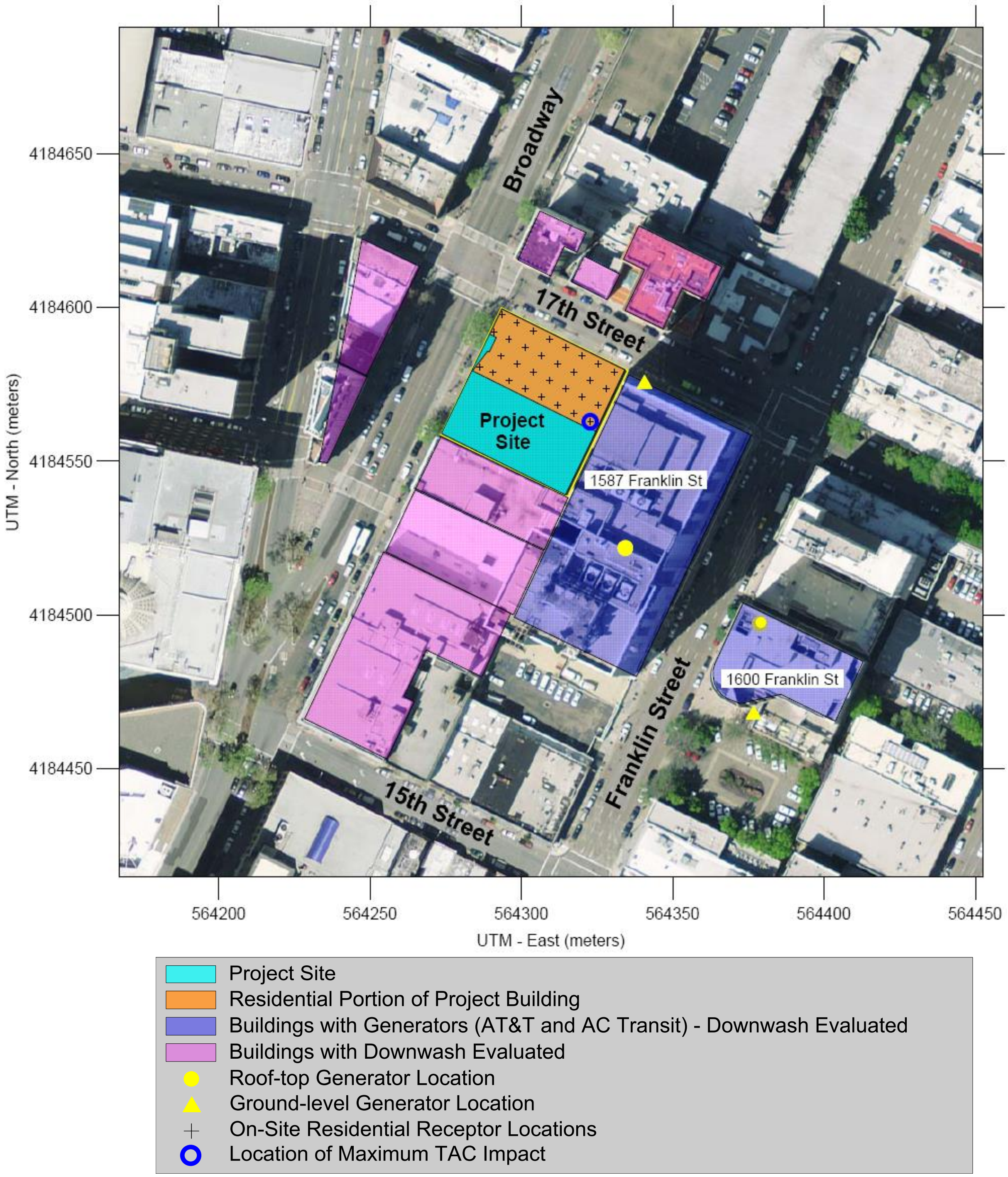
year data set (2009-2013) of hourly meteorological data from the Oakland International Airport Airport, prepared for use with the AERMOD model by CARB. Since there are a number of tall buildings, including the buildings with the emission sources, in close proximity to the project building, the effects of building downwash on the diesel engine exhaust plumes were included in the modeling analysis. The buildings that were evaluated for potential downwash effects are identified in Figure 2. The AERMOD model computed DPM concentrations at locations of future residential units. Because the actual locations of the emission sources are unknown, the emergency generators were modeled for two cases; one where the generators are located at roof level of each building, and the other where the generators were assumed to be located at ground level near each building. The case with highest resulting concentrations was then used in evaluating impacts.

Potential impacts at the proposed building were evaluated at seventeen of the twenty-six residential floor levels to identify where maximum impacts would occur from each emission source. Receptors for modeling were placed at intervals of 6 meters (about 20 feet) at each of the residential floor levels evaluated (see Figure 2). Default BAAQMD stack parameters for generator screening (6 feet high stack, 3 inch diameter, 50 meter/sec exit velocity, and exit temperature of 656 degrees F) were used for the generators in the modeling.

The maximum modeled concentrations occurred for the case of the generators located at ground level near the source buildings. The maximum annual average DPM concentration from 1587 Franklin Street occurred on the project's first residential level (seventh floor building level) at a concentration of 0.00390 $\mu g/m^3$. The maximum annual average DPM concentration from 1600 Franklin Street occurred on the project's first residential level (seventh floor building level) at a concentration of 0.00369 $\mu g/m^3$. Using BAAQMD cancer risk calculation methods the maximum estimated increased residential cancer risks would be 2.1 and 2.0 in one million for the 1587 and 1600 Franklin Street generators, respectively. Cancer risks at other floor levels would be less than the maximum risks. The cancer risks from the generators at 1587 and 1600 Franklin Street would be lower than the BAAQMD cancer risk significance threshold of greater than 10.0 in one million.

The maximum modeled annual $PM_{2.5}$ concentrations were less than 0.004 $\mu g/m^3$ from the generators and the maximum Hazard Index would be less than 0.0008. $PM_{2.5}$ concentrations and Hazard Indexes at other floor levels would be lower than the maximum values. The maximum $PM_{2.5}$ concentration and Hazard Index would be below BAAQMD significance thresholds of 0.3 $\mu g/m^3$ for $PM_{2.5}$ and 1.0 for a Hazard Index. Details of the modeling and risk calculations are included below.

Figure 2 – Project Site, On-Site Residential Receptor Locations, and Nearby Stationary Sources Evaluated in the Refined Modeling



Operational Impacts from Project Generator

The only source of TACs identified with build-out of the project is one emergency back-up generator located on the 34th floor. According to the applicant, the maximum back-up power needs envisioned for this type of project would not be larger than 600 kW, provided by an approximate 805 horsepower engine, based on a similar project. It is assumed for this assessment that the generator would be driven by a diesel-fueled engine.

The emergency back-up generator would be used for backup power in emergency conditions. The generator will be operated for testing and maintenance purposes, with a maximum of 50 hours per year of non-emergency operation under normal conditions allowed by BAAQMD. During testing periods the engine would typically be run for less than one hour. The engine would be required to meet CARB and U.S. EPA emission standards. The engine will consume commercially available California low-sulfur diesel fuel.

The generator would require permits from the BAAQMD, since it will be equipped with an engine larger than 50 horsepower. As part of the BAAQMD permit requirements, an assessment that shows less-than-significant health risks from diesel particulate matter exposure would be required. The risk assessment, prepared by BAAQMD, would have to show that cancer risks are less than 10 per million and that the project includes Best Available Toxics Control Technology, which would set limits for diesel particulate matter emissions. Sources of air pollutant emissions complying with all applicable BAAQMD regulations generally will not be considered to have a significant air quality community risk impact.

Emissions from the testing and maintenance of the generator were calculated using CARB's OFFROAD emissions model for large compression-ignited engines above 25 horsepower. Results of generator modeling indicate average daily emissions of 0.0019 pounds of DPM per day. Risk and $PM_{2.5}$ concentrations from a diesel generator of this size and average daily emissions were then calculated based on BAAQMD's *Risk and Hazards Emissions Screening Calculator (Beta Version)*. Results indicate that the project generator would result in an excess cancer risk of 2.0 per million, $PM_{2.5}$ concentration of <0.01 $\mu g/m^3$ and HI of <0.01, all of which would be below BAAQMD thresholds of significance both on-site affecting project residences and at nearby sensitive receptors. Emission factors and risk modeling calculations for the project emergency back-up generator are included below.

Combined Community Risk Impacts

As discussed above, the project site is affected by multiple sources of TACs. Table 1 shows the cancer risk associated with each source affecting the project site. The sum of impacts from combined sources (i.e., sources within 1,000 feet of the project) would be below the threshold of 100 in one million used by the City. Similarly, the maximally exposed individual (MEI) during project construction (see Figure 1) was evaluated for combined community risk from construction and operational sources in Table 2. As shown in the tables, the sum of impacts from combined sources including construction at the construction MEI would be below the threshold of 100 in one million used by the City.

Table 1. Impacts from Combined Sources at Project Site

Source	Maximum Cancer Risk (per million)	Hazard Index	$PM_{2.5}$ concentration ($\mu g/m^3$)
Broadway at 100 feet	9.5	<0.03	0.19
Project Generator (up to 600 kW)	2.0	<0.01	<0.01
Plant 13494, Pacific Bell/AT&T	2.1	<0.01	<0.01
Plant 14532, AC Transit	2.0	<0.01	<0.01
Plant 14607, Rotunda Partners II	5.3	<0.01	<0.01
Plant 14423, Oakland 14th Office	2.8	<0.01	<0.01
Plant 12765, MCI, dba Verizon Business	1.4	<0.01	<0.01
Plant 14502, City of Oakland, Environmental Services Division	1.1	<0.01	<0.01
Plant 14503, City of Oakland, Environmental Services Division	7.2	<0.01	<0.01
Plant 19281, State of California	1.1	<0.01	0.01
Plant 14173, PG&E	1.8	<0.01	<0.01
Combined Sources	36.3	<0.13	<0.29
BAAQMD Threshold – Combined Sources	***100***	***10.0***	***0.8***

Table 2. Impacts from Combined Sources at Construction MEI

Source	Maximum Cancer Risk (per million)	Hazard Index	$PM_{2.5}$ concentration ($\mu g/m^3$)
Project Construction	2.7	<0.01	0.02
Webster Street at 10 feet	2.0	<0.03	0.04
17th Street at 200 feet	3.6	<0.03	0.07
Project Generator (up to 600 kW)	<2.0	<0.01	<0.01
Plant 13494, Pacific Bell/AT&T	<2.1	<0.01	<0.01
Plant 14532, AC Transit	<2.0	<0.01	<0.01
Plant 14173, PG&E	2.9	<0.01	0.01
Plant 18668, AT&T Corp.	2.5	<0.01	<0.01
Plant 14711, Verizon Business	1.6	<0.01	<0.01
Combined Sources	<21.4	<0.13	<0.19
BAAQMD Threshold – Combined Sources	***100***	***10.0***	***0.8***

Construction Risk Modeling Calculations

1640 Broadway, Oakland, CA

DPM Construction Emissions and Modeling Emission Rates

Construction Year	Activity	DPM (ton/year)	Area Source	DPM Emissions (lb/yr)	DPM Emissions (lb/hr)	DPM Emissions (g/s)	Modeled Area (m^2)	DPM Emission Rate ($g/s/m^2$)
2016	Construction	0.0382	CON_DPM	76.4	0.02326	2.93E-03	2,126	1.38E-06
2017	Construction	0.0297	CON_DPM	59.4	0.01808	2.28E-03	2,126	1.07E-06
2018	Construction	0.0228	CON_DPM	45.6	0.01388	1.75E-03	2,126	8.23E-07
Total		***0.091***		***181***	***0.0552***	***0.0070***		

hr/day =	9	(7am - 4pm)
days/yr =	365	
hours/year =	3285	

PM2.5 Fugitive Dust Construction Emissions for Modeling

Construction Year	Activity	Area Source	PM2.5 Emissions (ton/year)	PM2.5 Emissions (lb/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (g/s)	Modeled Area (m^2)	PM2.5 Emission Rate $g/s/m^2$
2016	Construction	CON_FUG	0.0430	86.0	0.02618	3.30E-03	2,126	1.55E-06
2017	Construction	CON_FUG	0.0073	14.6	0.00445	5.61E-04	2,126	2.64E-07
2018	Construction	CON_FUG	0.00182	3.6	0.00111	1.40E-04	2,126	6.57E-08
Total			***0.0521***	***104.3***	***0.0317***	***0.0040***		

hr/day =	9	(7am - 4pm)
days/yr =	365	
hours/year =	3285	

1640 Broadway, Oakland, CA - Project Construction Health Impact Summary

Maximum Impacts at Off-Site Residences

Construction Year	Maximum Concentrations: Exhaust PM2.5/DPM ($\mu g/m^3$)	Maximum Concentrations: Fugitive PM2.5 ($\mu g/m^3$)	Cancer Risk (per million): Child	Cancer Risk (per million): Adult	Hazard Index (-)	Maximum Annual PM2.5 Concentration ($\mu g/m^3$)
2016	0.0148	0.0173	1.30	0.07	0.003	0.032
2017	0.0115	0.0030	1.01	0.05	0.002	0.014
2018	0.0088	0.0007	0.37	0.04	0.002	0.010
Total	-	-	**2.7**	**0.2**	-	-
Maximum Annual	0.0148	0.0173	-	-	**0.003**	**0.032**

1640 Broadway, Oakland, CA - Construction Impacts
Maximum DPM Cancer Risk Calculations From Construction
Off-Site Residential Receptor Locations - 5.2 meters

Cancer Risk (per million) = CPF x Inhalation Dose x 1.0E6

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$

Inhalation Dose = C_{air} x DBR x A x EF x ED x 10^{-6} / AT

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
ED = Exposure duration (years)
AT = Averaging time period over which exposure is averaged.
10^{-6} = Conversion factor

Values

Parameter	Child	Adult
CPF =	1.10E+00	1.10E+00
DBR =	581	302
A =	1	1
EF =	350	350
AT =	25,550	25,550

Construction Cancer Risk by Year - Maximum Impact Receptor Location

		Child - Exposure Information			Child	Adult - Exposure Information			Adult		
	Exposure			Exposure	Cancer	Modeled		Exposure	Cancer		
Exposure	Duration	DPM Conc (ug/m3)		Adjust	Risk	DPM Conc (ug/m3)		Adjust	Risk	Fugitive	Total
Year	(years)	Year	Annual	Factor	(per million)	Year	Annual	Factor	(per million)	PM2.5	PM2.5
1	1	2016	0.0148	10	1.30	2016	0.0148	1	0.07	0.0173	0.032
2	1	2017	0.0115	10	1.01	2017	0.0115	1	0.05	0.0030	0.014
3	1	2018	0.0088	4.75	0.37	2018	0.0088	1	0.04	0.0007	0.010
4	1		0.0000	3	0.00		0.0000	1	0.00		
5	1		0.0000	3	0.00		0.0000	1	0.00		
6	1		0.0000	3	0.00		0.0000	1	0.00		
7	1		0.0000	3	0.00		0.0000	1	0.00		
8	1		0.0000	3	0.00		0.0000	1	0.00		
9	1		0.0000	3	0.00		0.0000	1	0.00		
10	1		0.0000	3	0.00		0.0000	1	0.00		
11	1		0.0000	3	0.00		0.0000	1	0.00		
12	1		0.0000	3	0.00		0.0000	1	0.00		
13	1		0.0000	3	0.00		0.0000	1	0.00		
14	1		0.0000	3	0.00		0.0000	1	0.00		
15	1		0.0000	3	0.00		0.0000	1	0.00		
16	1		0.0000	3	0.00		0.0000	1	0.00		
17	1		0.0000	1.5	0.00		0.0000	1	0.00		
18	1		0.0000	1	0.00		0.0000	1	0.00		
.•	.•	.•	.•	.•	.•	.•	.•	.•	.•		
.•	.•	.•	.•	.•	.•	.•	.•	.•	.•		
.•	.•	.•	.•	.•	.•	.•	.•	.•	.•		
65	1		0.0000	1	0.00		0.0000	1	0.00		
66	1		0.0000	1	0.00		0.0000	1	0.00		
67	1		0.0000	1	0.00		0.0000	1	0.00		
68	1		0.0000	1	0.00		0.0000	1	0.00		
69	1		0.0000	1	0.00		0.0000	1	0.00		
70	1		0.0000	1	0.00		0.0000	1	0.00		
Total Increased Cancer Risk					**2.7**				**0.2**		

Stationary TAC Source Data and Nearby Generator Risk Modeling

Joshua Carman

From: Alison Kirk
Sent: Monday, July 20, 2015 3:13 PM
To: Joshua Carman
Cc: James A. Reyff
Subject: RE: 1640 Broadway SSIF
Attachments: BAAQMD_Beta_Calculator_1.3.xlsx; 1640 Broadway SSIF_ak.xls

Sure.

Attached is the almost complete SSIF. It includes recent emissions data for 3 plants. Consider using the distance multiplier with the screening values, or with newly calculated screening values, based on the included data. Also attached is the beta calculator to make those calculations.

Please let me know if you have any questions. I will need to get back to you with more information about 17607 next week.

Alison Kirk
415-749-5169

From: Joshua Carman [mailto:jcarman@illingworthrodkin.com]
Sent: Monday, July 20, 2015 3:06 PM
To: Alison Kirk
Cc: James A. Reyff
Subject: RE: 1640 Broadway SSIF

Thanks, Alison. That would be great if you could send what you have now and then follow up next week with Source 17607.

From: Alison Kirk [mailto:AKirk@baaqmd.gov]
Sent: Monday, July 20, 2015 3:04 PM
To: Joshua Carman
Subject: RE: 1640 Broadway SSIF

Hello,

I have collected the info for all sources, with the exception of 17607. I haven't been able to confirm the status of 17607 and the inspector who will confirm the status is out of the office until next week. So it will be at least a week until we know more about 17607.

In the meantime, do you want me to send you the results of the request for the remaining sources?

Thanks.

Alison Kirk
415-749-5169

From: Joshua Carman [mailto:jcarman@illingworthrodkin.com]
Sent: Monday, July 20, 2015 12:00 AM

To: Alison Kirk
Subject: 1640 Broadway SSIF

Hi Alison,

Please find attached our SSIF request for the 1640 Broadway mixed-use residential project.

As usual, we're hoping to get this back as soon as possible.

Thank you,

Joshua Carman
Illingworth & Rodkin, Inc.
1 Willowbrook Court, Suite 120
Petaluma, CA 94954
Office: (707) 794-0400, x. 35
Mobile: (510) 684-4707

Please note that I will be out of the office Thursday, August 6th returning Tuesday, September 1st.

Joshua Carman

From:	Alison Kirk
Sent:	Wednesday, July 29, 2015 4:35 PM
To:	Joshua Carman
Subject:	RE: 1640 Broadway SSIF

Yes, sorry about that! Very low, and only NOx

Alison Kirk
415-749-5169

From: Joshua Carman [mailto:jcarman@illingworthrodkin.com]
Sent: Wednesday, July 29, 2015 4:29 PM
To: Alison Kirk
Subject: RE: 1640 Broadway SSIF

Thanks, Alison. Are these the emissions? Is that 0.2 NOx and 0.0 PM?

```
S# SOURCE NAME
MATERIAL        SOURCE CODE        EMISSIONS IN LBS/DAY
  THROUGHPUT          DATE     PM    ORG    NOx    SO2    CO
-----------------------------------------------------------------------------
 1 Emergency Standby Diesel Generator Set
            C22AG098
                          .0     .0     .2     .0     .0
```

From: Alison Kirk [mailto:AKirk@baaqmd.gov]
Sent: Wednesday, July 29, 2015 4:15 PM
To: Joshua Carman
Subject: RE: 1640 Broadway SSIF

Attached is the completed request. Note that I have found emissions data for 17607. I have included the beta emissions calculator so you can use the emissions info to calculate the screening values, if you wish.

Let me know if you have any questions. Thanks!

Alison Kirk
415-749-5169

From: Joshua Carman [mailto:jcarman@illingworthrodkin.com]
Sent: Monday, July 20, 2015 12:00 AM
To: Alison Kirk
Subject: 1640 Broadway SSIF

Hi Alison,

Please find attached our SSIF request for the 1640 Broadway mixed-use residential project.

As usual, we're hoping to get this back as soon as possible.

Thank you,

Joshua Carman
Illingworth & Rodkin, Inc.
1 Willowbrook Court, Suite 120
Petaluma, CA 94954
Office: (707) 794-0400, x. 35
Mobile: (510) 684-4707

Please note that I will be out of the office Thursday, August 6th returning Tuesday, September 1st.

Bay Area Air Quality Management District

Risk & Hazard Stationary Source Inquiry Form

This form is required when users request stationary source data from BAAQMD. This form is to be used with the BAAQMD's Google Earth stationary source screening tables.

For guidance on conducting a risk & hazard screening, including for roadways & freeways, refer to the District's Risk & Hazard Analysis flow chart.

Table A: Requestor Contact Information	
Contact Name:	Josh Carman
Affiliation:	Illingworth & Rodkin, Inc.
Phone:	707-794-0400
Email:	jcarman@illingworthrodkin.com
Date of Request	7/19/2015
Project Name:	1640 Broadway
Address:	1640 Broadway
City:	Oakland
County:	Alameda
Type (residential, commercial, mixed use, industrial, etc.):	Mixed-Use Residential
Project size (# of units, or building square feet):	334 DU, 6.5k retail
Comments:	

For Air District assistance, the following steps must be completed:
Complete all the contact and project information requested in Table A. Incomplete forms will not be processed. Please include a project site map.
Download and install the free program Google Earth, http://www.google.com/earth/download/ge/, and then download the county specific Google Earth stationary source application files from the District's website, http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx. The small points on the map represent stationary sources permitted by the District (Map A on right). These permitted sources include diesel back-up generators, gas stations, dry cleaners, boilers, printers, auto spray booths, etc. Click on a point to view the source's Information Table, including the name, location, and preliminary estimated cancer risk, hazard index, and PM2.5 concentration.
Find the project site in Google Earth by inputting the site's address in the Google Earth search box.
Using the Google Earth ruler function, measure the distance in feet between the project's fenceline and the stationary source's fenceline for all the sources that are within 1,000 feet of the project's fenceline. Verify that the location of the source on the map matches with the source's address in the Information Table, by using the Google Earth address search box to confirm that the source is within 1,000 feet of the project. Please report any mapping errors to the District (District contact information in Step 9).
If the stationary source is within 1,000 feet of the project's fenceline and the stationary source's information table does not list the cancer risk, hazard index, and PM2.5 concentration, and instead says to "Contact District Staff", list the stationary source information in Table B Section 1 below.
Note that a small percentage of the stationary sources have Health Risk Screening Assessment (HRSA) data INSTEAD of screening level data. These sources will be noted by an asterisk next to the Plant Name (Map B on right). If HRSA values are presented, these values have already been modeled and cannot be adjusted further.
Email this completed form to District staff (Step 9). District staff will provide the most recent risk, hazard, and PM2.5 data that are available for the source(s). If this information or data are not available, source emissions data will be provided. Staff will respond to inquiries within three weeks.
Note that a public records request received for the same stationary source information will cancel the processing of your SSIF request.
Submit forms, maps, and questions to Alison Kirk at 415-749-5169, or akirk@baaqmd.gov .

Table B: Stationary Sources within 1,000 feet of Receptor that say "Contact District Staff"

Table B Section 1: Requestor fills out these columns based on Google Earth data				Table B Section 2: BAAQMD returns form with additional information in these columns as needed							
Distance from Receptor (feet)	**Plant # or Gas Dispensary #**	**Facility Name**	**Street Address**	**Screening Level Cancer Risk (1)**	**Screening Level Hazard Index (1)**	**Screening Level PM2.5 (1)**	**Distance to Threshold Cancer Risk**	**Multiplier**	**Distance Adjusted PM2.5 Level**	comments	
<50	13494	Pacific Bell	1587 Franklin St	513.44	0.183	0.913				diesel gens, see attached page for emissions data	
275	14532	AC Transit	1600 Franklin St	41.12	0.015	0.073				diesel gens, see attached page for emissions data	
500	14502	City of Oak Envr Scvs Div.	150 Frank Ogawa	90.49	0.032	0.021				diesel gens, see attached page for emissions data	
900	17607	Washington Mutual	1333 Broadway	No Data	No Data	No Data				diesel gen;	new plant no. 20345, emissions attached. Consider using beta calculator.
550	18179	Douglas Parking	1727 Webster	No Data	No Data	No Data				plant closed 10/26/10	

`

1587 Franklin Street
Oakland, CA 94612

[C]urrent, [A]rchive, or [F]uture? c
[P]lant, [S]ource, [A]bate. device, or [E]mis. Point? p

CURRENT Sources:

1 Standby Generator
Standby Diesel engine, 2850 hp, Caterpillar S/N 4XF00283, 4272 cu in
C22BG098 /,P1,

2 Standby Generator
Standby Diesel engine, 2850 hp, Caterpillar S/N 4XF00284, 4272 cu in
C22BG098 /,P2,

3 Standby Generator
Standby Diesel engine, 2850 hp, Caterpillar S/N 4XF00287, 4272 cu in
C22BG098 /,P3,

4 Standby Generator
Standby Diesel engine, 2850 hp, Caterpillar, 4272 cu in
C2240098 no train

No CURRENT Abatement Devices

CURRENT Emission Points:

1 train: ,S1,/
2 train: ,S2,/
3 train: ,S3,/

`

DETAIL POLLUTANTS - ABATED
MOST RECENT P/O APPROVED (2015)

Pacific Bell (P# 13494)

S# SOURCE NAME
MATERIAL SOURCE CODE
THROUGHPUT DATE POLLUTANT CODE LBS/DAY
----

1 Standby Generator
C22BG098

Benzene	41	1.53E-03
Formaldehyde	124	1.27E-04
Organics (other, including	990	7.40E-02
Arsenic (all)	1030	1.33E-06
Beryllium (all) pollutant	1040	7.82E-07
Cadmium	1070	3.34E-06
Chromium (hexavalent)	1095	6.90E-08
Lead (all) pollutant	1140	2.83E-06
Manganese	1160	4.44E-06
Nickel pollutant	1180	5.40E-05
Mercury (all) pollutant	1190	9.44E-07
Diesel Engine Exhaust Part	1350	1.47E-02
PAH's (non-speciated)	1840	7.04E-06
Nitrous Oxide (N2O)	2030	4.11E-04
Nitrogen Oxides (part not	2990	1.08E+00
Sulfur Dioxide (SO2)	3990	5.01E-04
Carbon Monoxide (CO) pollu	4990	2.35E-01
Carbon Dioxide, non-biogen	6960	5.13E+01
Methane (CH4)	6970	2.05E-03

2 Standby Generator
C22BG098

Benzene	41	7.30E-05
Formaldehyde	124	6.04E-06
Organics (other, including	990	3.52E-03
Arsenic (all)	1030	6.36E-08
Beryllium (all) pollutant	1040	3.73E-08
Cadmium	1070	1.59E-07
Chromium (hexavalent)	1095	3.29E-09
Lead (all) pollutant	1140	1.35E-07
Manganese	1160	2.12E-07
Nickel pollutant	1180	2.57E-06

	Mercury (all) pollutant	1190	4.49E-08
	Diesel Engine Exhaust Part	1350	7.01E-04
	PAH's (non-speciated)	1840	3.35E-07
	Nitrous Oxide (N2O)	2030	1.96E-05
	Nitrogen Oxides (part not	2990	5.14E-02
	Sulfur Dioxide (SO2)	3990	2.38E-05
	Carbon Monoxide (CO) pollu	4990	1.12E-02
	Carbon Dioxide, non-biogen	6960	2.44E+00
	Methane (CH4)	6970	9.78E-05
3 Standby Generator			
C22BG098			
	Benzene	41	2.08E-03
	Formaldehyde	124	1.72E-04
	Organics (other, including	990	1.00E-01
	Arsenic (all)	1030	1.81E-06
	Beryllium (all) pollutant	1040	1.06E-06
	Cadmium	1070	4.52E-06
	Chromium (hexavalent)	1095	9.36E-08
	Lead (all) pollutant	1140	3.84E-06
	Manganese	1160	6.02E-06
	Nickel pollutant	1180	7.32E-05
	Mercury (all) pollutant	1190	1.28E-06
	Diesel Engine Exhaust Part	1350	2.00E-02
	PAH's (non-speciated)	1840	9.55E-06
	Nitrous Oxide (N2O)	2030	5.57E-04
	Nitrogen Oxides (part not	2990	1.46E+00
	Sulfur Dioxide (SO2)	3990	6.79E-04
	Carbon Monoxide (CO) pollu	4990	3.18E-01
	Carbon Dioxide, non-biogen	6960	6.96E+01
	Methane (CH4)	6970	2.78E-03
4 Standby Generator			
C2240098			
	Benzene	41	1.67E-03
	Formaldehyde	124	1.38E-04
	Organics (other, including	990	8.07E-02
	Arsenic (all)	1030	1.46E-06
	Beryllium (all) pollutant	1040	8.53E-07
	Cadmium	1070	3.64E-06
	Chromium (hexavalent)	1095	7.53E-08
	Lead (all) pollutant	1140	3.09E-06
	Manganese	1160	4.84E-06
	Nickel pollutant	1180	5.89E-05
	Mercury (all) pollutant	1190	1.03E-06

Diesel Engine Exhaust Part	1350	1.61E-02
PAH's (non-speciated)	1840	7.68E-06
Nitrous Oxide (N2O)	2030	4.48E-04
Nitrogen Oxides (part not	2990	1.18E+00
Sulfur Dioxide (SO2)	3990	5.46E-04
Carbon Monoxide (CO) pollu	4990	2.56E-01
Carbon Dioxide, non-biogen	6960	5.60E+01
Methane (CH4)	6970	2.24E-03

PLANT TOTAL:

lbs/day	Pollutant
4.66E-06	Arsenic (all) (1030)
5.36E-03	Benzene (41)
2.73E-06	Beryllium (all) pollutant (1040)
1.17E-05	Cadmium (1070)
1.79E+02	Carbon Dioxide, non-biogenic CO2 (6960)
8.20E-01	Carbon Monoxide (CO) pollutant (4990)
2.41E-07	Chromium (hexavalent) (1095)
5.15E-02	Diesel Engine Exhaust Particulate Matter (1350)
4.43E-04	Formaldehyde (124)
9.89E-06	Lead (all) pollutant (1140)
1.55E-05	Manganese (1160)
3.30E-06	Mercury (all) pollutant (1190)
7.17E-03	Methane (CH4) (6970)
1.89E-04	Nickel pollutant (1180)
3.77E+00	Nitrogen Oxides (part not spec elsewhere) (2990)
1.43E-03	Nitrous Oxide (N2O) (2030)
2.59E-01	Organics (other, including CH4) (990)
2.46E-05	PAH's (non-speciated) (1840)
1.75E-03	Sulfur Dioxide (SO2) (3990)

14532
1600 Franklin Street
Oakland, CA 94612

[C]urrent, [A]rchive, or [F]uture? c
[P]lant, [S]ource, [A]bate. device, or [E]mis. Point? p

CURRENT Sources:

1 Diesel Engine: Emergency standby
Standby Diesel engine, 740 hp, Detroit Diesel S/N 12VF002227
C22BH098 no train

2 Diesel Engine, Fire Pump Standby
Standby Diesel engine, 137 hp, Cummins, Electrical generation only
C22AH098 /,P1,

3 Diesel Engine, Fire Pump Standby
Standby Diesel engine, 137 hp, Cummins, Electrical generation only
C22AH098 /,P2,

No CURRENT Abatement Devices

DETAIL POLLUTANTS - ABATED
MOST RECENT P/O APPROVED (2015)

AC Transit General Office (P# 14532)

S# SOURCE NAME
MATERIAL SOURCE CODE
THROUGHPUT DATE POLLUTANT CODE LBS/DAY
----

1 Diesel Engine: Emergency standby
C22BH098

Benzene	41	9.62E-04
Formaldehyde	124	7.96E-05
Organics (other, including	990	4.64E-02
Arsenic (all)	1030	8.37E-07
Beryllium (all) pollutant	1040	4.91E-07
Cadmium	1070	2.09E-06
Chromium (hexavalent)	1095	4.33E-08
Lead (all) pollutant	1140	1.78E-06
Manganese	1160	2.79E-06
Nickel pollutant	1180	3.39E-05
Mercury (all) pollutant	1190	5.92E-07
Diesel Engine Exhaust Part	1350	4.84E-02
PAH's (non-speciated)	1840	4.42E-06
Nitrous Oxide (N2O)	2030	2.58E-04
Nitrogen Oxides (part not	2990	6.77E-01
Sulfur Dioxide (SO2)	3990	3.14E-04
Carbon Monoxide (CO) pollu	4990	1.47E-01
Carbon Dioxide, non-biogen	6960	3.22E+01
Methane (CH4)	6970	1.29E-03

2 Diesel Engine, Fire Pump Standby
C22AH098

Benzene	41	1.68E-04
Formaldehyde	124	1.39E-05
Organics (other, including	990	8.12E-03
Arsenic (all)	1030	1.46E-07
Beryllium (all) pollutant	1040	8.58E-08
Cadmium	1070	3.66E-07
Chromium (hexavalent)	1095	7.57E-09
Lead (all) pollutant	1140	3.10E-07
Manganese	1160	4.87E-07
Nickel pollutant	1180	5.92E-06

Mercury (all) pollutant 1190 1.03E-07
Diesel Engine Exhaust Part 1350 8.46E-03
PAH's (non-speciated) 1840 7.72E-07
Nitrous Oxide (N2O) 2030 4.50E-05
Nitrogen Oxides (part not 2990 1.18E-01
Sulfur Dioxide (SO2) 3990 5.49E-05
Carbon Monoxide (CO) pollu 4990 2.57E-02
Carbon Dioxide, non-biogen 6960 5.63E+00
Methane (CH4) 6970 2.25E-04

3 Diesel Engine, Fire Pump Standby

C22AH098

Benzene 41 2.98E-04
Formaldehyde 124 2.46E-05
Organics (other, including 990 1.44E-02
Arsenic (all) 1030 2.59E-07
Beryllium (all) pollutant 1040 1.52E-07
Cadmium 1070 6.49E-07
Chromium (hexavalent) 1095 1.34E-08
Lead (all) pollutant 1140 5.50E-07
Manganese 1160 8.63E-07
Nickel pollutant 1180 1.05E-05
Mercury (all) pollutant 1190 1.83E-07
Diesel Engine Exhaust Part 1350 1.50E-02
PAH's (non-speciated) 1840 1.37E-06
Nitrous Oxide (N2O) 2030 7.98E-05
Nitrogen Oxides (part not 2990 2.10E-01
Sulfur Dioxide (SO2) 3990 9.73E-05
Carbon Monoxide (CO) pollu 4990 4.56E-02
Carbon Dioxide, non-biogen 6960 9.98E+00
Methane (CH4) 6970 3.99E-04

PLANT TOTAL:
lbs/day Pollutant

1.24E-06 Arsenic (all) (1030)
1.43E-03 Benzene (41)
7.29E-07 Beryllium (all) pollutant (1040)
3.11E-06 Cadmium (1070)
4.78E+01 Carbon Dioxide, non-biogenic CO2 (6960)
2.19E-01 Carbon Monoxide (CO) pollutant (4990)
6.43E-08 Chromium (hexavalent) (1095)
7.18E-02 Diesel Engine Exhaust Particulate Matter (1350)
1.18E-04 Formaldehyde (124)

2.64E-06	Lead (all) pollutant (1140)
4.14E-06	Manganese (1160)
8.79E-07	Mercury (all) pollutant (1190)
1.91E-03	Methane (CH4) (6970)
5.03E-05	Nickel pollutant (1180)
1.01E+00	Nitrogen Oxides (part not spec elsewhere) (2990)
3.82E-04	Nitrous Oxide (N2O) (2030)
6.89E-02	Organics (other, including CH4) (990)
6.56E-06	PAH's (non-speciated) (1840)
4.66E-04	Sulfur Dioxide (SO2) (3990)

`

1333 Broadway, Suite 300 plant is 20345
Oakland, CA 94612

[C]urrent, [A]rchive, or [F]uture? c
[P]lant, [S]ource, [A]bate. device, or [E]mis. Point? p

CURRENT Sources:

1 Standby Emergency Generator
Standby Diesel engine, 670 hp, Caterpillar S/N 81Z24536, 1649 cu in
C22BG098 /,P1,

No CURRENT Abatement Devices

CURRENT Emission Points:

1 train: ,S1,/

BAY AREA AIR QUALITY MANAGEMENT DISTRICT Printed: JUL 29, 2015
CRITERIA POLLUTANTS - ABATED
MOST RECENT P/O APPROVED (2015)

CIM Properties (P# 20345)

S# SOURCE NAME
MATERIAL SOURCE CODE EMISSIONS IN LBS/DAY
THROUGHPUT DATE PM ORG NOx SO2 CO
----
1 Emergency Standby Diesel Generator Set
C22AG098
.0 .0 .2 .0 .0

BAY AREA AIR QUALITY MANAGEMENT DISTRICT Printed: JUL 20, 2015
DETAIL POLLUTANTS - ABATED
MOST RECENT P/O APPROVED (2014)

City of Oaklan , Envr Scvs Division (P# 14502)

S# SOURCE NAME
MATERIAL SOURCE CODE
THROUGHPUT DATE POLLUTANT CODE LBS/DAY
----

1 Diesel Engine, Detroit Diesel model 50343312, emergency stan
C2250098

Benzene	41	4.94E-05
Formaldehyde	124	4.09E-06
Organics (other, including	990	2.39E-03
Arsenic (all)	1030	4.31E-08
Beryllium (all) pollutant	1040	2.52E-08
Cadmium	1070	1.08E-07
Chromium (hexavalent)	1095	2.23E-09
Lead (all) pollutant	1140	9.13E-08
Manganese	1160	1.43E-07
Nickel pollutant	1180	1.74E-06
Mercury (all) pollutant	1190	3.04E-08
Diesel Engine Exhaust Part	1350	2.49E-03
PAH's (non-speciated)	1840	2.27E-07
Nitrous Oxide (N2O)	2030	1.32E-05
Nitrogen Oxides (part not	2990	3.48E-02
Sulfur Dioxide (SO2)	3990	1.61E-05
Carbon Monoxide (CO) pollu	4990	7.57E-03
Carbon Dioxide, non-biogen	6960	1.66E+00
Methane (CH4)	6970	6.62E-05

2 Diesel Engine, Cummins model KTA19-G4, emergency standby
C2250098

Benzene	41	1.24E-04
Formaldehyde	124	1.03E-05
Organics (other, including	990	5.99E-03
Arsenic (all)	1030	1.08E-07
Beryllium (all) pollutant	1040	6.33E-08
Cadmium	1070	2.70E-07
Chromium (hexavalent)	1095	5.59E-09
Lead (all) pollutant	1140	2.29E-07
Manganese	1160	3.60E-07
Nickel pollutant	1180	4.37E-06
Mercury (all) pollutant	1190	7.64E-08
Diesel Engine Exhaust Part	1350	6.24E-03
PAH's (non-speciated)	1840	5.70E-07
Nitrous Oxide (N2O)	2030	3.32E-05

Nitrogen Oxides (part not	2990	8.74E-02
Sulfur Dioxide (SO2)	3990	4.05E-05
Carbon Monoxide (CO) pollu	4990	1.90E-02
Carbon Dioxide, non-biogen	6960	4.16E+00
Methane (CH4)	6970	1.66E-04

PLANT TOTAL:
lbs/day Pollutant

1.51E-07 Arsenic (all) (1030)
1.74E-04 Benzene (41)
8.86E-08 Beryllium (all) pollutant (1040)
3.78E-07 Cadmium (1070)
5.81E+00 Carbon Dioxide, non-biogenic CO2 (6960)
2.66E-02 Carbon Monoxide (CO) pollutant (4990)
7.82E-09 Chromium (hexavalent) (1095)
8.73E-03 Diesel Engine Exhaust Particulate Matter (1350)
1.44E-05 Formaldehyde (124)
3.20E-07 Lead (all) pollutant (1140)
5.03E-07 Manganese (1160)
1.07E-07 Mercury (all) pollutant (1190)
2.32E-04 Methane (CH4) (6970)
6.11E-06 Nickel pollutant (1180)
1.22E-01 Nitrogen Oxides (part not spec elsewhere) (2990)
4.65E-05 Nitrous Oxide (N2O) (2030)
8.38E-03 Organics (other, including CH4) (990)
7.97E-07 PAH's (non-speciated) (1840)
5.67E-05 Sulfur Dioxide (SO2) (3990)

Plant #:
Plant Name: Pacific Bell (P# 13494)
Number of Sources:

Pollutant Name	Emissions/lbs per day	Cancer Risk (in millions)
ACETALDEHYDE		0.00E+00
ACETAMIDE		0.00E+00
ACRYLAMIDE		0.00E+00
ACRYLONITRILE		0.00E+00
ALLYL CHLORIDE		0.00E+00
2-AMINOANTHRAQUINONE		0.00E+00
ANILINE		0.00E+00
ARSENIC AND COMPOUNDS (INORGANIC)[1,2]	4.66E-06	2.35E-07
ASBESTOS [3]		0.00E+00
BENZENE[1]	5.36E-03	5.17E-07
BENZIDINE (AND ITS SALTS) values also apply to:		0.00E+00
Benzidine based dyes		0.00E+00
Direct Black 38		0.00E+00
Direct Blue 6		0.00E+00
Direct Brown 95 (technical grade)		0.00E+00
BENZYL CHLORIDE		0.00E+00
BERYLLIUM AND COMPOUNDS[2]	2.73E-06	2.12E-08
BIS(2-CHLOROETHYL)ETHER (Dichloroethyl ether)		0.00E+00
BIS(CHLOROMETHYL)ETHER		0.00E+00
POTASSIUM BROMATE		0.00E+00
1,3-BUTADIENE		0.00E+00
CADMIUM AND COMPOUNDS[2]	1.17E-05	1.62E-07
CARBON TETRACHLORIDE[1] (Tetrachloromethane)		0.00E+00
CHLORINATED PARAFFINS		0.00E+00
4-CHLORO-O-PHENYLENEDIAMINE		0.00E+00
CHLOROFORM[1]		0.00E+00
PENTACHLOROPHENOL		0.00E+00
2,4,6-TRICHLOROPHENOL		0.00E+00
p-CHLORO-o-TOLUIDINE		0.00E+00
CHROMIUM 6+2	2.41E-07	1.14E-07
Barium chromate2		0.00E+00
Calcium chromate2		0.00E+00
Lead chromate2		0.00E+00
Sodium dichromate2		0.00E+00
Strontium chromate2		0.00E+00
CHROMIC TRIOXIDE (as chromic acid mist)		0.00E+00
p-CRESIDINE		0.00E+00
CUPFERRON		0.00E+00
2,4-DIAMINOANISOLE		0.00E+00
2,4-DIAMINOTOLUENE		0.00E+00
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)		0.00E+00
1,4-DICHLOROBENZENE		0.00E+00
3,3-DICHLOROBENZIDINE		0.00E+00
1,1,-DICHLOROETHANE (Ethylidene dichloride)		0.00E+00
DI(2-ETHYLHEXYL)PHTHALATE (DEHP)		0.00E+00
p-DIMETHYLAMINOAZOBENZENE		0.00E+00
2,4-DINITROTOLUENE		0.00E+00
1,4-DIOXANE (1,4-Diethylene dioxide)		0.00E+00
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0.00E+00
ETHYL BENZENE		0.00E+00
ETHYLENE DIBROMIDE (1,2-Dibromoethane)		0.00E+00
ETHYLENE DICHLORIDE (1,2-Dichloroethane)		0.00E+00
ETHYLENE OXIDE (1,2-Epoxyethane)		0.00E+00
ETHYLENE THIOUREA		0.00E+00
FORMALDEHYDE	4.43E-04	8.98E-09
HEXACHLOROBENZENE		0.00E+00
HEXACHLOROCYCLOHEXANES (mixed or technical grade)		0.00E+00
alpha-HEXACHLOROCYCLOHEXANE		0.00E+00
beta- HEXACHLOROCYCLOHEXANE		0.00E+00
gamma-HEXACHLOROCYCLOHEXANE (Lindane)		0.00E+00
HYDRAZINE		0.00E+00
LEAD AND COMPOUNDS 2,4 (inorganic) values also apply to:	9.89E-06	1.13E-09
Lead acetate2		0.00E+00
Lead phosphate2		0.00E+00
Lead subacetate2		0.00E+00
METHYL tertiary-BUTYL ETHER		0.00E+00
4,4'-METHYLENE BIS (2-CHLOROANILINE) (MOCA)		0.00E+00
METHYLENE CHLORIDE (Dichloromethane)		0.00E+00
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)		0.00E+00
MICHLER'S KETONE (4,4'-Bis(dimethylamino)benzophenone)		0.00E+00
N-NITROSODI-n-BUTYLAMINE		0.00E+00
N-NITROSODI-n-PROPYLAMINE		0.00E+00
N-NITROSODIETHYLAMINE		0.00E+00
N-NITROSODIMETHYLAMINE		0.00E+00
N-NITROSODIPHENYLAMINE		0.00E+00
N-NITROSO-N-METHYLETHYLAMINE		0.00E+00
N-NITROSOMORPHOLINE		0.00E+00
N-NITROSOPIPERIDINE		0.00E+00
N-NITROSOPYRROLIDINE		0.00E+00
NICKEL AND COMPOUNDS2 (values also apply to:)	1.89E-04	1.59E-07
Nickel acetate2		0.00E+00
Nickel carbonate2		0.00E+00
Nickel carbonyl2		0.00E+00
Nickel hydroxide2		0.00E+00
Nickelocene2		0.00E+00
NICKEL OXIDE2		0.00E+00
Nickel refinery dust from the pyrometallurgical process2		0.00E+00
Nickel subsulfide2		0.00E+00
p-NITROSODIPHENYLAMINE		0.00E+00
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES	5.15E-02	5.47E-05
PERCHLOROETHYLENE (Tetrachloroethylene)		0.00E+00
PCB (POLYCHLORINATED BIPHENYLS) [low risk] 2,6		0.00E+00
PCB (POLYCHLORINATED BIPHENYLS) [high risk] 2,6		0.00E+00
POLYCHLORINATED DIBENZO-P-DIOXINS (PCDD)(AS 2,3,7,8-PCDD EQUIV) 2,7		0.00E+00
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN2,7		0.00E+00
POLYCHLORINATED DIBENZOFURANS (PCDF)(AS 2,3,7,8-PCDD EQUIV) 2,7		0.00E+00
2,3,7,8-TETRACHLORODIBENZOFURAN2,7		0.00E+00
POLYCYCLIC AROMATIC HYDROCARBON2 (PAH) (AS B(a)P-EQUIV)5	2.46E-05	1.30E-06
BENZO(A)PYRENE2,5		0.00E+00
NAPHTHALENE		0.00E+00
1,3-PROPANE SULTONE		0.00E+00
PROPYLENE OXIDE		0.00E+00
1,1,2,2-TETRACHLOROETHANE		0.00E+00
THIOACETAMIDE		0.00E+00
Toluene diisocyantates		0.00E+00
TOLUENE-2,4-DIISOCYANATE		0.00E+00
TOLUENE-2,6-DIISOCYANATE		0.00E+00
1,1,2-TRICHLOROETHANE (Vinyl trichloride)		0.00E+00
TRICHLOROETHYLENE		0.00E+00
URETHANE (Ethyl carbamate)		0.00E+00
VINYL CHLORIDE (Chloroethylene)		0.00E+00
	TOTAL:	5.72E-05

Plant #:
Plant Name: Pacific Bell (P# 13494)
Number of Sources:

Pollutant Name	Emission/lbs per day	Chronic Hazard
ACETALDEHYDE	0	0
ACROLEIN		0
ACRYLONITRILE		0
AMMONIA		0
ARSENIC AND COMPOUNDS (INORGANIC)1,2	4.66E-06	0.022168559
ARSINE		0
BENZENE1	5.36E-03	0.000168642
BERYLLIUM AND COMPOUNDS2	2.73E-06	0.00073697
1,3-BUTADIENE		0
CADMIUM AND COMPOUNDS2	1.17E-05	0.001234664
CARBON DISULFIDE1		0
CARBON TETRACHLORIDE1 (Tetrachloromethane)		0
CHLORINE		0
CHLORINE DIOXIDE		0
CHLOROBENZENE		0
CHLOROFORM1		0
2,3,4,6-Tetrachlorophenol		0
CHLOROPICRIN		0
CHROMIUM 6+2	2.41E-07	2.27477E-06
Barium chromate2		0
Calcium chromate2		0
Lead chromate2		0
Sodium dichromate2		0
Strontium chromate2		0
CHROMIC TRIOXIDE (as chromic acid mist)		0
CRESOLS		0
M-CRESOL		0
O-CRESOL		0
P-CRESOL		0
Cyanide And Compounds (inorganic)		0
HYDROGEN CYANIDE (Hydrocyanic acid)		0
1,4-DICHLOROBENZENE		0
DIETHANOLAMINE		0
DIMETHYLAMINE		0
N,N-DIMETHYL FORMAMIDE		0
1,4-DIOXANE (1,4-Diethylene dioxide)		0
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0
1,2-EPOXYBUTANE		0
ETHYL BENZENE		0
ETHYL CHLORIDE (Chloroethane)		0
ETHYLENE DIBROMIDE (1,2-Dibromoethane)		0
ETHYLENE DICHLORIDE (1,2-Dichloroethane)		0
ETHYLENE GLYCOL		0
ETHYLENE OXIDE (1,2-Epoxyethane)		0
Fluorides		0
HYDROGEN FLUORIDE (Hydrofluoric acid)		0
FORMALDEHYDE	4.43E-04	9.29206E-05
GASOLINE VAPORS		0
GLUTARALDEHYDE		0
ETHYLENE GLYCOL ETHYL ETHER – EGEE1		0
ETHYLENE GLYCOL ETHYL ETHER ACETATE – EGEEA1		0
ETHYLENE GLYCOL METHYL ETHER – EGME1		0
ETHYLENE GLYCOL METHYL ETHER ACETATE – EGMEA		0
n-HEXANE		0
HYDRAZINE		0
HYDROCHLORIC ACID (Hydrogen chloride)		0
HYDROGEN SULFIDE		0
ISOPHORONE		0
ISOPROPYL ALCOHOL (Isopropanol)		0
MALEIC ANHYDRIDE		0
MANGANESE AND COMPOUNDS	1.55E-05	0.000325117
MERCURY AND COMPOUNDS (INORGANIC) values also apply to:	3.30E-06	0.000878383
Mercuric chloride		0
METHANOL		0
METHYL BROMIDE (Bromomethane)		0
METHYL tertiary-BUTYL ETHER		0
METHYL CHLOROFORM (1,1,1-Trichloroethane)		0
METHYL ISOCYANATE		0
METHYLENE CHLORIDE (Dichloromethane)		0
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)		0
METHYLENE DIPHENYL ISOCYANATE		0
NICKEL AND COMPOUNDS2 (values also apply to:)	1.89E-04	0.007135802
Nickel acetate2		0
Nickel carbonate2		0
Nickel carbonyl2		0
Nickel hydroxide2		0
Nickelocene2		0
NICKEL OXIDE2		0
Nickel refinery dust from the pyrometallurgical process2		0
Nickel subsulfide2		0
NITROGEN DIOXIDE	3.77E+00	0.015142393
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES	5.15E-02	0.019444117
PERCHLOROETHYLENE (Tetrachloroethylene)		0
PHENOL		0
PHOSPHINE		0
PHOSPHORIC ACID		0
PHOSPHORUS (WHITE)		0
PHTHALIC ANHYDRIDE		0
POLYCHLORINATED DIBENZO-P-DIOXINS (PCDD)(AS 2,3,7,8-PCDD EQUIV) 2,7		0
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,6,7,8,9-OCTACHLORODIBENZO-P-DIOXIN2,7		0
POLYCHLORINATED DIBENZOFURANS (PCDF)(AS 2,3,7,8-PCDD EQUIV) 2,7		0
2,3,7,8-TETRACHLORODIBENZOFURAN2,7		0
1,2,3,7,8-PENTACHLORODIBENZOFURAN2,7		0
2,3,4,7,8-PENTACHLORODIBENZOFURAN2,7		0
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN2,7		0
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN2,7		0
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN2,7		0
1,2,3,4,6,7,8,9-OCTACHLORODIBENZOFURAN2,7		0
NAPHTHALENE		0
PROPYLENE (PROPENE)		0
PROPYLENE GLYCOL MONOMETHYL ETHER		0
PROPYLENE OXIDE		0
SELENIUM AND COMPOUNDS		0
Selenium sulfide		0
SILICA (Crystalline, Respirable)		0
STYRENE		0
SULFUR DIOXIDE	1.75E-03	5.00547E-06
SULFURIC ACID AND OLEUM		0
SULFURIC ACID		0
SULFUR TRIOXIDE		0
OLEUM		0
TOLUENE		0
Toluene diisocyantates		0
TOLUENE-2,4-DIISOCYANATE		0
TOLUENE-2,6-DIISOCYANATE		0
TRICHLOROETHYLENE		0
TRIETHYLAMINE		0
VINYL ACETATE		0
VINYLIDENE CHLORIDE (1,1-Dichloroethylene)		0
XYLENES (mixed isomers)		0
m-XYLENE		0
o-XYLENE		0
p-XYLENE		0
	TOTAL:	6.73E-02

Plant #:
Plant Name: Pacific Bell (P# 13494)
Number of Sources:

Pollutant Name	Emission/lbs per day	Acute Hazard
ACETALDEHYDE	0	0
ACROLEIN		0
ACRYLIC ACID		0
AMMONIA		0
ARSENIC AND COMPOUNDS (INORGANIC)1,2	4.66E-06	0.000439852
ARSINE		0
BENZENE1	5.36E-03	7.78346E-05
BENZYL CHLORIDE		0
CARBON DISULFIDE1		0
CARBON MONOXIDE	8.20E-01	0.000673034
CARBON TETRACHLORIDE1 (Tetrachloromethane)		0
CHLORINE		0
CHLOROFORM1		0
CHLOROPICRIN		0
COPPER AND COMPOUNDS		0
Cyanide And Compounds (inorganic)		0
HYDROGEN CYANIDE (Hydrocyanic acid)		0
1,4-DIOXANE (1,4-Diethylene dioxide)		0
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0
Fluorides		0
HYDROGEN FLUORIDE (Hydrofluoric acid)		0
FORMALDEHYDE	4.43E-04	0.000152052
ETHYLENE GLYCOL BUTYL ETHER – EGBE		0
ETHYLENE GLYCOL ETHYL ETHER – EGEE1		0
ETHYLENE GLYCOL ETHYL ETHER ACETATE – EGEEA1		0
ETHYLENE GLYCOL METHYL ETHER – EGME1		0
HYDROCHLORIC ACID (Hydrogen chloride)		0
HYDROGEN SULFIDE		0
ISOPROPYL ALCOHOL (Isopropanol)		0
MERCURY AND COMPOUNDS (INORGANIC) values also apply to:	3.30E-06	0.000103828
Mercuric chloride		0
METHANOL		0
METHYL BROMIDE (Bromomethane)		0
METHYL CHLOROFORM (1,1,1-Trichloroethane)		0
METHYL ETHYL KETONE (2-Butanone)		0
METHYLENE CHLORIDE (Dichloromethane)		0
NICKEL AND COMPOUNDS2 (values also apply to:)	1.89E-04	0.00059465
Nickel acetate2		0
Nickel carbonate2		0
Nickel carbonyl2		0
Nickel hydroxide2		0

Nickelocene2		0
NICKEL OXIDE2		0
Nickel refinery dust from the pyrometallurgical process2		0
Nickel subsulfide2		0
NITRIC ACID		0
OZONE		0
PROPYLENE OXIDE		0
HYDROGEN SELENIDE		0
SODIUM HYDROXIDE		0
STYRENE		0
SULFATES		0
SULFUR DIOXIDE	1.75E-03	5.00547E-05
SULFURIC ACID AND OLEUM		0
SULFURIC ACID		0
SULFUR TRIOXIDE		0
OLEUM		0
TOLUENE		0
TRIETHYLAMINE		0
Vanadium (fume or dust)		0
VANADIUM PENTOXIDE		0
VINYL CHLORIDE (Chloroethylene)		0
XYLENES (mixed isomers)		0
m-XYLENE		0
o-XYLENE		0
p-XYLENE		0
	TOTAL:	2.09E-03

Plant #:
Plant Name: Pacific Bell (P# 13494)
Number of Sources:

Diesel PM Concentrations	Emissions (lbs/day)	M2.5 Concentration (ug/m3)
	5.15E-02	0.099438775
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
TOTAL:		0.099438775

Plant #:
Plant Name: City of Oaklan , Envr Scvs Division (P# 14502)
Number of Sources:

Pollutant Name	Emissions/lbs per day	Cancer Risk (in millions)
ACETALDEHYDE		0.00E+00
ACETAMIDE		0.00E+00
ACRYLAMIDE		0.00E+00
ACRYLONITRILE		0.00E+00
ALLYL CHLORIDE		0.00E+00
2-AMINOANTHRAQUINONE		0.00E+00
ANILINE		0.00E+00
ARSENIC AND COMPOUNDS (INORGANIC)[1,2]	1.51E-07	7.62E-09
ASBESTOS [3]		0.00E+00
BENZENE[1]	1.74E-04	1.68E-08
BENZIDINE (AND ITS SALTS) values also apply to:		0.00E+00
Benzidine based dyes		0.00E+00
Direct Black 38		0.00E+00
Direct Blue 6		0.00E+00
Direct Brown 95 (technical grade)		0.00E+00
BENZYL CHLORIDE		0.00E+00
BERYLLIUM AND COMPOUNDS[2]	8.86E-08	6.88E-10
BIS(2-CHLOROETHYL)ETHER (Dichloroethyl ether)		0.00E+00
BIS(CHLOROMETHYL)ETHER		0.00E+00
POTASSIUM BROMATE		0.00E+00
1,3-BUTADIENE		0.00E+00
CADMIUM AND COMPOUNDS[2]	3.78E-07	5.24E-09
CARBON TETRACHLORIDE[1] (Tetrachloromethane)		0.00E+00
CHLORINATED PARAFFINS		0.00E+00
4-CHLORO-O-PHENYLENEDIAMINE		0.00E+00
CHLOROFORM[1]		0.00E+00
PENTACHLOROPHENOL		0.00E+00
2,4,6-TRICHLOROPHENOL		0.00E+00
p-CHLORO-o-TOLUIDINE		0.00E+00
CHROMIUM 6+2	7.82E-09	3.70E-09
Barium chromate2		0.00E+00
Calcium chromate2		0.00E+00
Lead chromate2		0.00E+00
Sodium dichromate2		0.00E+00
Strontium chromate2		0.00E+00
CHROMIC TRIOXIDE (as chromic acid mist)		0.00E+00
p-CRESIDINE		0.00E+00
CUPFERRON		0.00E+00
2,4-DIAMINOANISOLE		0.00E+00
2,4-DIAMINOTOLUENE		0.00E+00
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)		0.00E+00
1,4-DICHLOROBENZENE		0.00E+00
3,3-DICHLOROBENZIDINE		0.00E+00
1,1,-DICHLOROETHANE (Ethylidene dichloride)		0.00E+00
DI(2-ETHYLHEXYL)PHTHALATE (DEHP)		0.00E+00
p-DIMETHYLAMINOAZOBENZENE		0.00E+00
2,4-DINITROTOLUENE		0.00E+00
1,4-DIOXANE (1,4-Diethylene dioxide)		0.00E+00
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0.00E+00
ETHYL BENZENE		0.00E+00
ETHYLENE DIBROMIDE (1,2-Dibromoethane)		0.00E+00
ETHYLENE DICHLORIDE (1,2-Dichloroethane)		0.00E+00
ETHYLENE OXIDE (1,2-Epoxyethane)		0.00E+00
ETHYLENE THIOUREA		0.00E+00
FORMALDEHYDE	1.44E-05	2.92E-10
HEXACHLOROBENZENE		0.00E+00
HEXACHLOROCYCLOHEXANES (mixed or technical grade)		0.00E+00
alpha-HEXACHLOROCYCLOHEXANE		0.00E+00
beta- HEXACHLOROCYCLOHEXANE		0.00E+00
gamma-HEXACHLOROCYCLOHEXANE (Lindane)		0.00E+00
HYDRAZINE		0.00E+00
LEAD AND COMPOUNDS 2,4 (inorganic) values also apply to:	3.20E-07	3.66E-11
Lead acetate2		0.00E+00
Lead phosphate2		0.00E+00
Lead subacetate2		0.00E+00
METHYL tertiary-BUTYL ETHER		0.00E+00
4,4'-METHYLENE BIS (2-CHLOROANILINE) (MOCA)		0.00E+00
METHYLENE CHLORIDE (Dichloromethane)		0.00E+00
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)		0.00E+00
MICHLER'S KETONE (4,4’-Bis(dimethylamino)benzophenone)		0.00E+00
N-NITROSODI-n-BUTYLAMINE		0.00E+00
N-NITROSODI-n-PROPYLAMINE		0.00E+00
N-NITROSODIETHYLAMINE		0.00E+00
N-NITROSODIMETHYLAMINE		0.00E+00
N-NITROSODIPHENYLAMINE		0.00E+00
N-NITROSO-N-METHYLETHYLAMINE		0.00E+00
N-NITROSOMORPHOLINE		0.00E+00
N-NITROSOPIPERIDINE		0.00E+00
N-NITROSOPYRROLIDINE		0.00E+00
NICKEL AND COMPOUNDS2 (values also apply to:)	6.11E-06	5.15E-09
Nickel acetate2		0.00E+00
Nickel carbonate2		0.00E+00
Nickel carbonyl2		0.00E+00
Nickel hydroxide2		0.00E+00
Nickelocene2		0.00E+00
NICKEL OXIDE2		0.00E+00
Nickel refinery dust from the pyrometallurgical process2		0.00E+00
Nickel subsulfide2		0.00E+00
p-NITROSODIPHENYLAMINE		0.00E+00
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES	8.73E-03	9.27E-06
PERCHLOROETHYLENE (Tetrachloroethylene)		0.00E+00
PCB (POLYCHLORINATED BIPHENYLS) [low risk] 2,6		0.00E+00
PCB (POLYCHLORINATED BIPHENYLS) [high risk] 2,6		0.00E+00
POLYCHLORINATED DIBENZO-P-DIOXINS (PCDD)(AS 2,3,7,8-PCDD EQUIV) 2,7		0.00E+00
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN2,7		0.00E+00
POLYCHLORINATED DIBENZOFURANS (PCDF)(AS 2,3,7,8-PCDD EQUIV) 2,7		0.00E+00
2,3,7,8-TETRACHLORODIBENZOFURAN2,7		0.00E+00
POLYCYCLIC AROMATIC HYDROCARBON2 (PAH) (AS B(a)P-EQUIV)5	7.97E-07	4.20E-08
BENZO(A)PYRENE2,5		0.00E+00
NAPHTHALENE		0.00E+00
1,3-PROPANE SULTONE		0.00E+00
PROPYLENE OXIDE		0.00E+00
1,1,2,2-TETRACHLOROETHANE		0.00E+00
THIOACETAMIDE		0.00E+00
Toluene diisocyantates		0.00E+00
TOLUENE-2,4-DIISOCYANATE		0.00E+00
TOLUENE-2,6-DIISOCYANATE		0.00E+00
1,1,2-TRICHLOROETHANE (Vinyl trichloride)		0.00E+00
TRICHLOROETHYLENE		0.00E+00
URETHANE (Ethyl carbamate)		0.00E+00
VINYL CHLORIDE (Chloroethylene)		0.00E+00
	TOTAL:	9.35E-06

Plant #:
Plant Name: City of Oaklan , Envr Scvs Division (P# 14502)
Number of Sources:

Pollutant Name	Emission/lbs per day	Chronic Hazard
ACETALDEHYDE	0	0
ACROLEIN		0
ACRYLONITRILE		0
AMMONIA		0
ARSENIC AND COMPOUNDS (INORGANIC)1,2	1.51E-07	0.000718337
ARSINE		0
BENZENE1	1.74E-04	5.47456E-06
BERYLLIUM AND COMPOUNDS2	8.86E-08	2.39178E-05
1,3-BUTADIENE		0
CADMIUM AND COMPOUNDS2	3.78E-07	3.98891E-05
CARBON DISULFIDE1		0
CARBON TETRACHLORIDE1 (Tetrachloromethane)		0
CHLORINE		0
CHLORINE DIOXIDE		0
CHLOROBENZENE		0
CHLOROFORM1		0
2,3,4,6-Tetrachlorophenol		0
CHLOROPICRIN		0
CHROMIUM 6+2	7.82E-09	7.38121E-08
Barium chromate2		0
Calcium chromate2		0
Lead chromate2		0
Sodium dichromate2		0
Strontium chromate2		0
CHROMIC TRIOXIDE (as chromic acid mist)		0
CRESOLS		0
M-CRESOL		0
O-CRESOL		0
P-CRESOL		0
Cyanide And Compounds (inorganic)		0
HYDROGEN CYANIDE (Hydrocyanic acid)		0
1,4-DICHLOROBENZENE		0
DIETHANOLAMINE		0
DIMETHYLAMINE		0
N,N-DIMETHYL FORMAMIDE		0
1,4-DIOXANE (1,4-Diethylene dioxide)		0
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0
1,2-EPOXYBUTANE		0
ETHYL BENZENE		0
ETHYL CHLORIDE (Chloroethane)		0
ETHYLENE DIBROMIDE (1,2-Dibromoethane)		0
ETHYLENE DICHLORIDE (1,2-Dichloroethane)		0
ETHYLENE GLYCOL		0
ETHYLENE OXIDE (1,2-Epoxyethane)		0
Fluorides		0
HYDROGEN FLUORIDE (Hydrofluoric acid)		0
FORMALDEHYDE	1.44E-05	3.02045E-06
GASOLINE VAPORS		0
GLUTARALDEHYDE		0
ETHYLENE GLYCOL ETHYL ETHER – EGEE1		0
ETHYLENE GLYCOL ETHYL ETHER ACETATE – EGEEA1		0
ETHYLENE GLYCOL METHYL ETHER – EGME1		0
ETHYLENE GLYCOL METHYL ETHER ACETATE – EGMEA		0
n-HEXANE		0
HYDRAZINE		0
HYDROCHLORIC ACID (Hydrogen chloride)		0
HYDROGEN SULFIDE		0
ISOPHORONE		0
ISOPROPYL ALCOHOL (Isopropanol)		0
MALEIC ANHYDRIDE		0
MANGANESE AND COMPOUNDS	5.03E-07	1.05506E-05
MERCURY AND COMPOUNDS (INORGANIC) values also apply to:	1.07E-07	2.84809E-05
Mercuric chloride		0
METHANOL		0
METHYL BROMIDE (Bromomethane)		0
METHYL tertiary-BUTYL ETHER		0
METHYL CHLOROFORM (1,1,1-Trichloroethane)		0
METHYL ISOCYANATE		0
METHYLENE CHLORIDE (Dichloromethane)		0
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)		0
METHYLENE DIPHENYL ISOCYANATE		0
NICKEL AND COMPOUNDS2 (values also apply to:)	6.11E-06	0.000230687
Nickel acetate2		0
Nickel carbonate2		0
Nickel carbonyl2		0
Nickel hydroxide2		0
Nickelocene2		0
NICKEL OXIDE2		0
Nickel refinery dust from the pyrometallurgical process2		0
Nickel subsulfide2		0
NITROGEN DIOXIDE	1.22E-01	0.000490019
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES	8.73E-03	0.003296061
PERCHLOROETHYLENE (Tetrachloroethylene)		0
PHENOL		0
PHOSPHINE		0
PHOSPHORIC ACID		0
PHOSPHORUS (WHITE)		0
PHTHALIC ANHYDRIDE		0
POLYCHLORINATED DIBENZO-P-DIOXINS (PCDD)(AS 2,3,7,8-PCDD EQUIV) 2,7		0
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,6,7,8,9-OCTACHLORODIBENZO-P-DIOXIN2,7		0
POLYCHLORINATED DIBENZOFURANS (PCDF)(AS 2,3,7,8-PCDD EQUIV) 2,7		0
2,3,7,8-TETRACHLORODIBENZOFURAN2,7		0
1,2,3,7,8-PENTACHLORODIBENZOFURAN2,7		0
2,3,4,7,8-PENTACHLORODIBENZOFURAN2,7		0
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN2,7		0
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN2,7		0
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN2,7		0
1,2,3,4,6,7,8,9-OCTACHLORODIBENZOFURAN2,7		0
NAPHTHALENE		0
PROPYLENE (PROPENE)		0
PROPYLENE GLYCOL MONOMETHYL ETHER		0
PROPYLENE OXIDE		0
SELENIUM AND COMPOUNDS		0
Selenium sulfide		0
SILICA (Crystalline, Respirable)		0
STYRENE		0
SULFUR DIOXIDE	5.67E-05	1.62177E-07
SULFURIC ACID AND OLEUM		0
SULFURIC ACID		0
SULFUR TRIOXIDE		0
OLEUM		0
TOLUENE		0
Toluene diisocyantates		0
TOLUENE-2,4-DIISOCYANATE		0
TOLUENE-2,6-DIISOCYANATE		0
TRICHLOROETHYLENE		0
TRIETHYLAMINE		0
VINYL ACETATE		0
VINYLIDENE CHLORIDE (1,1-Dichloroethylene)		0
XYLENES (mixed isomers)		0
m-XYLENE		0
o-XYLENE		0
p-XYLENE		0
	TOTAL:	4.85E-03

Plant #:
Plant Name: City of Oaklan , Envr Scvs Division (P# 14502)
Number of Sources:

Pollutant Name	Emission/lbs per day	Acute Hazard
ACETALDEHYDE	0	0
ACROLEIN		0
ACRYLIC ACID		0
AMMONIA		0
ARSENIC AND COMPOUNDS (INORGANIC)1,2	1.51E-07	1.42527E-05
ARSINE		0
BENZENE1	1.74E-04	2.52672E-06
BENZYL CHLORIDE		0
CARBON DISULFIDE1		0
CARBON MONOXIDE	2.66E-02	2.18326E-05
CARBON TETRACHLORIDE1 (Tetrachloromethane)		0
CHLORINE		0
CHLOROFORM1		0
CHLOROPICRIN		0
COPPER AND COMPOUNDS		0
Cyanide And Compounds (inorganic)		0
HYDROGEN CYANIDE (Hydrocyanic acid)		0
1,4-DIOXANE (1,4-Diethylene dioxide)		0
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0
Fluorides		0
HYDROGEN FLUORIDE (Hydrofluoric acid)		0
FORMALDEHYDE	1.44E-05	4.94255E-06
ETHYLENE GLYCOL BUTYL ETHER – EGBE		0
ETHYLENE GLYCOL ETHYL ETHER – EGEE1		0
ETHYLENE GLYCOL ETHYL ETHER ACETATE – EGEEA1		0
ETHYLENE GLYCOL METHYL ETHER – EGME1		0
HYDROCHLORIC ACID (Hydrogen chloride)		0
HYDROGEN SULFIDE		0
ISOPROPYL ALCOHOL (Isopropanol)		0
MERCURY AND COMPOUNDS (INORGANIC) values also apply to:	1.07E-07	3.36654E-06
Mercuric chloride		0
METHANOL		0
METHYL BROMIDE (Bromomethane)		0
METHYL CHLOROFORM (1,1,1-Trichloroethane)		0
METHYL ETHYL KETONE (2-Butanone)		0
METHYLENE CHLORIDE (Dichloromethane)		0
NICKEL AND COMPOUNDS2 (values also apply to:)	6.11E-06	1.92239E-05
Nickel acetate2		0
Nickel carbonate2		0
Nickel carbonyl2		0
Nickel hydroxide2		0

Nickelocene2		0
NICKEL OXIDE2		0
Nickel refinery dust from the pyrometallurgical process2		0
Nickel subsulfide2		0
NITRIC ACID		0
OZONE		0
PROPYLENE OXIDE		0
HYDROGEN SELENIDE		0
SODIUM HYDROXIDE		0
STYRENE		0
SULFATES		0
SULFUR DIOXIDE	5.67E-05	1.62177E-06
SULFURIC ACID AND OLEUM		0
SULFURIC ACID		0
SULFUR TRIOXIDE		0
OLEUM		0
TOLUENE		0
TRIETHYLAMINE		0
Vanadium (fume or dust)		0
VANADIUM PENTOXIDE		0
VINYL CHLORIDE (Chloroethylene)		0
XYLENES (mixed isomers)		0
m-XYLENE		0
o-XYLENE		0
p-XYLENE		0
	TOTAL:	6.78E-05

Plant #:
Plant Name: City of Oaklan , Envr Scvs Division (P# 14502)
Number of Sources:

Diesel PM Concentrations	Emissions (lbs/day)	M2.5 Concentration (ug/m3)
	8.73E-03	0.016856321
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
TOTAL:		0.016856321

Plant #:
Plant Name: AC Transit General Office (P# 14532)
Number of Sources:

Pollutant Name	Emissions/lbs per day	Cancer Risk (in millions)
ACETALDEHYDE		0.00E+00
ACETAMIDE		0.00E+00
ACRYLAMIDE		0.00E+00
ACRYLONITRILE		0.00E+00
ALLYL CHLORIDE		0.00E+00
2-AMINOANTHRAQUINONE		0.00E+00
ANILINE		0.00E+00
ARSENIC AND COMPOUNDS (INORGANIC)[1,2]	1.24E-06	6.26E-08
ASBESTOS [3]		0.00E+00
BENZENE[1]	1.43E-03	1.38E-07
BENZIDINE (AND ITS SALTS) values also apply to:		0.00E+00
Benzidine based dyes		0.00E+00
Direct Black 38		0.00E+00
Direct Blue 6		0.00E+00
Direct Brown 95 (technical grade)		0.00E+00
BENZYL CHLORIDE		0.00E+00
BERYLLIUM AND COMPOUNDS[2]	7.29E-07	5.66E-09
BIS(2-CHLOROETHYL)ETHER (Dichloroethyl ether)		0.00E+00
BIS(CHLOROMETHYL)ETHER		0.00E+00
POTASSIUM BROMATE		0.00E+00
1,3-BUTADIENE		0.00E+00
CADMIUM AND COMPOUNDS[2]	3.11E-06	4.31E-08
CARBON TETRACHLORIDE[1] (Tetrachloromethane)		0.00E+00
CHLORINATED PARAFFINS		0.00E+00
4-CHLORO-O-PHENYLENEDIAMINE		0.00E+00
CHLOROFORM[1]		0.00E+00
PENTACHLOROPHENOL		0.00E+00
2,4,6-TRICHLOROPHENOL		0.00E+00
p-CHLORO-o-TOLUIDINE		0.00E+00
CHROMIUM 6+2	6.43E-08	3.04E-08
Barium chromate2		0.00E+00
Calcium chromate2		0.00E+00
Lead chromate2		0.00E+00
Sodium dichromate2		0.00E+00
Strontium chromate2		0.00E+00
CHROMIC TRIOXIDE (as chromic acid mist)		0.00E+00
p-CRESIDINE		0.00E+00
CUPFERRON		0.00E+00
2,4-DIAMINOANISOLE		0.00E+00
2,4-DIAMINOTOLUENE		0.00E+00
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)		0.00E+00
1,4-DICHLOROBENZENE		0.00E+00
3,3-DICHLOROBENZIDINE		0.00E+00
1,1,-DICHLOROETHANE (Ethylidene dichloride)		0.00E+00
DI(2-ETHYLHEXYL)PHTHALATE (DEHP)		0.00E+00
p-DIMETHYLAMINOAZOBENZENE		0.00E+00
2,4-DINITROTOLUENE		0.00E+00
1,4-DIOXANE (1,4-Diethylene dioxide)		0.00E+00
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0.00E+00
ETHYL BENZENE		0.00E+00
ETHYLENE DIBROMIDE (1,2-Dibromoethane)		0.00E+00
ETHYLENE DICHLORIDE (1,2-Dichloroethane)		0.00E+00
ETHYLENE OXIDE (1,2-Epoxyethane)		0.00E+00
ETHYLENE THIOUREA		0.00E+00
FORMALDEHYDE	1.18E-04	2.39E-09
HEXACHLOROBENZENE		0.00E+00
HEXACHLOROCYCLOHEXANES (mixed or technical grade)		0.00E+00
alpha-HEXACHLOROCYCLOHEXANE		0.00E+00
beta- HEXACHLOROCYCLOHEXANE		0.00E+00
gamma-HEXACHLOROCYCLOHEXANE (Lindane)		0.00E+00
HYDRAZINE		0.00E+00
LEAD AND COMPOUNDS 2,4 (inorganic) values also apply to:	2.64E-06	3.02E-10
Lead acetate2		0.00E+00
Lead phosphate2		0.00E+00
Lead subacetate2		0.00E+00
METHYL tertiary-BUTYL ETHER		0.00E+00
4,4'-METHYLENE BIS (2-CHLOROANILINE) (MOCA)		0.00E+00
METHYLENE CHLORIDE (Dichloromethane)		0.00E+00
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)		0.00E+00
MICHLER'S KETONE (4,4'-Bis(dimethylamino)benzophenone)		0.00E+00
N-NITROSODI-n-BUTYLAMINE		0.00E+00
N-NITROSODI-n-PROPYLAMINE		0.00E+00
N-NITROSODIETHYLAMINE		0.00E+00
N-NITROSODIMETHYLAMINE		0.00E+00
N-NITROSODIPHENYLAMINE		0.00E+00
N-NITROSO-N-METHYLETHYLAMINE		0.00E+00
N-NITROSOMORPHOLINE		0.00E+00
N-NITROSOPIPERIDINE		0.00E+00
N-NITROSOPYRROLIDINE		0.00E+00
NICKEL AND COMPOUNDS2 (values also apply to:)	5.03E-05	4.24E-08
Nickel acetate2		0.00E+00
Nickel carbonate2		0.00E+00
Nickel carbonyl2		0.00E+00
Nickel hydroxide2		0.00E+00
Nickelocene2		0.00E+00
NICKEL OXIDE2		0.00E+00
Nickel refinery dust from the pyrometallurgical process2		0.00E+00
Nickel subsulfide2		0.00E+00
p-NITROSODIPHENYLAMINE		0.00E+00
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES	7.18E-02	7.62E-05
PERCHLOROETHYLENE (Tetrachloroethylene)		0.00E+00
PCB (POLYCHLORINATED BIPHENYLS) [low risk] 2,6		0.00E+00
PCB (POLYCHLORINATED BIPHENYLS) [high risk] 2,6		0.00E+00
POLYCHLORINATED DIBENZO-P-DIOXINS (PCDD)(AS 2,3,7,8-PCDD EQUIV) 2,7		0.00E+00
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN2,7		0.00E+00
POLYCHLORINATED DIBENZOFURANS (PCDF)(AS 2,3,7,8-PCDD EQUIV) 2,7		0.00E+00
2,3,7,8-TETRACHLORODIBENZOFURAN2,7		0.00E+00
POLYCYCLIC AROMATIC HYDROCARBON2 (PAH) (AS B(a)P-EQUIV)5	6.56E-06	3.46E-07
BENZO(A)PYRENE2,5		0.00E+00
NAPHTHALENE		0.00E+00
1,3-PROPANE SULTONE		0.00E+00
PROPYLENE OXIDE		0.00E+00
1,1,2,2-TETRACHLOROETHANE		0.00E+00
THIOACETAMIDE		0.00E+00
Toluene diisocyantates		0.00E+00
TOLUENE-2,4-DIISOCYANATE		0.00E+00
TOLUENE-2,6-DIISOCYANATE		0.00E+00
1,1,2-TRICHLOROETHANE (Vinyl trichloride)		0.00E+00
TRICHLOROETHYLENE		0.00E+00
URETHANE (Ethyl carbamate)		0.00E+00
VINYL CHLORIDE (Chloroethylene)		0.00E+00
	TOTAL:	7.69E-05

Plant #:
Plant Name: AC Transit General Office (P# 14532)
Number of Sources:

Pollutant Name	Emission/lbs per day	Chronic Hazard
ACETALDEHYDE	0	0
ACROLEIN		0
ACRYLONITRILE		0
AMMONIA		0
ARSENIC AND COMPOUNDS (INORGANIC)1,2	1.24E-06	0.00589893
ARSINE		0
BENZENE1	1.43E-03	4.49921E-05
BERYLLIUM AND COMPOUNDS2	7.29E-07	0.000196795
1,3-BUTADIENE		0
CADMIUM AND COMPOUNDS2	3.11E-06	0.000328188
CARBON DISULFIDE1		0
CARBON TETRACHLORIDE1 (Tetrachloromethane)		0
CHLORINE		0
CHLORINE DIOXIDE		0
CHLOROBENZENE		0
CHLOROFORM1		0
2,3,4,6-Tetrachlorophenol		0
CHLOROPICRIN		0
CHROMIUM 6+2	6.43E-08	6.06921E-07
Barium chromate2		0
Calcium chromate2		0
Lead chromate2		0
Sodium dichromate2		0
Strontium chromate2		0
CHROMIC TRIOXIDE (as chromic acid mist)		0
CRESOLS		0
M-CRESOL		0
O-CRESOL		0
P-CRESOL		0
Cyanide And Compounds (inorganic)		0
HYDROGEN CYANIDE (Hydrocyanic acid)		0
1,4-DICHLOROBENZENE		0
DIETHANOLAMINE		0
DIMETHYLAMINE		0
N,N-DIMETHYL FORMAMIDE		0
1,4-DIOXANE (1,4-Diethylene dioxide)		0
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0
1,2-EPOXYBUTANE		0
ETHYL BENZENE		0
ETHYL CHLORIDE (Chloroethane)		0
ETHYLENE DIBROMIDE (1,2-Dibromoethane)		0
ETHYLENE DICHLORIDE (1,2-Dichloroethane)		0
ETHYLENE GLYCOL		0
ETHYLENE OXIDE (1,2-Epoxyethane)		0
Fluorides		0
HYDROGEN FLUORIDE (Hydrofluoric acid)		0
FORMALDEHYDE	1.18E-04	2.47509E-05
GASOLINE VAPORS		0
GLUTARALDEHYDE		0
ETHYLENE GLYCOL ETHYL ETHER – EGEE1		0
ETHYLENE GLYCOL ETHYL ETHER ACETATE – EGEEA1		0
ETHYLENE GLYCOL METHYL ETHER – EGME1		0
ETHYLENE GLYCOL METHYL ETHER ACETATE – EGMEA		0
n-HEXANE		0
HYDRAZINE		0
HYDROCHLORIC ACID (Hydrogen chloride)		0
HYDROGEN SULFIDE		0
ISOPHORONE		0
ISOPROPYL ALCOHOL (Isopropanol)		0
MALEIC ANHYDRIDE		0
MANGANESE AND COMPOUNDS	4.14E-06	8.68378E-05
MERCURY AND COMPOUNDS (INORGANIC) values also apply to:	8.79E-07	0.000233969
Mercuric chloride		0
METHANOL		0
METHYL BROMIDE (Bromomethane)		0
METHYL tertiary-BUTYL ETHER		0
METHYL CHLOROFORM (1,1,1-Trichloroethane)		0
METHYL ISOCYANATE		0
METHYLENE CHLORIDE (Dichloromethane)		0
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)		0
METHYLENE DIPHENYL ISOCYANATE		0
NICKEL AND COMPOUNDS2 (values also apply to:)	5.03E-05	0.001899105
Nickel acetate2		0
Nickel carbonate2		0
Nickel carbonyl2		0
Nickel hydroxide2		0
Nickelocene2		0
NICKEL OXIDE2		0
Nickel refinery dust from the pyrometallurgical process2		0
Nickel subsulfide2		0
NITROGEN DIOXIDE	1.01E+00	0.004056715
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES	7.18E-02	0.027108498
PERCHLOROETHYLENE (Tetrachloroethylene)		0
PHENOL		0
PHOSPHINE		0
PHOSPHORIC ACID		0
PHOSPHORUS (WHITE)		0
PHTHALIC ANHYDRIDE		0
POLYCHLORINATED DIBENZO-P-DIOXINS (PCDD)(AS 2,3,7,8-PCDD EQUIV) 2,7		0
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,6,7,8,9-OCTACHLORODIBENZO-P-DIOXIN2,7		0
POLYCHLORINATED DIBENZOFURANS (PCDF)(AS 2,3,7,8-PCDD EQUIV) 2,7		0
2,3,7,8-TETRACHLORODIBENZOFURAN2,7		0
1,2,3,7,8-PENTACHLORODIBENZOFURAN2,7		0
2,3,4,7,8-PENTACHLORODIBENZOFURAN2,7		0
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN2,7		0
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN2,7		0
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN2,7		0
1,2,3,4,6,7,8,9-OCTACHLORODIBENZOFURAN2,7		0
NAPHTHALENE		0
PROPYLENE (PROPENE)		0
PROPYLENE GLYCOL MONOMETHYL ETHER		0
PROPYLENE OXIDE		0
SELENIUM AND COMPOUNDS		0
Selenium sulfide		0
SILICA (Crystalline, Respirable)		0
STYRENE		0
SULFUR DIOXIDE	4.66E-04	1.33289E-06
SULFURIC ACID AND OLEUM		0
SULFURIC ACID		0
SULFUR TRIOXIDE		0
OLEUM		0
TOLUENE		0
Toluene diisocyantates		0
TOLUENE-2,4-DIISOCYANATE		0
TOLUENE-2,6-DIISOCYANATE		0
TRICHLOROETHYLENE		0
TRIETHYLAMINE		0
VINYL ACETATE		0
VINYLIDENE CHLORIDE (1,1-Dichloroethylene)		0
XYLENES (mixed isomers)		0
m-XYLENE		0
o-XYLENE		0
p-XYLENE		0
	TOTAL:	3.99E-02

Plant #:
Plant Name: AC Transit General Office (P# 14532)
Number of Sources:

Pollutant Name	Emission/lbs per day	Acute Hazard
ACETALDEHYDE	0	0
ACROLEIN		0
ACRYLIC ACID		0
AMMONIA		0
ARSENIC AND COMPOUNDS (INORGANIC)1,2	1.24E-06	0.000117042
ARSINE		0
BENZENE1	1.43E-03	2.07656E-05
BENZYL CHLORIDE		0
CARBON DISULFIDE1		0
CARBON MONOXIDE	2.19E-01	0.000179749
CARBON TETRACHLORIDE1 (Tetrachloromethane)		0
CHLORINE		0
CHLOROFORM1		0
CHLOROPICRIN		0
COPPER AND COMPOUNDS		0
Cyanide And Compounds (inorganic)		0
HYDROGEN CYANIDE (Hydrocyanic acid)		0
1,4-DIOXANE (1,4-Diethylene dioxide)		0
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0
Fluorides		0
HYDROGEN FLUORIDE (Hydrofluoric acid)		0
FORMALDEHYDE	1.18E-04	4.05014E-05
ETHYLENE GLYCOL BUTYL ETHER – EGBE		0
ETHYLENE GLYCOL ETHYL ETHER – EGEE1		0
ETHYLENE GLYCOL ETHYL ETHER ACETATE – EGEEA1		0
ETHYLENE GLYCOL METHYL ETHER – EGME1		0
HYDROCHLORIC ACID (Hydrogen chloride)		0
HYDROGEN SULFIDE		0
ISOPROPYL ALCOHOL (Isopropanol)		0
MERCURY AND COMPOUNDS (INORGANIC) values also apply to:	8.79E-07	2.7656E-05
Mercuric chloride		0
METHANOL		0
METHYL BROMIDE (Bromomethane)		0
METHYL CHLOROFORM (1,1,1-Trichloroethane)		0
METHYL ETHYL KETONE (2-Butanone)		0
METHYLENE CHLORIDE (Dichloromethane)		0
NICKEL AND COMPOUNDS2 (values also apply to:)	5.03E-05	0.000158259
Nickel acetate2		0
Nickel carbonate2		0
Nickel carbonyl2		0
Nickel hydroxide2		0

Nickelocene2		0
NICKEL OXIDE2		0
Nickel refinery dust from the pyrometallurgical process2		0
Nickel subsulfide2		0
NITRIC ACID		0
OZONE		0
PROPYLENE OXIDE		0
HYDROGEN SELENIDE		0
SODIUM HYDROXIDE		0
STYRENE		0
SULFATES		0
SULFUR DIOXIDE	4.66E-04	1.33289E-05
SULFURIC ACID AND OLEUM		0
SULFURIC ACID		0
SULFUR TRIOXIDE		0
OLEUM		0
TOLUENE		0
TRIETHYLAMINE		0
Vanadium (fume or dust)		0
VANADIUM PENTOXIDE		0
VINYL CHLORIDE (Chloroethylene)		0
XYLENES (mixed isomers)		0
m-XYLENE		0
o-XYLENE		0
p-XYLENE		0
	TOTAL:	5.57E-04

Plant #:

Plant Name: AC Transit General Office (P# 14532)

Number of Sources:

Diesel PM Concentrations	Emissions (lbs/day)	M2.5 Concentration (ug/m3)
	7.18E-02	0.13863503
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
TOTAL:		0.13863503

DPM Cancer Risk From Diesel Emergency Generators
AT&T Building - 1587 Franklin St., Oakland, CA - BAAQMD Source #13494
Generators at Roof-Top Level

DPM Emission Rates			
	Annual Operation	DPM Emissions Daily*	DPM Emissions Annual
Source Type	**(hr)**	**(lb/day)**	**(lb/yr)**
Generator	-	0.05150	18.80

* From BAAQMD permit inventory

Modeling Information		
Model:	AERMOD	
Source	Generator	
Source Type	Point	
Distance to Residences (ft)	various - Receptors at proposed residences	
Number of Receptors	31 per floor level	
Receptor Height (m)	varies depending on floor level	
Meteorological Data	CARB 2009-2013 Oakland Airport	
Point Source Stack Parameters		
Generator engine size (hp)	unknown	
Stack Height** (ft)	6	(above roof level)
Stack Diameter** (ft)	0.25	
Stack Exit Velocity** (ft/sec)	164	
Exhaust Temperature** (F)	656	
Annual Emission Rate (lb/year)	18.80	from BAAQMD inventory data
Hourly Emission Rate (lb/hr)***	2.15E-03	

** BAAQMD default generator parameters

*** Hourly emission rate based on annual emissions and assuming operation any time of day.

Cancer Risk Calculation Method

Inhalation Dose = C_{air} x DBR x A x HD x EF x ED x 10^{-6} / AT

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
HD = daily exposure (hours/day/24)
ED = Exposure duration (years)
AT = Averaging time period over which exposure is averaged.
10^{-6} = Conversion factor

Inhalation Dose Factors

	Value[1]							
Exposure Type	**DBR (L/kg BW-day)**	**A (-)**	**Exposure (hr/day)**	**Exposure (days/week)**	**Exposure (week/year)**	**EF (days/yr)**	**ED (Years)**	**AT (days)**
Residential (70-Year)	302	1	24	7	50	350	70	25,550

[1] Default values recommended by OEHHA& Bay Area Air Quality Management District

Cancer Risk (per million) = Inhalation Dose x CRAF x CPF x 10^6
= URF x Cair

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
CRAF = Cancer Risk Adjustment Factor
URF =Unit risk factor (cancer risk per $\mu g/m^3$)

Unit Risk Factor for DPM

Exposure Type	**CPF $(mg/kg\text{-}day)^{-1}$**	**CRAF (-)**	**URF *DPM***
Residential (70-Yr Exposure)	1.10E+00	1.7	**541.5**

Model Results and Maximum Cancer Risks

Location	**Receptor Height**		**DPM/PM2.5 Annual Ave ($\mu g/m^3$)**	**Cancer Risk (per million)**
Resident Level 1, Floor 7	73 feet	22.1 meters	0.00164	0.89
Resident Level 2, Floor 8	82 feet	25.1 meters	0.00156	0.84
Resident Level 3, Floor 9	92 feet	28.0 meters	0.00149	0.81
Resident Level 4, Floor 10	102 feet	31.0 meters	0.00142	0.77
Resident Level 5, Floor 11	111 feet	33.9 meters	0.00136	0.74
Resident Level 6, Floor 12	121 feet	36.9 meters	0.00130	0.70
Resident Level 7, Floor 13	131 feet	39.8 meters	0.00125	0.68
Resident Level 12, Floor 18	179 feet	54.6 meters	0.00107	0.58
Resident Level 18, Floor 24	240 feet	73.2 meters	0.00100	0.54
Resident Level 19, Floor 25	251 feet	76.4 meters	0.00100	0.54
Resident Level 20, Floor 26	261 feet	79.6 meters	0.00101	0.55
Resident Level 21, Floor 27	272 feet	82.9 meters	0.00102	0.55
Resident Level 22, Floor 28	***283 feet***	***86.2 meters***	***0.00212***	***1.15***
Resident Level 23, Floor 29	293 feet	89.4 meters	0.00209	1.13
Resident Level 24, Floor 30	304 feet	92.7 meters	0.00206	1.12
Resident Level 25, Floor 31	315 feet	95.9 meters	0.00182	0.99
Resident Level 26, Floor 32	325 feet	99.2 meters	0.00153	0.83

DPM Cancer Risk From Diesel Emergency Generators
AC Transit Building - 1600 Franklin St., Oakland, CA - BAAQMD Source #14532
Generators at Roof-Top Level

DPM Emission Rates			
	Annual	**DPM Emissions**	
	Operation	**Daily***	**Annual**
Source Type	**(hr)**	**(lb/day)**	**(lb/yr)**
Generator	-	0.07180	26.21

* From BAAQMD permit inventory

Modeling Information		
Model:	AERMOD	
Source	Generator	
Source Type	Point	
Distance to Residences (ft)	various - Receptors at proposed residences	
Number of Receptors	31 per floor level	
Receptor Height (m)	varies depending on floor level	
Meteorological Data	CARB 2009-2013 Oakland Airport	
Point Source Stack Parameters		
Generator engine size (hp)	unknown	
Stack Height** (ft)	6	(above roof level)
Stack Diameter** (ft)	0.25	
Stack Exit Velocity** (ft/sec)	164	
Exhaust Temperature** (F)	656	
Annual Emission Rate (lb/year)	26.21	from BAAQMD inventory data
Hourly Emission Rate (lb/hr)***	2.99E-03	

** BAAQMD default generator parameters

*** Hourly emission rate based on annual emissions and assuming operation any time of day.

Cancer Risk Calculation Method

Inhalation Dose = C_{air} x DBR x A x HD x EF x ED x 10^{-6} / AT

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
HD = daily exposure (hours/day/24)
ED = Exposure duration (years)
AT = Averaging time period over which exposure is averaged.
10^{-6} = Conversion factor

Inhalation Dose Factors

	Value[1]							
Exposure Type	**DBR (L/kg BW-day)**	**A (-)**	**Exposure (hr/day)**	**Exposure (days/week)**	**Exposure (week/year)**	**EF (days/yr)**	**ED (Years)**	**AT (days)**
Residential (70-Year)	302	1	24	7	50	350	70	25,550

[1] Default values recommended by OEHHA& Bay Area Air Quality Management District

Cancer Risk (per million) = Inhalation Dose x CRAF x CPF x 10^6
= URF x Cair

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
CRAF = Cancer Risk Adjustment Factor
URF =Unit risk factor (cancer risk per $\mu g/m^3$)

Unit Risk Factor for DPM

Exposure Type	**CPF $(mg/kg\text{-}day)^{-1}$**	**CRAF (-)**	**URF *DPM***
Residential (70-Yr Exposure)	1.10E+00	1.7	**541.5**

Model Results and Maximum Cancer Risks

Location	**Receptor Height**		**DPM/PM2.5 Annual Ave ($\mu g/m^3$)**	**Cancer Risk (per million)**
Resident Level 1, Floor 7	***73 feet***	***22.1 meters***	***0.00364***	***1.97***
Resident Level 2, Floor 8	82 feet	25.1 meters	0.00350	1.90
Resident Level 3, Floor 9	92 feet	28.0 meters	0.00338	1.83
Resident Level 4, Floor 10	102 feet	31.0 meters	0.00324	1.75
Resident Level 5, Floor 11	111 feet	33.9 meters	0.00312	1.69
Resident Level 6, Floor 12	121 feet	36.9 meters	0.00300	1.62
Resident Level 7, Floor 13	131 feet	39.8 meters	0.00289	1.57
Resident Level 12, Floor 18	179 feet	54.6 meters	0.00248	1.34
Resident Level 18, Floor 24	240 feet	73.2 meters	0.00220	1.19
Resident Level 19, Floor 25	251 feet	76.4 meters	0.00218	1.18
Resident Level 20, Floor 26	261 feet	79.6 meters	0.00216	1.17
Resident Level 21, Floor 27	272 feet	82.9 meters	0.00215	1.16
Resident Level 22, Floor 28	283 feet	86.2 meters	0.00215	1.16
Resident Level 23, Floor 29	293 feet	89.4 meters	0.00197	1.07
Resident Level 24, Floor 30	304 feet	92.7 meters	0.00199	1.08
Resident Level 25, Floor 31	315 feet	95.9 meters	0.00188	1.02
Resident Level 26, Floor 32	325 feet	99.2 meters	0.00173	0.94

DPM Cancer Risk From Diesel Emergency Generators
AT&T Building - 1587 Franklin St., Oakland, CA - BAAQMD Source #13494
Generators at Ground Level

DPM Emission Rates			
	Annual	DPM Emissions	
	Operation	Daily*	Annual
Source Type	(hr)	(lb/day)	(lb/yr)
Generator	-	0.05150	18.80

* From BAAQMD permit inventory

Modeling Information		
Model:	AERMOD	
Source	Generator	
Source Type	Point	
Distance to Residences (ft)	various - Receptors at proposed residences	
Number of Receptors	31 per floor level	
Receptor Height (m)	varies depending on floor level	
Meteorological Data	CARB 2009-2013 Oakland Airport	
Point Source Stack Parameters		
Generator engine size (hp)	unknown	
Stack Height** (ft)	6	(above ground level)
Stack Diameter** (ft)	0.25	
Stack Exit Velocity** (ft/sec)	164	
Exhaust Temperature** (F)	656	
Annual Emission Rate (lb/year)	18.80	from BAAQMD inventory data
Hourly Emission Rate (lb/hr)***	2.15E-03	

** BAAQMD default generator parameters

*** Hourly emission rate based on annual emissions and assuming operation any time of day.

Cancer Risk Calculation Method

Inhalation Dose = C_{air} x DBR x A x HD x EF x ED x 10^{-6} / AT

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
HD = daily exposure (hours/day/24)
ED = Exposure duration (years)
AT = Averaging time period over which exposure is averaged.
10^{-6} = Conversion factor

Inhalation Dose Factors

	Value[1]							
	DBR	A	Exposure	Exposure	Exposure	EF	ED	AT
Exposure Type	(L/kg BW-day)	(-)	(hr/day)	(days/week)	(week/year)	(days/yr)	(Years)	(days)
Residential (70-Year)	302	1	24	7	50	350	70	25,550

[1] Default values recommended by OEHHA& Bay Area Air Quality Management District

Cancer Risk (per million) = Inhalation Dose x CRAF x CPF x 10^6
= URF x Cair

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
CRAF = Cancer Risk Adjustment Factor
URF =Unit risk factor (cancer risk per $\mu g/m^3$)

Unit Risk Factor for DPM

	CPF	CRAF	URF
Exposure Type	$(mg/kg\text{-}day)^{-1}$	(-)	*DPM*
Residential (70-Yr Exposure)	1.10E+00	1.7	**541.5**

Model Results and Maximum Cancer Risks

Location	Receptor Height		DPM/PM2.5 Annual Ave ($\mu g/m^3$)	Cancer Risk (per million)
Resident Level 1, Floor 7	***73 feet***	***22.1 meters***	***0.00390***	***2.11***
Resident Level 2, Floor 8	82 feet	25.1 meters	0.00386	2.09
Resident Level 3, Floor 9	92 feet	28.0 meters	0.00382	2.07
Resident Level 4, Floor 10	102 feet	31.0 meters	0.00380	2.06
Resident Level 5, Floor 11	111 feet	33.9 meters	0.00377	2.04
Resident Level 6, Floor 12	121 feet	36.9 meters	0.00375	2.03
Resident Level 7, Floor 13	131 feet	39.8 meters	0.00373	2.02
Resident Level 12, Floor 18	179 feet	54.6 meters	0.00361	1.95
Resident Level 18, Floor 24	240 feet	73.2 meters	0.00344	1.86
Resident Level 19, Floor 25	251 feet	76.4 meters	0.00341	1.85
Resident Level 20, Floor 26	261 feet	79.6 meters	0.00337	1.82
Resident Level 21, Floor 27	272 feet	82.9 meters	0.00334	1.81
Resident Level 22, Floor 28	283 feet	86.2 meters	0.00331	1.79
Resident Level 23, Floor 29	293 feet	89.4 meters	0.00323	1.75
Resident Level 24, Floor 30	304 feet	92.7 meters	0.00314	1.70
Resident Level 25, Floor 31	315 feet	95.9 meters	0.00303	1.64
Resident Level 26, Floor 32	325 feet	99.2 meters	0.00287	1.55

DPM Cancer Risk From Diesel Emergency Generators
AC Transit Building - 1600 Franklin St., Oakland, CA - BAAQMD Source #14532
Generators at Ground Level

DPM Emission Rates			
	Annual	**DPM Emissions**	
	Operation	**Daily***	**Annual**
Source Type	**(hr)**	**(lb/day)**	**(lb/yr)**
Generator	-	0.07180	26.21

* From BAAQMD permit inventory

Modeling Information		
Model:	AERMOD	
Source	Generator	
Source Type	Point	
Distance to Residences (ft)	various - Receptors at proposed residences	
Number of Receptors	31 per floor level	
Receptor Height (m)	varies depending on floor level	
Meteorological Data	CARB 2009-2013 Oakland Airport	
Point Source Stack Parameters		
Generator engine size (hp)	unknown	
Stack Height** (ft)	6	(above ground level)
Stack Diameter** (ft)	0.25	
Stack Exit Velocity** (ft/sec)	164	
Exhaust Temperature** (F)	656	
Annual Emission Rate (lb/year)	26.21	from BAAQMD inventory data
Hourly Emission Rate (lb/hr)***	2.99E-03	

** BAAQMD default generator parameters

*** Hourly emission rate based on annual emissions and assuming operation any time of day.

Cancer Risk Calculation Method

Inhalation Dose = C_{air} x DBR x A x HD x EF x ED x 10^{-6} / AT

Where: C_{air} = concentration in air ($\mu g/m^3$)
DBR = daily breathing rate (L/kg body weight-day)
A = Inhalation absorption factor
EF = Exposure frequency (days/year)
HD = daily exposure (hours/day/24)
ED = Exposure duration (years)
AT = Averaging time period over which exposure is averaged.
10^{-6} = Conversion factor

Inhalation Dose Factors

	Value[1]							
	DBR	**A**	**Exposure**	**Exposure**	**Exposure**	**EF**	**ED**	**AT**
Exposure Type	**(L/kg BW-day)**	**(-)**	**(hr/day)**	**(days/week)**	**(week/year)**	**(days/yr)**	**(Years)**	**(days)**
Residential (70-Year)	302	1	24	7	50	350	70	25,550

[1] Default values recommended by OEHHA& Bay Area Air Quality Management District

Cancer Risk (per million) = Inhalation Dose x CRAF x CPF x 10^{6}
= URF x Cair

Where: CPF = Cancer potency factor $(mg/kg\text{-}day)^{-1}$
CRAF = Cancer Risk Adjustment Factor
URF =Unit risk factor (cancer risk per $\mu g/m^3$)

Unit Risk Factor for DPM

	CPF	**CRAF**	**URF**
Exposure Type	**$(mg/kg\text{-}day)^{-1}$**	**(-)**	***DPM***
Residential (70-Yr Exposure)	1.10E+00	1.7	**541.5**

Model Results and Maximum Cancer Risks

			DPM/PM2.5 Annual Ave	**Cancer Risk**
Location	**Receptor Height**		**($\mu g/m^3$)**	**(per million)**
Resident Level 1, Floor 7	***73 feet***	***22.1 meters***	***0.00369***	***2.00***
Resident Level 2, Floor 8	82 feet	25.1 meters	0.00367	1.99
Resident Level 3, Floor 9	92 feet	28.0 meters	0.00365	1.98
Resident Level 4, Floor 10	102 feet	31.0 meters	0.00364	1.97
Resident Level 5, Floor 11	111 feet	33.9 meters	0.00362	1.96
Resident Level 6, Floor 12	121 feet	36.9 meters	0.00360	1.95
Resident Level 7, Floor 13	131 feet	39.8 meters	0.00357	1.93
Resident Level 12, Floor 18	179 feet	54.6 meters	0.00346	1.87
Resident Level 18, Floor 24	240 feet	73.2 meters	0.00330	1.79
Resident Level 19, Floor 25	251 feet	76.4 meters	0.00327	1.77
Resident Level 20, Floor 26	261 feet	79.6 meters	0.00324	1.75
Resident Level 21, Floor 27	272 feet	82.9 meters	0.00321	1.74
Resident Level 22, Floor 28	283 feet	86.2 meters	0.00318	1.72
Resident Level 23, Floor 29	293 feet	89.4 meters	0.00311	1.68
Resident Level 24, Floor 30	304 feet	92.7 meters	0.00295	1.60
Resident Level 25, Floor 31	315 feet	95.9 meters	0.00285	1.54
Resident Level 26, Floor 32	325 feet	99.2 meters	0.00267	1.45

Project Generator Emission Factors and Risk Modeling Calculations

San Mateo EMC - Emergency Generator Criteria Pollutant and GHG Emissions

Analysis Year = 2019   **50 = Annual Days of Project Operation**

Off-Road Equipment: Equipment Type	No. Units	Engine Age (years)	Engine Model Year	Daily Hours In Use	Days Per Year	Unit Annual Hours Use	Use Factor	Load Factor	Cumulative Hours Operation Per Unit	Engine (hp)	Fuel Type	Level of VDECS Used
Project Operation												
Generator Sets	1	2	2017	1.0	50	50	1.00	0.49	100	805	ULSD	0
TOTAL	-			-	-	-	-	-	-	-	-	

Equipment Type	Emission Factor (g/hp-hr) NOx	CO	ROG	PM10	PM2.5	SO2	CO2	Average Daily Emissions (lb/day) NOx	CO	ROG	PM10	PM2.5	SO2	CO2
Project Operation														
Generator Sets	2.24	0.92	0.05	0.02	0.02	0.006	522.8	0.27	0.1	0.006	0.002	0.0019	0.001	62
TOTAL	-	-	-	-				**0.27**	**0.1**	**0.006**	**0.002**	**0.0019**	**0.00**	**62**

Equipment Type	Annual Emissions (ton/yr) NOx	CO	ROG	PM10		PM2.5		SO2	CO2
Project Operation									
Generator Sets	0.049	0.020	0.001	0.0004	0.0004	0.0003	0.0003	0.0001	11.4
TOTAL	**0.049**	**0.0**	**0.0**	**0.0004**	**0.0004**	**0.0003**	**0.0003**	**0.0001**	**11.4**

Emission Factors - Off-Road Compression Ignited Engines

EF ID	NOx ZH EF (g/hp-hr)	NOx DR ($g/hp-hr^2$)	NOx Fuel CF	CO ZH EF (g/hp-hr)	CO DR ($g/hp-hr^2$)	CO Fuel CF	ROG ZH EF (g/hp-hr)	ROG DR ($g/hp-hr^2$)	ROG Fuel CF	PM10 ZH EF (g/hp-hr)	PM10 DR ($g/hp-hr^2$)	PM10 Fuel CF	PM2.5 ZH EF (g/hp-hr)	PM2.5 DR ($g/hp-hr^2$)	PM2.5 Fuel CF	CO2 ZH EF (g/hp-hr)	CO2 DR ($g/hp-hr^2$)	CO2 Fuel CF	SO2 (g/hp-hr)
ULSD10002017	2.36	3.00E-05	0.95	0.92	1.82E-05	1.00	0.05	1.17E-05	1.00	0.02	1.00E-06	0.85	0.02	1.00E-06	0.85	568.30	0.00E+00	0.92	0.01

Notes: ZH EF = Zero hour emission factor
DR = Deterioration rate
ULSD = Ultra low sulfur diesel (15 ppmw sulfur, 0.0015% sulfur)

Refs: CARB OFFFROAD2007 model (http://www.arb.ca.gov/msei/offroad/offroad.htm), December, 2006.
Stationary/Off-road engines ARB, "California's Emissions Inventory for Off-Road Large Compression-Ignited (CI) Engines (> 25 HP)" MAC#99-32

Plant #: 19792
Plant Name: San Jose Water Company
Number of Sources: Generator

Pollutant Name	Emissions/lbs per day	Cancer Risk (in millions)
ACETALDEHYDE		0.00E+00
ACETAMIDE		0.00E+00
ACRYLAMIDE		0.00E+00
ACRYLONITRILE		0.00E+00
ALLYL CHLORIDE		0.00E+00
2-AMINOANTHRAQUINONE		0.00E+00
ANILINE		0.00E+00
ARSENIC AND COMPOUNDS (INORGANIC)[1,2]		0.00E+00
ASBESTOS [3]		0.00E+00
BENZENE[1]		0.00E+00
BENZIDINE (AND ITS SALTS) values also apply to:		0.00E+00
Benzidine based dyes		0.00E+00
Direct Black 38		0.00E+00
Direct Blue 6		0.00E+00
Direct Brown 95 (technical grade)		0.00E+00
BENZYL CHLORIDE		0.00E+00
BERYLLIUM AND COMPOUNDS[2]		0.00E+00
BIS(2-CHLOROETHYL)ETHER (Dichloroethyl ether)		0.00E+00
BIS(CHLOROMETHYL)ETHER		0.00E+00
POTASSIUM BROMATE		0.00E+00
1,3-BUTADIENE		0.00E+00
CADMIUM AND COMPOUNDS[2]		0.00E+00
CARBON TETRACHLORIDE[1] (Tetrachloromethane)		0.00E+00
CHLORINATED PARAFFINS		0.00E+00
4-CHLORO-O-PHENYLENEDIAMINE		0.00E+00
CHLOROFORM[1]		0.00E+00
PENTACHLOROPHENOL		0.00E+00
2,4,6-TRICHLOROPHENOL		0.00E+00
p-CHLORO-o-TOLUIDINE		0.00E+00
CHROMIUM 6+2		0.00E+00
Barium chromate2		0.00E+00
Calcium chromate2		0.00E+00
Lead chromate2		0.00E+00
Sodium dichromate2		0.00E+00
Strontium chromate2		0.00E+00
CHROMIC TRIOXIDE (as chromic acid mist)		0.00E+00
p-CRESIDINE		0.00E+00
CUPFERRON		0.00E+00
2,4-DIAMINOANISOLE		0.00E+00
2,4-DIAMINOTOLUENE		0.00E+00
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)		0.00E+00
1,4-DICHLOROBENZENE		0.00E+00
3,3-DICHLOROBENZIDINE		0.00E+00
1,1,-DICHLOROETHANE (Ethylidene dichloride)		0.00E+00
DI(2-ETHYLHEXYL)PHTHALATE (DEHP)		0.00E+00
p-DIMETHYLAMINOAZOBENZENE		0.00E+00
2,4-DINITROTOLUENE		0.00E+00
1,4-DIOXANE (1,4-Diethylene dioxide)		0.00E+00
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0.00E+00
ETHYL BENZENE		0.00E+00
ETHYLENE DIBROMIDE (1,2-Dibromoethane)		0.00E+00
ETHYLENE DICHLORIDE (1,2-Dichloroethane)		0.00E+00
ETHYLENE OXIDE (1,2-Epoxyethane)		0.00E+00
ETHYLENE THIOUREA		0.00E+00
FORMALDEHYDE		0.00E+00
HEXACHLOROBENZENE		0.00E+00
HEXACHLOROCYCLOHEXANES (mixed or technical grade)		0.00E+00
alpha-HEXACHLOROCYCLOHEXANE		0.00E+00
beta- HEXACHLOROCYCLOHEXANE		0.00E+00
gamma-HEXACHLOROCYCLOHEXANE (Lindane)		0.00E+00
HYDRAZINE		0.00E+00
LEAD AND COMPOUNDS 2,4 (inorganic) values also apply to:		0.00E+00
Lead acetate2		0.00E+00
Lead phosphate2		0.00E+00
Lead subacetate2		0.00E+00
METHYL tertiary-BUTYL ETHER		0.00E+00
4,4'-METHYLENE BIS (2-CHLOROANILINE) (MOCA)		0.00E+00
METHYLENE CHLORIDE (Dichloromethane)		0.00E+00
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)		0.00E+00
MICHLER'S KETONE (4,4'-Bis(dimethylamino)benzophenone)		0.00E+00
N-NITROSODI-n-BUTYLAMINE		0.00E+00
N-NITROSODI-n-PROPYLAMINE		0.00E+00
N-NITROSODIETHYLAMINE		0.00E+00
N-NITROSODIMETHYLAMINE		0.00E+00
N-NITROSODIPHENYLAMINE		0.00E+00
N-NITROSO-N-METHYLETHYLAMINE		0.00E+00
N-NITROSOMORPHOLINE		0.00E+00
N-NITROSOPIPERIDINE		0.00E+00
N-NITROSOPYRROLIDINE		0.00E+00
NICKEL AND COMPOUNDS2 (values also apply to:)		0.00E+00
Nickel acetate2		0.00E+00
Nickel carbonate2		0.00E+00
Nickel carbonyl2		0.00E+00
Nickel hydroxide2		0.00E+00
Nickelocene2		0.00E+00
NICKEL OXIDE2		0.00E+00
Nickel refinery dust from the pyrometallurgical process2		0.00E+00
Nickel subsulfide2		0.00E+00
p-NITROSODIPHENYLAMINE		0.00E+00
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES	1.90E-03	2.02E-06
PERCHLOROETHYLENE (Tetrachloroethylene)		0.00E+00
PCB (POLYCHLORINATED BIPHENYLS) [low risk] 2,6		0.00E+00
PCB (POLYCHLORINATED BIPHENYLS) [high risk] 2,6		0.00E+00
POLYCHLORINATED DIBENZO-P-DIOXINS (PCDD)(AS 2,3,7,8-PCDD EQUIV) 2,7		0.00E+00
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN2,7		0.00E+00
POLYCHLORINATED DIBENZOFURANS (PCDF)(AS 2,3,7,8-PCDD EQUIV) 2,7		0.00E+00
2,3,7,8-TETRACHLORODIBENZOFURAN2,7		0.00E+00
POLYCYCLIC AROMATIC HYDROCARBON2 (PAH) (AS B(a)P-EQUIV)5		0.00E+00
BENZO(A)PYRENE2,5		0.00E+00
NAPHTHALENE		0.00E+00
1,3-PROPANE SULTONE		0.00E+00
PROPYLENE OXIDE		0.00E+00
1,1,2,2-TETRACHLOROETHANE		0.00E+00
THIOACETAMIDE		0.00E+00
Toluene diisocyantates		0.00E+00
TOLUENE-2,4-DIISOCYANATE		0.00E+00
TOLUENE-2,6-DIISOCYANATE		0.00E+00
1,1,2-TRICHLOROETHANE (Vinyl trichloride)		0.00E+00
TRICHLOROETHYLENE		0.00E+00
URETHANE (Ethyl carbamate)		0.00E+00
VINYL CHLORIDE (Chloroethylene)		0.00E+00
	TOTAL:	2.02E-06

Plant #:
Plant Name:
Number of Sources:

Pollutant Name	Emission/lbs per day	Chronic Hazard
ACETALDEHYDE	0	0
ACROLEIN		0
ACRYLONITRILE		0
AMMONIA		0
ARSENIC AND COMPOUNDS (INORGANIC)1,2		0
ARSINE		0
BENZENE1		0
BERYLLIUM AND COMPOUNDS2		0
1,3-BUTADIENE		0
CADMIUM AND COMPOUNDS2		0
CARBON DISULFIDE1		0
CARBON TETRACHLORIDE1 (Tetrachloromethane)		0
CHLORINE		0
CHLORINE DIOXIDE		0
CHLOROBENZENE		0
CHLOROFORM1		0
2,3,4,6-Tetrachlorophenol		0
CHLOROPICRIN		0
CHROMIUM 6+2		0
Barium chromate2		0
Calcium chromate2		0
Lead chromate2		0
Sodium dichromate2		0
Strontium chromate2		0
CHROMIC TRIOXIDE (as chromic acid mist)		0
CRESOLS		0
M-CRESOL		0
O-CRESOL		0
P-CRESOL		0
Cyanide And Compounds (inorganic)		0
HYDROGEN CYANIDE (Hydrocyanic acid)		0
1,4-DICHLOROBENZENE		0
DIETHANOLAMINE		0
DIMETHYLAMINE		0
N,N-DIMETHYL FORMAMIDE		0
1,4-DIOXANE (1,4-Diethylene dioxide)		0
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0
1,2-EPOXYBUTANE		0
ETHYL BENZENE		0
ETHYL CHLORIDE (Chloroethane)		0
ETHYLENE DIBROMIDE (1,2-Dibromoethane)		0
ETHYLENE DICHLORIDE (1,2-Dichloroethane)		0
ETHYLENE GLYCOL		0
ETHYLENE OXIDE (1,2-Epoxyethane)		0
Fluorides		0
HYDROGEN FLUORIDE (Hydrofluoric acid)		0
FORMALDEHYDE		0
GASOLINE VAPORS		0
GLUTARALDEHYDE		0
ETHYLENE GLYCOL ETHYL ETHER – EGEE1		0
ETHYLENE GLYCOL ETHYL ETHER ACETATE – EGEEA1		0
ETHYLENE GLYCOL METHYL ETHER – EGME1		0
ETHYLENE GLYCOL METHYL ETHER ACETATE – EGMEA		0
n-HEXANE		0
HYDRAZINE		0
HYDROCHLORIC ACID (Hydrogen chloride)		0
HYDROGEN SULFIDE		0
ISOPHORONE		0
ISOPROPYL ALCOHOL (Isopropanol)		0
MALEIC ANHYDRIDE		0
MANGANESE AND COMPOUNDS		0
MERCURY AND COMPOUNDS (INORGANIC) values also apply to:		0
Mercuric chloride		0
METHANOL		0
METHYL BROMIDE (Bromomethane)		0
METHYL tertiary-BUTYL ETHER		0
METHYL CHLOROFORM (1,1,1-Trichloroethane)		0
METHYL ISOCYANATE		0
METHYLENE CHLORIDE (Dichloromethane)		0
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)		0
METHYLENE DIPHENYL ISOCYANATE		0
NICKEL AND COMPOUNDS2 (values also apply to:)		0
Nickel acetate2		0
Nickel carbonate2		0
Nickel carbonyl2		0
Nickel hydroxide2		0
Nickelocene2		0
NICKEL OXIDE2		0
Nickel refinery dust from the pyrometallurgical process2		0
Nickel subsulfide2		0
NITROGEN DIOXIDE		0
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES	0.0019	0.000717356
PERCHLOROETHYLENE (Tetrachloroethylene)		0
PHENOL		0
PHOSPHINE		0
PHOSPHORIC ACID		0
PHOSPHORUS (WHITE)		0
PHTHALIC ANHYDRIDE		0
POLYCHLORINATED DIBENZO-P-DIOXINS (PCDD)(AS 2,3,7,8-PCDD EQUIV) 2,7		0
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN2,7		0
1,2,3,4,6,7,8,9-OCTACHLORODIBENZO-P-DIOXIN2,7		0
POLYCHLORINATED DIBENZOFURANS (PCDF)(AS 2,3,7,8-PCDD EQUIV) 2,7		0
2,3,7,8-TETRACHLORODIBENZOFURAN2,7		0
1,2,3,7,8-PENTACHLORODIBENZOFURAN2,7		0
2,3,4,7,8-PENTACHLORODIBENZOFURAN2,7		0
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN2,7		0
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN2,7		0
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN2,7		0
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN2,7		0
1,2,3,4,6,7,8,9-OCTACHLORODIBENZOFURAN2,7		0
NAPHTHALENE		0
PROPYLENE (PROPENE)		0
PROPYLENE GLYCOL MONOMETHYL ETHER		0
PROPYLENE OXIDE		0
SELENIUM AND COMPOUNDS		0
Selenium sulfide		0
SILICA (Crystalline, Respirable)		0
STYRENE		0
SULFUR DIOXIDE		0
SULFURIC ACID AND OLEUM		0
SULFURIC ACID		0
SULFUR TRIOXIDE		0
OLEUM		0
TOLUENE		0
Toluene diisocyantates		0
TOLUENE-2,4-DIISOCYANATE		0
TOLUENE-2,6-DIISOCYANATE		0
TRICHLOROETHYLENE		0
TRIETHYLAMINE		0
VINYL ACETATE		0
VINYLIDENE CHLORIDE (1,1-Dichloroethylene)		0
XYLENES (mixed isomers)		0
m-XYLENE		0
o-XYLENE		0
p-XYLENE		0
	TOTAL:	7.17E-04

Plant #:
Plant Name:
Number of Sources:

Pollutant Name	Emission/lbs per day	Acute Hazard
ACETALDEHYDE	0	0
ACROLEIN		0
ACRYLIC ACID		0
AMMONIA		0
ARSENIC AND COMPOUNDS (INORGANIC)1,2		0
ARSINE		0
BENZENE1		0
BENZYL CHLORIDE		0
CARBON DISULFIDE1		0
CARBON MONOXIDE		0
CARBON TETRACHLORIDE1 (Tetrachloromethane)		0
CHLORINE		0
CHLOROFORM1		0
CHLOROPICRIN		0
COPPER AND COMPOUNDS		0
Cyanide And Compounds (inorganic)		0
HYDROGEN CYANIDE (Hydrocyanic acid)		0
1,4-DIOXANE (1,4-Diethylene dioxide)		0
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)		0
Fluorides		0
HYDROGEN FLUORIDE (Hydrofluoric acid)		0
FORMALDEHYDE		0
ETHYLENE GLYCOL BUTYL ETHER – EGBE		0
ETHYLENE GLYCOL ETHYL ETHER – EGEE1		0
ETHYLENE GLYCOL ETHYL ETHER ACETATE – EGEEA1		0
ETHYLENE GLYCOL METHYL ETHER – EGME1		0
HYDROCHLORIC ACID (Hydrogen chloride)		0
HYDROGEN SULFIDE		0
ISOPROPYL ALCOHOL (Isopropanol)		0
MERCURY AND COMPOUNDS (INORGANIC) values also apply to:		0
Mercuric chloride		0
METHANOL		0
METHYL BROMIDE (Bromomethane)		0
METHYL CHLOROFORM (1,1,1-Trichloroethane)		0
METHYL ETHYL KETONE (2-Butanone)		0
METHYLENE CHLORIDE (Dichloromethane)		0
NICKEL AND COMPOUNDS2 (values also apply to:)		0
Nickel acetate2		0
Nickel carbonate2		0
Nickel carbonyl2		0
Nickel hydroxide2		0

Nickelocene2		0
NICKEL OXIDE2		0
Nickel refinery dust from the pyrometallurgical process2		0
Nickel subsulfide2		0
NITRIC ACID		0
OZONE		0
PROPYLENE OXIDE		0
HYDROGEN SELENIDE		0
SODIUM HYDROXIDE		0
STYRENE		0
SULFATES		0
SULFUR DIOXIDE		0
SULFURIC ACID AND OLEUM		0
SULFURIC ACID		0
SULFUR TRIOXIDE		0
OLEUM		0
TOLUENE		0
TRIETHYLAMINE		0
Vanadium (fume or dust)		0
VANADIUM PENTOXIDE		0
VINYL CHLORIDE (Chloroethylene)		0
XYLENES (mixed isomers)		0
m-XYLENE		0
o-XYLENE		0
p-XYLENE		0
	TOTAL:	0.00E+00

Plant #:
Plant Name:
Number of Sources:

Diesel PM Concentrations	Emissions (lbs/day)	M2.5 Concentration (ug/m3)
	1.90E-03	0.003668615
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
		0
TOTAL:		0.003668615

Appendix 2

1640 Broadway Project – LOS Worksheets

Fehr & Peers, Inc.

September 12, 2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	24	127	36	12	294	0	0	348	33
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.95	0.96		1.00	1.00		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	0	1710	1710	1646	1710	1710	1478	0	0	1518	1710
Adj Flow Rate, veh/h	0	0	0	24	127	36	12	294	0	0	348	33
Adj No. of Lanes	0	0	1	0	2	0	0	2	0	0	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	5	5	5	16	16	0	0	13	13
Cap, veh/h	0	0	0	185	844	227	81	1161	0	0	1652	152
Arrive On Green	0.00	0.00	0.00	0.43	0.43	0.43	0.87	0.87	0.00	0.00	0.43	0.43
Sat Flow, veh/h		0		262	1986	534	39	2747	0	0	3948	350
Grp Volume(v), veh/h		0.0		105	0	82	164	142	0	0	249	132
Grp Sat Flow(s),veh/h/ln				1562	0	1220	1441	1278	0	0	1381	1399
Q Serve(g_s), s				0.0	0.0	2.5	0.0	1.1	0.0	0.0	3.4	3.5
Cycle Q Clear(g_c), s				2.3	0.0	2.5	1.1	1.1	0.0	0.0	3.4	3.5
Prop In Lane				0.23		0.44	0.07		0.00	0.00		0.25
Lane Grp Cap(c), veh/h				738	0	519	689	554	0	0	1197	606
V/C Ratio(X)				0.14	0.00	0.16	0.24	0.26	0.00	0.00	0.21	0.22
Avail Cap(c_a), veh/h				738	0	519	689	554	0	0	1197	606
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	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				10.6	0.0	10.6	2.3	2.3	0.0	0.0	10.6	10.6
Incr Delay (d2), s/veh				0.4	0.0	0.7	0.8	1.1	0.0	0.0	0.4	0.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.1	0.0	0.9	0.5	0.5	0.0	0.0	1.3	1.5
LnGrp Delay(d),s/veh				11.0	0.0	11.3	3.2	3.5	0.0	0.0	11.0	11.5
LnGrp LOS				B		B	A	A			B	B
Approach Vol, veh/h					187			306			381	
Approach Delay, s/veh					11.1			3.3			11.1	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		30.5		29.5		30.5		
Change Period (Y+Rc), s		4.5		4.0		4.5		
Max Green Setting (Gmax), s		26.0		25.5		26.0		
Max Q Clear Time (g_c+I1), s		3.1		4.5		5.5		
Green Ext Time (p_c), s		2.9		0.6		2.8		

Intersection Summary	
HCM 2010 Ctrl Delay	8.4
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	53	586	17	0	0	0	0	241	49	73	277	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		1.00	1.00		0.90	0.96		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1644	1685	1710	0	0	1710	0	1458	1710	1710	1509	0
Adj Flow Rate, veh/h	53	586	17	0	0	0	0	241	49	73	277	0
Adj No. of Lanes	1	2	0	0	0	1	0	2	0	0	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	1	1	0	0	0	0	20	20	16	16	0
Cap, veh/h	655	1083	31	0	0	0	0	1168	231	382	1501	0
Arrive On Green	0.11	0.11	0.11	0.00	0.00	0.00	0.00	0.52	0.52	1.00	1.00	0.00
Sat Flow, veh/h	1566	3170	92		0		0	2333	446	551	3029	0
Grp Volume(v), veh/h	53	296	307		0.0		0	145	145	119	231	0
Grp Sat Flow(s),veh/h/ln	1566	1601	1661				0	1385	1321	957	1250	0
Q Serve(g_s), s	1.8	10.5	10.5				0.0	3.4	3.6	0.7	0.0	0.0
Cycle Q Clear(g_c), s	1.8	10.5	10.5				0.0	3.4	3.6	4.3	0.0	0.0
Prop In Lane	1.00		0.06				0.00		0.34	0.62		0.00
Lane Grp Cap(c), veh/h	655	547	568				0	716	683	591	1292	0
V/C Ratio(X)	0.08	0.54	0.54				0.00	0.20	0.21	0.20	0.18	0.00
Avail Cap(c_a), veh/h	655	547	568				0	716	683	591	1292	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.3	22.2	22.2				0.0	7.8	7.9	0.1	0.0	0.0
Incr Delay (d2), s/veh	0.2	3.8	3.7				0.0	0.6	0.7	0.8	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	5.2	5.4				0.0	1.4	1.4	0.2	0.1	0.0
LnGrp Delay(d),s/veh	18.6	26.0	25.9				0.0	8.5	8.6	0.9	0.3	0.0
LnGrp LOS	B	C	C					A	A	A	A	
Approach Vol, veh/h		656						290			350	
Approach Delay, s/veh		25.3						8.5			0.5	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		35.5		24.5		35.5		
Change Period (Y+Rc), s		4.5		4.0		4.5		
Max Green Setting (Gmax), s		31.0		20.5		31.0		
Max Q Clear Time (g_c+I1), s		5.6		12.5		6.3		
Green Ext Time (p_c), s		2.9		0.6		2.9		

Intersection Summary		
HCM 2010 Ctrl Delay		14.9
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	21	85	50	132	263	0	0	229	56
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.92	0.94		1.00	1.00		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	0.90
Adj Sat Flow, veh/h/ln	0	1810	0	1900	1810	1900	1900	1810	0	0	1810	1900
Adj Flow Rate, veh/h	0	0	0	21	85	50	132	263	0	0	229	56
Adj No. of Lanes	0	1	0	0	2	0	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	5	0	5	5	5	5	5	0	0	5	5
Cap, veh/h	0	423	0	220	424	219	451	770	0	0	914	213
Arrive On Green	0.00	0.00	0.00	0.23	0.23	0.23	0.36	0.36	0.00	0.00	0.36	0.36
Sat Flow, veh/h	0	1810	0	207	1814	939	618	2217	0	0	2625	591
Grp Volume(v), veh/h	0	0	0	91	0	65	207	188	0	0	152	133
Grp Sat Flow(s),veh/h/ln	0	1810	0	1743	0	1218	1188	1564	0	0	1719	1406
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	1.1	1.8	2.3	0.0	0.0	1.6	1.7
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.1	0.0	1.1	3.5	2.3	0.0	0.0	1.6	1.7
Prop In Lane	0.00		0.00	0.23		0.77	0.64		0.00	0.00		0.42
Lane Grp Cap(c), veh/h	0	423	0	578	0	284	657	564	0	0	620	507
V/C Ratio(X)	0.00	0.00	0.00	0.16	0.00	0.23	0.32	0.33	0.00	0.00	0.24	0.26
Avail Cap(c_a), veh/h	0	1364	0	1553	0	988	1837	2116	0	0	2325	1902
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	8.0	0.0	8.0	6.3	6.0	0.0	0.0	5.8	5.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.5	0.0	0.4	1.1	1.0	0.0	0.0	0.8	0.7
LnGrp Delay(d),s/veh	0.0	0.0	0.0	8.1	0.0	8.2	6.4	6.1	0.0	0.0	5.9	5.9
LnGrp LOS				A		A	A	A			A	A
Approach Vol, veh/h		0			156			395			285	
Approach Delay, s/veh		0.0			8.1			6.3			5.9	
Approach LOS					A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		15.3		10.5		15.3		10.5
Change Period (Y+Rc), s		6.0		4.5		6.0		* 4.5
Max Green Setting (Gmax), s		35.0		21.0		35.0		* 20
Max Q Clear Time (g_c+I1), s		5.5		3.1		3.7		0.0
Green Ext Time (p_c), s		3.1		0.5		3.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	6.5
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	71	540	98	0	0	0	0	179	2	60	272	0
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		1.00	1.00		0.78	0.85		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1810	1900	0	0	1810	0	1810	1900	1810	1810	0
Adj Flow Rate, veh/h	71	540	98	0	0	0	0	179	2	60	272	0
Adj No. of Lanes	0	3	0	0	0	1	0	2	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	5	5	5	0	0	5	0	5	5	5	5	0
Cap, veh/h	247	1709	301	0	0	0	0	1207	13	446	663	0
Arrive On Green	0.47	0.47	0.47	0.00	0.00	0.00	0.00	0.37	0.37	0.37	0.37	0.00
Sat Flow, veh/h	366	3663	644		0		0	3383	37	986	1810	0
Grp Volume(v), veh/h	262	222	225		0.0		0	93	88	60	272	0
Grp Sat Flow(s),veh/h/ln	1692	1498	1482				0	1719	1610	986	1810	0
Q Serve(g_s), s	0.1	5.6	5.7				0.0	2.2	2.2	2.6	6.7	0.0
Cycle Q Clear(g_c), s	5.4	5.6	5.7				0.0	2.2	2.2	4.8	6.7	0.0
Prop In Lane	0.27		0.43				0.00		0.02	1.00		0.00
Lane Grp Cap(c), veh/h	866	699	692				0	630	590	446	663	0
V/C Ratio(X)	0.30	0.32	0.33				0.00	0.15	0.15	0.13	0.41	0.00
Avail Cap(c_a), veh/h	866	699	692				0	630	590	446	663	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	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.0	10.0	10.1				0.0	12.7	12.7	14.3	14.2	0.0
Incr Delay (d2), s/veh	0.9	1.2	1.3				0.0	0.5	0.5	0.6	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	2.5	2.6				0.0	1.1	1.1	0.8	3.7	0.0
LnGrp Delay(d),s/veh	10.9	11.2	11.3				0.0	13.2	13.3	15.0	16.0	0.0
LnGrp LOS	B	B	B					B	B	B	B	
Approach Vol, veh/h		709						181			332	
Approach Delay, s/veh		11.1						13.2			15.8	
Approach LOS		B						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		33.5		26.5				26.5
Change Period (Y+Rc), s		5.5		4.5				4.5
Max Green Setting (Gmax), s		28.0		22.0				22.0
Max Q Clear Time (g_c+I1), s		8.6		5.2				9.7
Green Ext Time (p_c), s		2.8		1.8				1.6

Intersection Summary		
HCM 2010 Ctrl Delay		12.7
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	62	449	113	24	386	0	0	495	53
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.91	0.95		1.00	1.00		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	0	1710	1710	1692	1710	1710	1550	0	0	1581	1710
Adj Flow Rate, veh/h	0	0	0	62	449	113	24	386	0	0	495	53
Adj No. of Lanes	0	0	1	0	2	0	0	2	0	0	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	1	1	1	11	11	0	0	9	9
Cap, veh/h	0	0	0	150	917	222	100	1174	0	0	1684	175
Arrive On Green	0.00	0.00	0.00	0.43	0.43	0.43	0.87	0.87	0.00	0.00	0.43	0.43
Sat Flow, veh/h		0		188	2158	522	78	2781	0	0	4029	403
Grp Volume(v), veh/h		0.0		356	0	268	216	194	0	0	362	186
Grp Sat Flow(s),veh/h/ln				1632	0	1235	1448	1340	0	0	1439	1411
Q Serve(g_s), s				0.9	0.0	9.5	0.0	1.6	0.0	0.0	4.9	5.1
Cycle Q Clear(g_c), s				9.3	0.0	9.5	1.5	1.6	0.0	0.0	4.9	5.1
Prop In Lane				0.17		0.42	0.11		0.00	0.00		0.29
Lane Grp Cap(c), veh/h				764	0	525	694	580	0	0	1247	612
V/C Ratio(X)				0.47	0.00	0.51	0.31	0.33	0.00	0.00	0.29	0.30
Avail Cap(c_a), veh/h				764	0	525	694	580	0	0	1247	612
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	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				12.6	0.0	12.7	2.4	2.4	0.0	0.0	11.0	11.1
Incr Delay (d2), s/veh				2.0	0.0	3.5	1.2	1.5	0.0	0.0	0.6	1.3
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				4.7	0.0	3.7	0.8	0.8	0.0	0.0	2.0	2.2
LnGrp Delay(d),s/veh				14.6	0.0	16.2	3.5	3.9	0.0	0.0	11.6	12.4
LnGrp LOS				B		B	A	A			B	B
Approach Vol, veh/h					624			410			548	
Approach Delay, s/veh					15.3			3.7			11.9	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		30.5		29.5		30.5		
Change Period (Y+Rc), s		4.5		4.0		4.5		
Max Green Setting (Gmax), s		26.0		25.5		26.0		
Max Q Clear Time (g_c+I1), s		3.6		11.5		7.1		
Green Ext Time (p_c), s		4.3		2.3		4.1		

Intersection Summary			
HCM 2010 Ctrl Delay			11.1
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	116	297	28	0	0	0	0	320	64	83	437	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	1.00		1.00	1.00		0.88	0.96		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1695	1710	0	0	1710	0	1531	1710	1710	1577	0
Adj Flow Rate, veh/h	116	297	28	0	0	0	0	320	64	83	437	0
Adj No. of Lanes	1	2	0	0	0	1	0	2	0	0	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	1	1	0	0	0	0	13	13	10	10	0
Cap, veh/h	666	1008	94	0	0	0	0	1222	239	323	1640	0
Arrive On Green	0.11	0.11	0.11	0.00	0.00	0.00	0.00	0.52	0.52	1.00	1.00	0.00
Sat Flow, veh/h	1597	2951	275		0		0	2443	462	451	3303	0
Grp Volume(v), veh/h	116	160	165		0.0		0	194	190	167	353	0
Grp Sat Flow(s),veh/h/ln	1597	1610	1616				0	1455	1373	1013	1306	0
Q Serve(g_s), s	4.0	5.5	5.6				0.0	4.5	4.7	1.1	0.0	0.0
Cycle Q Clear(g_c), s	4.0	5.5	5.6				0.0	4.5	4.7	5.8	0.0	0.0
Prop In Lane	1.00		0.17				0.00		0.34	0.50		0.00
Lane Grp Cap(c), veh/h	666	550	552				0	752	710	613	1350	0
V/C Ratio(X)	0.17	0.29	0.30				0.00	0.26	0.27	0.27	0.26	0.00
Avail Cap(c_a), veh/h	666	550	552				0	752	710	613	1350	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.3	20.0	20.0				0.0	8.1	8.1	0.2	0.0	0.0
Incr Delay (d2), s/veh	0.6	1.3	1.4				0.0	0.8	0.9	1.1	0.5	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	1.9	2.6	2.7				0.0	2.0	1.9	0.4	0.1	0.0
LnGrp Delay(d),s/veh	19.9	21.3	21.4				0.0	8.9	9.1	1.3	0.5	0.0
LnGrp LOS	B	C	C					A	A	A	A	
Approach Vol, veh/h		441						384			520	
Approach Delay, s/veh		21.0						9.0			0.7	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		35.5		24.5		35.5		
Change Period (Y+Rc), s		4.5		4.0		4.5		
Max Green Setting (Gmax), s		31.0		20.5		31.0		
Max Q Clear Time (g_c+I1), s		6.7		7.6		7.8		
Green Ext Time (p_c), s		4.2		0.4		4.2		

Intersection Summary			
HCM 2010 Ctrl Delay			9.7
HCM 2010 LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	20	341	134	90	332	0	0	288	46
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.94	0.94		1.00	1.00		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	0.90
Adj Sat Flow, veh/h/ln	0	1810	0	1900	1810	1900	1900	1810	0	0	1810	1900
Adj Flow Rate, veh/h	0	0	0	20	341	134	90	332	0	0	288	46
Adj No. of Lanes	0	1	0	0	2	0	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	5	0	5	5	5	5	5	0	0	5	5
Cap, veh/h	0	597	0	149	723	271	293	818	0	0	853	132
Arrive On Green	0.00	0.00	0.00	0.33	0.33	0.33	0.31	0.31	0.00	0.00	0.31	0.31
Sat Flow, veh/h	0	1810	0	52	2193	822	387	2720	0	0	2838	426
Grp Volume(v), veh/h	0	0	0	287	0	208	224	198	0	0	177	157
Grp Sat Flow(s),veh/h/ln	0	1810	0	1793	0	1273	1460	1564	0	0	1719	1454
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.8	0.5	2.9	0.0	0.0	2.3	2.4
Cycle Q Clear(g_c), s	0.0	0.0	0.0	3.7	0.0	3.8	3.0	2.9	0.0	0.0	2.3	2.4
Prop In Lane	0.00		0.00	0.07		0.65	0.40		0.00	0.00		0.29
Lane Grp Cap(c), veh/h	0	597	0	723	0	420	626	485	0	0	533	451
V/C Ratio(X)	0.00	0.00	0.00	0.40	0.00	0.49	0.36	0.41	0.00	0.00	0.33	0.35
Avail Cap(c_a), veh/h	0	1209	0	1413	0	916	1806	1876	0	0	2061	1744
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	7.8	0.0	7.8	7.9	7.9	0.0	0.0	7.7	7.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.3	0.1	0.2	0.0	0.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.9	0.0	1.4	1.5	1.2	0.0	0.0	1.1	1.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	7.9	0.0	8.2	8.1	8.2	0.0	0.0	7.9	8.0
LnGrp LOS				A		A	A	A			A	A
Approach Vol, veh/h		0			495			422			334	
Approach Delay, s/veh		0.0			8.0			8.1			7.9	
Approach LOS					A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		15.1		14.1		15.1		14.1
Change Period (Y+Rc), s		6.0		4.5		6.0		* 4.5
Max Green Setting (Gmax), s		35.0		21.0		35.0		* 20
Max Q Clear Time (g_c+I1), s		5.0		5.8		4.4		0.0
Green Ext Time (p_c), s		3.4		1.8		3.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.0
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	75	346	78	0	0	0	0	263	4	73	252	0
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	1.00		1.00	1.00		0.77	0.87		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1810	1900	0	0	1810	0	1810	1900	1810	1810	0
Adj Flow Rate, veh/h	75	346	78	0	0	0	0	263	4	73	252	0
Adj No. of Lanes	0	3	0	0	0	1	0	2	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	5	5	5	0	0	5	0	5	5	5	5	0
Cap, veh/h	301	1265	274	0	0	0	0	1472	22	496	814	0
Arrive On Green	0.38	0.38	0.38	0.00	0.00	0.00	0.00	0.45	0.45	0.45	0.45	0.00
Sat Flow, veh/h	565	3299	715		0		0	3362	50	935	1810	0
Grp Volume(v), veh/h	185	155	158		0.0		0	138	129	73	252	0
Grp Sat Flow(s),veh/h/ln	1629	1498	1452				0	1719	1602	935	1810	0
Q Serve(g_s), s	1.5	4.3	4.5				0.0	2.9	2.9	3.0	5.3	0.0
Cycle Q Clear(g_c), s	4.4	4.3	4.5				0.0	2.9	2.9	5.9	5.3	0.0
Prop In Lane	0.40		0.49				0.00		0.03	1.00		0.00
Lane Grp Cap(c), veh/h	709	574	556				0	774	721	496	814	0
V/C Ratio(X)	0.26	0.27	0.28				0.00	0.18	0.18	0.15	0.31	0.00
Avail Cap(c_a), veh/h	709	574	556				0	774	721	496	814	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	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	12.7	12.7	12.8				0.0	9.9	9.9	11.6	10.5	0.0
Incr Delay (d2), s/veh	0.9	1.2	1.3				0.0	0.5	0.5	0.6	1.0	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	2.3	2.0	2.0				0.0	1.4	1.4	0.9	2.9	0.0
LnGrp Delay(d),s/veh	13.6	13.9	14.1				0.0	10.4	10.4	12.3	11.5	0.0
LnGrp LOS	B	B	B					B	B	B	B	
Approach Vol, veh/h		499						267			325	
Approach Delay, s/veh		13.9						10.4			11.7	
Approach LOS		B						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		28.5		31.5				31.5
Change Period (Y+Rc), s		5.5		4.5				4.5
Max Green Setting (Gmax), s		23.0		27.0				27.0
Max Q Clear Time (g_c+I1), s		7.5		5.9				8.9
Green Ext Time (p_c), s		1.8		2.2				2.1

Intersection Summary			
HCM 2010 Ctrl Delay			12.4
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	24	170	36	12	294	0	0	357	33
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.95	0.96		1.00	1.00		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	0	1710	1710	1642	1710	1710	1478	0	0	1518	1710
Adj Flow Rate, veh/h	0	0	0	24	170	36	12	294	0	0	357	33
Adj No. of Lanes	0	0	1	0	2	0	0	2	0	0	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	5	5	5	16	16	0	0	13	13
Cap, veh/h	0	0	0	155	927	187	81	1161	0	0	1656	149
Arrive On Green	0.00	0.00	0.00	0.43	0.43	0.43	0.87	0.87	0.00	0.00	0.43	0.43
Sat Flow, veh/h		0		198	2182	440	39	2746	0	0	3958	343
Grp Volume(v), veh/h		0.0		129	0	101	164	142	0	0	255	135
Grp Sat Flow(s),veh/h/ln				1579	0	1240	1440	1278	0	0	1381	1402
Q Serve(g_s), s				0.0	0.0	3.1	0.0	1.1	0.0	0.0	3.5	3.6
Cycle Q Clear(g_c), s				2.9	0.0	3.1	1.1	1.1	0.0	0.0	3.5	3.6
Prop In Lane				0.19		0.35	0.07		0.00	0.00		0.24
Lane Grp Cap(c), veh/h				742	0	527	689	554	0	0	1197	607
V/C Ratio(X)				0.17	0.00	0.19	0.24	0.26	0.00	0.00	0.21	0.22
Avail Cap(c_a), veh/h				742	0	527	689	554	0	0	1197	607
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	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				10.8	0.0	10.8	2.3	2.3	0.0	0.0	10.6	10.7
Incr Delay (d2), s/veh				0.5	0.0	0.8	0.8	1.1	0.0	0.0	0.4	0.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.4	0.0	1.2	0.5	0.5	0.0	0.0	1.4	1.5
LnGrp Delay(d),s/veh				11.3	0.0	11.6	3.2	3.5	0.0	0.0	11.0	11.5
LnGrp LOS				B		B	A	A			B	B
Approach Vol, veh/h					230			306			390	
Approach Delay, s/veh					11.4			3.3			11.2	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		30.5		29.5		30.5		
Change Period (Y+Rc), s		4.5		4.0		4.5		
Max Green Setting (Gmax), s		26.0		25.5		26.0		
Max Q Clear Time (g_c+I1), s		3.1		5.1		5.6		
Green Ext Time (p_c), s		3.0		0.8		2.9		

Intersection Summary			
HCM 2010 Ctrl Delay			8.6
HCM 2010 LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	53	607	17	0	0	0	0	241	54	82	277	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		1.00	1.00		0.90	0.96		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1644	1685	1710	0	0	1710	0	1461	1710	1710	1513	0
Adj Flow Rate, veh/h	53	607	17	0	0	0	0	241	54	82	277	0
Adj No. of Lanes	1	2	0	0	0	1	0	2	0	0	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	1	1	0	0	0	0	20	20	16	16	0
Cap, veh/h	655	1085	30	0	0	0	0	1146	249	405	1459	0
Arrive On Green	0.11	0.11	0.11	0.00	0.00	0.00	0.00	0.52	0.52	1.00	1.00	0.00
Sat Flow, veh/h	1566	3174	89		0		0	2292	482	588	2947	0
Grp Volume(v), veh/h	53	306	318		0.0		0	148	147	120	239	0
Grp Sat Flow(s),veh/h/ln	1566	1601	1662				0	1388	1313	906	1253	0
Q Serve(g_s), s	1.8	10.9	10.9				0.0	3.5	3.7	0.9	0.0	0.0
Cycle Q Clear(g_c), s	1.8	10.9	10.9				0.0	3.5	3.7	4.5	0.0	0.0
Prop In Lane	1.00		0.05				0.00		0.37	0.68		0.00
Lane Grp Cap(c), veh/h	655	547	568				0	717	679	569	1295	0
V/C Ratio(X)	0.08	0.56	0.56				0.00	0.21	0.22	0.21	0.18	0.00
Avail Cap(c_a), veh/h	655	547	568				0	717	679	569	1295	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.3	22.3	22.3				0.0	7.8	7.9	0.2	0.0	0.0
Incr Delay (d2), s/veh	0.2	4.1	4.0				0.0	0.7	0.7	0.8	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	5.4	5.6				0.0	1.4	1.4	0.3	0.1	0.0
LnGrp Delay(d),s/veh	18.6	26.4	26.3				0.0	8.5	8.6	1.0	0.3	0.0
LnGrp LOS	B	C	C					A	A	A	A	
Approach Vol, veh/h		677						295			359	
Approach Delay, s/veh		25.8						8.6			0.5	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		35.5		24.5		35.5		
Change Period (Y+Rc), s		4.5		4.0		4.5		
Max Green Setting (Gmax), s		31.0		20.5		31.0		
Max Q Clear Time (g_c+I1), s		5.7		12.9		6.5		
Green Ext Time (p_c), s		3.0		0.6		3.0		

Intersection Summary			
HCM 2010 Ctrl Delay			15.1
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	21	124	54	132	263	0	0	231	56
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.92	0.94		1.00	1.00		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	0.90
Adj Sat Flow, veh/h/ln	0	1810	0	1900	1810	1900	1900	1810	0	0	1810	1900
Adj Flow Rate, veh/h	0	0	0	21	124	54	132	263	0	0	231	56
Adj No. of Lanes	0	1	0	0	2	0	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	5	0	5	5	5	5	5	0	0	5	5
Cap, veh/h	0	443	0	200	501	198	444	761	0	0	910	211
Arrive On Green	0.00	0.00	0.00	0.24	0.24	0.24	0.36	0.36	0.00	0.00	0.36	0.36
Sat Flow, veh/h	0	1810	0	161	2045	810	617	2205	0	0	2629	587
Grp Volume(v), veh/h	0	0	0	115	0	84	206	189	0	0	153	134
Grp Sat Flow(s),veh/h/ln	0	1810	0	1758	0	1258	1176	1564	0	0	1719	1407
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	1.4	1.9	2.3	0.0	0.0	1.7	1.8
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.4	0.0	1.4	3.7	2.3	0.0	0.0	1.7	1.8
Prop In Lane	0.00		0.00	0.18		0.64	0.64		0.00	0.00		0.42
Lane Grp Cap(c), veh/h	0	443	0	591	0	308	645	561	0	0	616	504
V/C Ratio(X)	0.00	0.00	0.00	0.19	0.00	0.27	0.32	0.34	0.00	0.00	0.25	0.27
Avail Cap(c_a), veh/h	0	1333	0	1529	0	998	1788	2068	0	0	2273	1860
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	8.1	0.0	8.1	6.5	6.2	0.0	0.0	6.0	6.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.7	0.0	0.5	1.2	1.0	0.0	0.0	0.8	0.7
LnGrp Delay(d),s/veh	0.0	0.0	0.0	8.1	0.0	8.3	6.6	6.3	0.0	0.0	6.1	6.1
LnGrp LOS				A		A	A	A			A	A
Approach Vol, veh/h		0			199			395			287	
Approach Delay, s/veh		0.0			8.2			6.5			6.1	
Approach LOS					A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		15.5		11.0		15.5		11.0
Change Period (Y+Rc), s		6.0		4.5		6.0		* 4.5
Max Green Setting (Gmax), s		35.0		21.0		35.0		* 20
Max Q Clear Time (g_c+I1), s		5.7		3.4		3.8		0.0
Green Ext Time (p_c), s		3.1		0.7		3.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	6.7
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	71	559	98	0	0	0	0	179	2	62	272	0
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		1.00	1.00		0.78	0.85		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1810	1900	0	0	1810	0	1810	1900	1810	1810	0
Adj Flow Rate, veh/h	71	559	98	0	0	0	0	179	2	62	272	0
Adj No. of Lanes	0	3	0	0	0	1	0	2	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	5	5	5	0	0	5	0	5	5	5	5	0
Cap, veh/h	241	1725	293	0	0	0	0	1207	13	446	663	0
Arrive On Green	0.47	0.47	0.47	0.00	0.00	0.00	0.00	0.37	0.37	0.37	0.37	0.00
Sat Flow, veh/h	355	3697	629		0		0	3383	37	986	1810	0
Grp Volume(v), veh/h	269	228	232		0.0		0	93	88	62	272	0
Grp Sat Flow(s),veh/h/ln	1696	1498	1486				0	1719	1610	986	1810	0
Q Serve(g_s), s	0.1	5.7	5.9				0.0	2.2	2.2	2.7	6.7	0.0
Cycle Q Clear(g_c), s	5.6	5.7	5.9				0.0	2.2	2.2	4.9	6.7	0.0
Prop In Lane	0.26		0.42				0.00		0.02	1.00		0.00
Lane Grp Cap(c), veh/h	867	699	694				0	630	590	446	663	0
V/C Ratio(X)	0.31	0.33	0.33				0.00	0.15	0.15	0.14	0.41	0.00
Avail Cap(c_a), veh/h	867	699	694				0	630	590	446	663	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	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.0	10.1	10.1				0.0	12.7	12.7	14.4	14.2	0.0
Incr Delay (d2), s/veh	0.9	1.2	1.3				0.0	0.5	0.5	0.7	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	2.6	2.6				0.0	1.1	1.1	0.8	3.7	0.0
LnGrp Delay(d),s/veh	10.9	11.3	11.4				0.0	13.2	13.3	15.0	16.0	0.0
LnGrp LOS	B	B	B					B	B	B	B	
Approach Vol, veh/h		728						181			334	
Approach Delay, s/veh		11.2						13.2			15.8	
Approach LOS		B						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		33.5		26.5				26.5
Change Period (Y+Rc), s		5.5		4.5				4.5
Max Green Setting (Gmax), s		28.0		22.0				22.0
Max Q Clear Time (g_c+I1), s		8.7		5.2				9.7
Green Ext Time (p_c), s		2.9		1.8				1.6

Intersection Summary		
HCM 2010 Ctrl Delay		12.7
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	62	483	113	24	386	0	0	518	53
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.91	0.95		1.00	1.00		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	0	1710	1710	1692	1710	1710	1550	0	0	1581	1710
Adj Flow Rate, veh/h	0	0	0	62	483	113	24	386	0	0	518	53
Adj No. of Lanes	0	0	1	0	2	0	0	2	0	0	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	1	1	1	11	11	0	0	9	9
Cap, veh/h	0	0	0	146	936	211	100	1173	0	0	1693	168
Arrive On Green	0.00	0.00	0.00	0.43	0.43	0.43	0.87	0.87	0.00	0.00	0.43	0.43
Sat Flow, veh/h		0		179	2202	497	77	2778	0	0	4048	388
Grp Volume(v), veh/h		0.0		375	0	283	216	194	0	0	378	193
Grp Sat Flow(s),veh/h/ln				1635	0	1243	1445	1340	0	0	1439	1417
Q Serve(g_s), s				1.6	0.0	10.2	0.0	1.6	0.0	0.0	5.1	5.4
Cycle Q Clear(g_c), s				9.9	0.0	10.2	1.5	1.6	0.0	0.0	5.1	5.4
Prop In Lane				0.17		0.40	0.11		0.00	0.00		0.27
Lane Grp Cap(c), veh/h				765	0	528	693	580	0	0	1247	614
V/C Ratio(X)				0.49	0.00	0.54	0.31	0.33	0.00	0.00	0.30	0.31
Avail Cap(c_a), veh/h				765	0	528	693	580	0	0	1247	614
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	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				12.8	0.0	12.8	2.4	2.4	0.0	0.0	11.1	11.2
Incr Delay (d2), s/veh				2.2	0.0	3.9	1.2	1.5	0.0	0.0	0.6	1.3
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				5.1	0.0	4.0	0.8	0.8	0.0	0.0	2.1	2.3
LnGrp Delay(d),s/veh				15.0	0.0	16.7	3.5	3.9	0.0	0.0	11.7	12.5
LnGrp LOS				B		B	A	A			B	B
Approach Vol, veh/h					658			410			571	
Approach Delay, s/veh					15.7			3.7			12.0	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		30.5		29.5		30.5		
Change Period (Y+Rc), s		4.5		4.0		4.5		
Max Green Setting (Gmax), s		26.0		25.5		26.0		
Max Q Clear Time (g_c+I1), s		3.6		12.2		7.4		
Green Ext Time (p_c), s		4.4		2.4		4.2		

Intersection Summary			
HCM 2010 Ctrl Delay			11.4
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	116	348	28	0	0	0	0	320	76	106	437	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	1.00		1.00	1.00		0.88	0.96		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1694	1710	0	0	1710	0	1534	1710	1710	1583	0
Adj Flow Rate, veh/h	116	348	28	0	0	0	0	320	76	106	437	0
Adj No. of Lanes	1	2	0	0	0	1	0	2	0	0	3	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	1	1	0	0	0	0	13	13	10	10	0
Cap, veh/h	666	1024	82	0	0	0	0	1180	273	371	1536	0
Arrive On Green	0.11	0.11	0.11	0.00	0.00	0.00	0.00	0.52	0.52	1.00	1.00	0.00
Sat Flow, veh/h	1597	2997	239		0		0	2360	528	527	3103	0
Grp Volume(v), veh/h	116	186	190		0.0		0	201	195	165	378	0
Grp Sat Flow(s),veh/h/ln	1597	1610	1626				0	1457	1354	879	1311	0
Q Serve(g_s), s	4.0	6.4	6.5				0.0	4.6	4.9	1.8	0.0	0.0
Cycle Q Clear(g_c), s	4.0	6.4	6.5				0.0	4.6	4.9	6.7	0.0	0.0
Prop In Lane	1.00		0.15				0.00		0.39	0.64		0.00
Lane Grp Cap(c), veh/h	666	550	556				0	753	699	552	1354	0
V/C Ratio(X)	0.17	0.34	0.34				0.00	0.27	0.28	0.30	0.28	0.00
Avail Cap(c_a), veh/h	666	550	556				0	753	699	552	1354	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.3	20.4	20.4				0.0	8.1	8.2	0.3	0.0	0.0
Incr Delay (d2), s/veh	0.6	1.7	1.7				0.0	0.9	1.0	1.4	0.5	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	1.9	3.1	3.2				0.0	2.0	2.0	0.6	0.1	0.0
LnGrp Delay(d),s/veh	19.9	22.0	22.1				0.0	9.0	9.2	1.7	0.5	0.0
LnGrp LOS	B	C	C					A	A	A	A	
Approach Vol, veh/h		492						396			543	
Approach Delay, s/veh		21.5						9.1			0.9	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		35.5		24.5		35.5		
Change Period (Y+Rc), s		4.5		4.0		4.5		
Max Green Setting (Gmax), s		31.0		20.5		31.0		
Max Q Clear Time (g_c+I1), s		6.9		8.5		8.7		
Green Ext Time (p_c), s		4.5		0.5		4.4		

Intersection Summary		
HCM 2010 Ctrl Delay		10.3
HCM 2010 LOS		B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	20	372	137	90	332	0	0	292	46
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.94	0.94		1.00	1.00		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	0.90
Adj Sat Flow, veh/h/ln	0	1810	0	1900	1810	1900	1900	1810	0	0	1810	1900
Adj Flow Rate, veh/h	0	0	0	20	372	137	90	332	0	0	292	46
Adj No. of Lanes	0	1	0	0	2	0	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	5	0	5	5	5	5	5	0	0	5	5
Cap, veh/h	0	612	0	145	756	267	289	812	0	0	850	130
Arrive On Green	0.00	0.00	0.00	0.34	0.34	0.34	0.31	0.31	0.00	0.00	0.31	0.31
Sat Flow, veh/h	0	1810	0	48	2238	791	387	2714	0	0	2844	421
Grp Volume(v), veh/h	0	0	0	307	0	222	224	198	0	0	179	159
Grp Sat Flow(s),veh/h/ln	0	1810	0	1794	0	1283	1454	1564	0	0	1719	1456
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	4.1	0.6	3.0	0.0	0.0	2.4	2.5
Cycle Q Clear(g_c), s	0.0	0.0	0.0	4.0	0.0	4.1	3.1	3.0	0.0	0.0	2.4	2.5
Prop In Lane	0.00		0.00	0.07		0.62	0.40		0.00	0.00		0.29
Lane Grp Cap(c), veh/h	0	612	0	735	0	433	619	483	0	0	530	449
V/C Ratio(X)	0.00	0.00	0.00	0.42	0.00	0.51	0.36	0.41	0.00	0.00	0.34	0.35
Avail Cap(c_a), veh/h	0	1188	0	1390	0	907	1771	1843	0	0	2025	1715
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	7.8	0.0	7.9	8.1	8.1	0.0	0.0	7.9	8.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.3	0.1	0.2	0.0	0.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	2.0	0.0	1.5	1.5	1.3	0.0	0.0	1.1	1.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	8.0	0.0	8.2	8.2	8.3	0.0	0.0	8.1	8.1
LnGrp LOS				A		A	A	A			A	A
Approach Vol, veh/h		0			529			422			338	
Approach Delay, s/veh		0.0			8.1			8.3			8.1	
Approach LOS					A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		15.2		14.5		15.2		14.5
Change Period (Y+Rc), s		6.0		4.5		6.0		* 4.5
Max Green Setting (Gmax), s		35.0		21.0		35.0		* 20
Max Q Clear Time (g_c+I1), s		5.1		6.1		4.5		0.0
Green Ext Time (p_c), s		3.4		1.9		3.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.2
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	75	393	78	0	0	0	0	263	4	77	252	0
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	1.00		1.00	1.00		0.77	0.87		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1810	1900	0	0	1810	0	1810	1900	1810	1810	0
Adj Flow Rate, veh/h	75	393	78	0	0	0	0	263	4	77	252	0
Adj No. of Lanes	0	3	0	0	0	1	0	2	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	5	5	5	0	0	5	0	5	5	5	5	0
Cap, veh/h	278	1319	252	0	0	0	0	1472	22	496	814	0
Arrive On Green	0.38	0.38	0.38	0.00	0.00	0.00	0.00	0.45	0.45	0.45	0.45	0.00
Sat Flow, veh/h	511	3441	659		0		0	3362	50	935	1810	0
Grp Volume(v), veh/h	202	170	174		0.0		0	138	129	77	252	0
Grp Sat Flow(s),veh/h/ln	1646	1498	1467				0	1719	1602	935	1810	0
Q Serve(g_s), s	1.5	4.7	5.0				0.0	2.9	2.9	3.2	5.3	0.0
Cycle Q Clear(g_c), s	4.8	4.7	5.0				0.0	2.9	2.9	6.1	5.3	0.0
Prop In Lane	0.37		0.45				0.00		0.03	1.00		0.00
Lane Grp Cap(c), veh/h	713	574	562				0	774	721	496	814	0
V/C Ratio(X)	0.28	0.30	0.31				0.00	0.18	0.18	0.16	0.31	0.00
Avail Cap(c_a), veh/h	713	574	562				0	774	721	496	814	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	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	12.9	12.9	12.9				0.0	9.9	9.9	11.7	10.5	0.0
Incr Delay (d2), s/veh	1.0	1.3	1.4				0.0	0.5	0.5	0.7	1.0	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	2.5	2.1	2.2				0.0	1.4	1.4	0.9	2.9	0.0
LnGrp Delay(d),s/veh	13.9	14.2	14.4				0.0	10.4	10.4	12.4	11.5	0.0
LnGrp LOS	B	B	B					B	B	B	B	
Approach Vol, veh/h		546						267			329	
Approach Delay, s/veh		14.1						10.4			11.7	
Approach LOS		B						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		28.5		31.5				31.5
Change Period (Y+Rc), s		5.5		4.5				4.5
Max Green Setting (Gmax), s		23.0		27.0				27.0
Max Q Clear Time (g_c+I1), s		8.0		5.9				9.1
Green Ext Time (p_c), s		1.9		2.2				2.1

Intersection Summary			
HCM 2010 Ctrl Delay			12.6
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	30	150	45	15	340	0	0	400	40
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.95	0.97		1.00	1.00		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	0	1710	1710	1646	1710	1710	1478	0	0	1518	1710
Adj Flow Rate, veh/h	0	0	0	30	150	45	15	340	0	0	400	40
Adj No. of Lanes	0	0	1	0	2	0	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	5	5	5	16	16	0	0	13	13
Cap, veh/h	0	0	0	191	827	235	84	1155	0	0	1133	112
Arrive On Green	0.00	0.00	0.00	0.43	0.43	0.43	0.87	0.87	0.00	0.00	0.43	0.43
Sat Flow, veh/h		0		275	1945	554	45	2733	0	0	2690	259
Grp Volume(v), veh/h		0.0		126	0	99	189	166	0	0	219	221
Grp Sat Flow(s),veh/h/ln				1558	0	1216	1432	1278	0	0	1442	1431
Q Serve(g_s), s				0.0	0.0	3.0	0.0	1.4	0.0	0.0	6.1	6.2
Cycle Q Clear(g_c), s				2.9	0.0	3.0	1.4	1.4	0.0	0.0	6.1	6.2
Prop In Lane				0.24		0.46	0.08		0.00	0.00		0.18
Lane Grp Cap(c), veh/h				737	0	517	685	554	0	0	625	620
V/C Ratio(X)				0.17	0.00	0.19	0.28	0.30	0.00	0.00	0.35	0.36
Avail Cap(c_a), veh/h				737	0	517	685	554	0	0	625	620
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	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				10.7	0.0	10.8	2.4	2.4	0.0	0.0	11.4	11.4
Incr Delay (d2), s/veh				0.5	0.0	0.8	1.0	1.4	0.0	0.0	1.5	1.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.4	0.0	1.1	0.7	0.7	0.0	0.0	2.6	2.7
LnGrp Delay(d),s/veh				11.2	0.0	11.6	3.4	3.7	0.0	0.0	12.9	13.0
LnGrp LOS				B		B	A	A			B	B
Approach Vol, veh/h					225			355			440	
Approach Delay, s/veh					11.4			3.5			12.9	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		30.5		29.5		30.5		
Change Period (Y+Rc), s		4.5		4.0		4.5		
Max Green Setting (Gmax), s		26.0		25.5		26.0		
Max Q Clear Time (g_c+I1), s		3.4		5.0		8.2		
Green Ext Time (p_c), s		3.3		0.8		3.1		

Intersection Summary			
HCM 2010 Ctrl Delay			9.3
HCM 2010 LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	65	675	20	0	0	0	0	280	60	85	320	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		1.00	1.00		0.89	0.96		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1644	1685	1710	0	0	1710	0	1459	1710	1710	1510	0
Adj Flow Rate, veh/h	65	675	20	0	0	0	0	280	60	85	320	0
Adj No. of Lanes	1	2	0	0	0	1	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	1	1	0	0	0	0	20	20	16	16	0
Cap, veh/h	772	1320	39	0	0	0	0	985	205	257	862	0
Arrive On Green	0.14	0.14	0.14	0.00	0.00	0.00	0.00	0.44	0.44	0.88	0.88	0.00
Sat Flow, veh/h	1566	3169	94		0		0	2302	465	386	2021	0
Grp Volume(v), veh/h	65	341	354		0.0		0	171	169	195	210	0
Grp Sat Flow(s),veh/h/ln	1566	1601	1662				0	1386	1307	1034	1305	0
Q Serve(g_s), s	2.2	11.9	11.9				0.0	4.7	5.0	1.3	1.7	0.0
Cycle Q Clear(g_c), s	2.2	11.9	11.9				0.0	4.7	5.0	6.3	1.7	0.0
Prop In Lane	1.00		0.06				0.00		0.36	0.44		0.00
Lane Grp Cap(c), veh/h	772	667	692				0	612	577	543	576	0
V/C Ratio(X)	0.08	0.51	0.51				0.00	0.28	0.29	0.36	0.36	0.00
Avail Cap(c_a), veh/h	772	667	692				0	612	577	543	576	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.0	20.2	20.2				0.0	10.7	10.7	2.2	2.1	0.0
Incr Delay (d2), s/veh	0.2	2.8	2.7				0.0	1.1	1.3	1.8	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	5.8	6.0				0.0	2.0	2.0	0.7	0.8	0.0
LnGrp Delay(d),s/veh	16.2	23.0	22.9				0.0	11.8	12.0	4.0	3.8	0.0
LnGrp LOS	B	C	C					B	B	A	A	
Approach Vol, veh/h		760						340			405	
Approach Delay, s/veh		22.4						11.9			3.9	
Approach LOS		C						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		31.0		29.0		31.0		
Change Period (Y+Rc), s		4.5		4.0		4.5		
Max Green Setting (Gmax), s		26.5		25.0		26.5		
Max Q Clear Time (g_c+I1), s		7.0		13.9		8.3		
Green Ext Time (p_c), s		3.1		0.7		3.1		

Intersection Summary			
HCM 2010 Ctrl Delay			15.0
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	25	100	60	155	305	0	0	265	65
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.92	0.95		1.00	1.00		0.86
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	0.90
Adj Sat Flow, veh/h/ln	0	1810	0	1900	1810	1900	1900	1810	0	0	1810	1900
Adj Flow Rate, veh/h	0	0	0	25	100	60	155	305	0	0	265	65
Adj No. of Lanes	0	1	0	0	2	0	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	5	0	5	5	5	5	5	0	0	5	5
Cap, veh/h	0	425	0	207	423	223	458	791	0	0	992	234
Arrive On Green	0.00	0.00	0.00	0.24	0.24	0.24	0.39	0.39	0.00	0.00	0.39	0.39
Sat Flow, veh/h	0	1810	0	211	1797	949	622	2102	0	0	2625	597
Grp Volume(v), veh/h	0	0	0	108	0	77	229	231	0	0	176	154
Grp Sat Flow(s),veh/h/ln	0	1810	0	1742	0	1215	1078	1564	0	0	1719	1413
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	1.5	2.9	3.0	0.0	0.0	2.0	2.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.4	0.0	1.5	5.0	3.0	0.0	0.0	2.0	2.1
Prop In Lane	0.00		0.00	0.23		0.78	0.68		0.00	0.00		0.42
Lane Grp Cap(c), veh/h	0	425	0	567	0	286	637	612	0	0	673	553
V/C Ratio(X)	0.00	0.00	0.00	0.19	0.00	0.27	0.36	0.38	0.00	0.00	0.26	0.28
Avail Cap(c_a), veh/h	0	1255	0	1429	0	908	1606	1947	0	0	2140	1759
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	8.7	0.0	8.8	6.7	6.1	0.0	0.0	5.8	5.8
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.7	0.0	0.5	1.4	1.3	0.0	0.0	0.9	0.8
LnGrp Delay(d),s/veh	0.0	0.0	0.0	8.8	0.0	9.0	6.9	6.2	0.0	0.0	5.9	5.9
LnGrp LOS				A		A	A	A			A	A
Approach Vol, veh/h		0			185			460			330	
Approach Delay, s/veh		0.0			8.9			6.6			5.9	
Approach LOS					A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		17.0		11.1		17.0		11.1
Change Period (Y+Rc), s		6.0		4.5		6.0		* 4.5
Max Green Setting (Gmax), s		35.0		21.0		35.0		* 20
Max Q Clear Time (g_c+I1), s		7.0		3.5		4.1		0.0
Green Ext Time (p_c), s		3.7		0.6		3.7		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	6.8
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	85	625	115	0	0	0	0	210	5	70	315	0
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		1.00	1.00		0.78	0.86		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1810	1900	0	0	1810	0	1810	1900	1810	1810	0
Adj Flow Rate, veh/h	85	625	115	0	0	0	0	210	5	70	315	0
Adj No. of Lanes	0	3	0	0	0	1	0	2	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	5	5	5	0	0	5	0	5	5	5	5	0
Cap, veh/h	254	1697	304	0	0	0	0	1185	28	432	663	0
Arrive On Green	0.47	0.47	0.47	0.00	0.00	0.00	0.00	0.37	0.37	0.37	0.37	0.00
Sat Flow, veh/h	380	3636	651		0		0	3322	76	965	1810	0
Grp Volume(v), veh/h	304	260	261		0.0		0	111	104	70	315	0
Grp Sat Flow(s),veh/h/ln	1688	1498	1480				0	1719	1589	965	1810	0
Q Serve(g_s), s	1.5	6.7	6.9				0.0	2.6	2.7	3.2	8.0	0.0
Cycle Q Clear(g_c), s	6.6	6.7	6.9				0.0	2.6	2.7	5.8	8.0	0.0
Prop In Lane	0.28		0.44				0.00		0.05	1.00		0.00
Lane Grp Cap(c), veh/h	865	699	691				0	630	583	432	663	0
V/C Ratio(X)	0.35	0.37	0.38				0.00	0.18	0.18	0.16	0.47	0.00
Avail Cap(c_a), veh/h	865	699	691				0	630	583	432	663	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	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.3	10.3	10.4				0.0	12.9	12.9	14.8	14.6	0.0
Incr Delay (d2), s/veh	1.1	1.5	1.6				0.0	0.6	0.7	0.8	2.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	3.0	3.1				0.0	1.3	1.3	0.9	4.4	0.0
LnGrp Delay(d),s/veh	11.4	11.8	11.9				0.0	13.5	13.5	15.6	17.0	0.0
LnGrp LOS	B	B	B					B	B	B	B	
Approach Vol, veh/h		825						215			385	
Approach Delay, s/veh		11.7						13.5			16.7	
Approach LOS		B						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		33.5		26.5				26.5
Change Period (Y+Rc), s		5.5		4.5				4.5
Max Green Setting (Gmax), s		28.0		22.0				22.0
Max Q Clear Time (g_c+I1), s		9.7		5.6				11.0
Green Ext Time (p_c), s		3.3		2.1				1.8

Intersection Summary	
HCM 2010 Ctrl Delay	13.3
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	80	565	145	35	485	0	0	625	70
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.91	0.97		1.00	1.00		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	0	1710	1710	1692	1710	1710	1551	0	0	1582	1710
Adj Flow Rate, veh/h	0	0	0	80	565	145	35	485	0	0	625	70
Adj No. of Lanes	0	0	1	0	2	0	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	1	1	1	11	11	0	0	9	9
Cap, veh/h	0	0	0	160	901	225	109	1147	0	0	1154	129
Arrive On Green	0.00	0.00	0.00	0.43	0.43	0.43	0.87	0.87	0.00	0.00	0.43	0.43
Sat Flow, veh/h		0		210	2119	529	95	2718	0	0	2741	297
Grp Volume(v), veh/h		0.0		452	0	338	270	250	0	0	352	343
Grp Sat Flow(s),veh/h/ln				1625	0	1233	1402	1341	0	0	1503	1457
Q Serve(g_s), s				6.4	0.0	13.0	0.0	2.4	0.0	0.0	10.4	10.5
Cycle Q Clear(g_c), s				13.1	0.0	13.0	2.1	2.4	0.0	0.0	10.4	10.5
Prop In Lane				0.18		0.43	0.13		0.00	0.00		0.20
Lane Grp Cap(c), veh/h				761	0	524	675	581	0	0	651	631
V/C Ratio(X)				0.59	0.00	0.64	0.40	0.43	0.00	0.00	0.54	0.54
Avail Cap(c_a), veh/h				761	0	524	675	581	0	0	651	631
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	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				13.6	0.0	13.7	2.4	2.4	0.0	0.0	12.6	12.6
Incr Delay (d2), s/veh				3.4	0.0	6.0	1.8	2.3	0.0	0.0	3.2	3.3
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				6.6	0.0	5.3	1.1	1.1	0.0	0.0	4.9	4.8
LnGrp Delay(d),s/veh				17.0	0.0	19.7	4.2	4.7	0.0	0.0	15.8	15.9
LnGrp LOS				B		B	A	A			B	B
Approach Vol, veh/h					790			520			695	
Approach Delay, s/veh					18.1			4.4			15.9	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		30.5		29.5		30.5		
Change Period (Y+Rc), s		4.5		4.0		4.5		
Max Green Setting (Gmax), s		26.0		25.5		26.0		
Max Q Clear Time (g_c+I1), s		4.4		15.1		12.5		
Green Ext Time (p_c), s		5.5		2.6		4.6		

Intersection Summary	
HCM 2010 Ctrl Delay	13.8
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	150	375	40	0	0	0	0	405	85	105	550	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	1.00		1.00	1.00		0.88	0.97		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1695	1710	0	0	1710	0	1532	1710	1710	1578	0
Adj Flow Rate, veh/h	150	375	40	0	0	0	0	405	85	105	550	0
Adj No. of Lanes	1	2	0	0	0	1	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	1	1	0	0	0	0	13	13	10	10	0
Cap, veh/h	666	994	105	0	0	0	0	1209	250	243	1112	0
Arrive On Green	0.11	0.11	0.11	0.00	0.00	0.00	0.00	0.52	0.52	1.00	1.00	0.00
Sat Flow, veh/h	1597	2910	307		0		0	2416	483	313	2223	0
Grp Volume(v), veh/h	150	206	209		0.0		0	249	241	304	351	0
Grp Sat Flow(s),veh/h/ln	1597	1610	1607				0	1455	1367	1101	1364	0
Q Serve(g_s), s	5.2	7.1	7.2				0.0	6.0	6.2	2.6	0.0	0.0
Cycle Q Clear(g_c), s	5.2	7.1	7.2				0.0	6.0	6.2	8.8	0.0	0.0
Prop In Lane	1.00		0.19				0.00		0.35	0.35		0.00
Lane Grp Cap(c), veh/h	666	550	549				0	752	706	650	705	0
V/C Ratio(X)	0.23	0.37	0.38				0.00	0.33	0.34	0.47	0.50	0.00
Avail Cap(c_a), veh/h	666	550	549				0	752	706	650	705	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.8	20.7	20.7				0.0	8.5	8.5	0.2	0.0	0.0
Incr Delay (d2), s/veh	0.8	1.9	2.0				0.0	1.2	1.3	2.4	2.5	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	2.4	3.5	3.5				0.0	2.6	2.5	0.9	0.5	0.0
LnGrp Delay(d),s/veh	20.6	22.6	22.7				0.0	9.6	9.8	2.6	2.5	0.0
LnGrp LOS	C	C	C					A	A	A	A	
Approach Vol, veh/h		565						490			655	
Approach Delay, s/veh		22.1						9.7			2.6	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		35.5		24.5		35.5		
Change Period (Y+Rc), s		4.5		4.0		4.5		
Max Green Setting (Gmax), s		31.0		20.5		31.0		
Max Q Clear Time (g_c+I1), s		8.2		9.2		10.8		
Green Ext Time (p_c), s		5.4		0.6		5.2		

Intersection Summary			
HCM 2010 Ctrl Delay			11.1
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	30	430	170	115	420	0	0	365	60
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.94	0.95		1.00	1.00		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	0.90
Adj Sat Flow, veh/h/ln	0	1810	0	1900	1810	1900	1900	1810	0	0	1810	1900
Adj Flow Rate, veh/h	0	0	0	30	430	170	115	420	0	0	365	60
Adj No. of Lanes	0	1	0	0	2	0	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	5	0	5	5	5	5	5	0	0	5	5
Cap, veh/h	0	625	0	135	749	285	287	857	0	0	969	156
Arrive On Green	0.00	0.00	0.00	0.35	0.35	0.35	0.35	0.35	0.00	0.00	0.35	0.35
Sat Flow, veh/h	0	1810	0	68	2169	826	390	2505	0	0	2829	441
Grp Volume(v), veh/h	0	0	0	368	0	262	261	274	0	0	226	199
Grp Sat Flow(s),veh/h/ln	0	1810	0	1788	0	1275	1248	1564	0	0	1719	1461
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	5.9	2.4	4.8	0.0	0.0	3.4	3.5
Cycle Q Clear(g_c), s	0.0	0.0	0.0	5.8	0.0	5.9	5.9	4.8	0.0	0.0	3.4	3.5
Prop In Lane	0.00		0.00	0.08		0.65	0.44		0.00	0.00		0.30
Lane Grp Cap(c), veh/h	0	625	0	729	0	440	590	554	0	0	608	517
V/C Ratio(X)	0.00	0.00	0.00	0.50	0.00	0.60	0.44	0.49	0.00	0.00	0.37	0.38
Avail Cap(c_a), veh/h	0	1011	0	1181	0	767	1397	1569	0	0	1724	1465
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	9.4	0.0	9.4	8.9	8.8	0.0	0.0	8.4	8.4
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	0.5	0.2	0.3	0.0	0.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	2.9	0.0	2.1	2.1	2.1	0.0	0.0	1.6	1.5
LnGrp Delay(d),s/veh	0.0	0.0	0.0	9.6	0.0	9.9	9.1	9.1	0.0	0.0	8.5	8.6
LnGrp LOS				A		A	A	A			A	A
Approach Vol, veh/h		0			630			535			425	
Approach Delay, s/veh		0.0			9.7			9.1			8.6	
Approach LOS					A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		18.3		16.5		18.3		16.5
Change Period (Y+Rc), s		6.0		4.5		6.0		* 4.5
Max Green Setting (Gmax), s		35.0		21.0		35.0		* 20
Max Q Clear Time (g_c+I1), s		7.9		7.9		5.5		0.0
Green Ext Time (p_c), s		4.5		2.3		4.5		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		9.2
HCM 2010 LOS		A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	95	435	100	0	0	0	0	335	10	95	320	0
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	1.00		1.00	1.00		0.77	0.88		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1810	1900	0	0	1810	0	1810	1900	1810	1810	0
Adj Flow Rate, veh/h	95	435	100	0	0	0	0	335	10	95	320	0
Adj No. of Lanes	0	3	0	0	0	1	0	2	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	5	5	5	0	0	5	0	5	5	5	5	0
Cap, veh/h	302	1256	279	0	0	0	0	1441	43	462	814	0
Arrive On Green	0.38	0.38	0.38	0.00	0.00	0.00	0.00	0.45	0.45	0.45	0.45	0.00
Sat Flow, veh/h	569	3277	729		0		0	3293	95	886	1810	0
Grp Volume(v), veh/h	234	198	199		0.0		0	179	166	95	320	0
Grp Sat Flow(s),veh/h/ln	1628	1498	1448				0	1719	1578	886	1810	0
Q Serve(g_s), s	3.0	5.6	5.9				0.0	3.8	3.9	4.4	7.1	0.0
Cycle Q Clear(g_c), s	5.9	5.6	5.9				0.0	3.8	3.9	8.3	7.1	0.0
Prop In Lane	0.41		0.50				0.00		0.06	1.00		0.00
Lane Grp Cap(c), veh/h	708	574	555				0	774	710	462	814	0
V/C Ratio(X)	0.33	0.34	0.36				0.00	0.23	0.23	0.21	0.39	0.00
Avail Cap(c_a), veh/h	708	574	555				0	774	710	462	814	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	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	13.2	13.1	13.2				0.0	10.1	10.1	12.7	11.0	0.0
Incr Delay (d2), s/veh	1.2	1.6	1.8				0.0	0.7	0.8	1.0	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	2.6	2.6				0.0	1.9	1.8	1.2	3.8	0.0
LnGrp Delay(d),s/veh	14.4	14.8	15.0				0.0	10.8	10.9	13.7	12.4	0.0
LnGrp LOS	B	B	B					B	B	B	B	
Approach Vol, veh/h		630						345			415	
Approach Delay, s/veh		14.7						10.9			12.7	
Approach LOS		B						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		28.5		31.5				31.5
Change Period (Y+Rc), s		5.5		4.5				4.5
Max Green Setting (Gmax), s		23.0		27.0				27.0
Max Q Clear Time (g_c+I1), s		8.9		6.8				11.3
Green Ext Time (p_c), s		2.2		2.9				2.8

Intersection Summary			
HCM 2010 Ctrl Delay			13.2
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	30	193	45	15	340	0	0	409	40
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.95	0.97		1.00	1.00		0.88
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	0	1710	1710	1643	1710	1710	1478	0	0	1518	1710
Adj Flow Rate, veh/h	0	0	0	30	193	45	15	340	0	0	409	40
Adj No. of Lanes	0	0	1	0	2	0	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	5	5	5	16	16	0	0	13	13
Cap, veh/h	0	0	0	164	901	200	84	1155	0	0	1135	110
Arrive On Green	0.00	0.00	0.00	0.43	0.43	0.43	0.87	0.87	0.00	0.00	0.43	0.43
Sat Flow, veh/h		0		217	2119	471	44	2733	0	0	2696	254
Grp Volume(v), veh/h		0.0		150	0	118	189	166	0	0	223	226
Grp Sat Flow(s),veh/h/ln				1574	0	1233	1432	1278	0	0	1442	1432
Q Serve(g_s), s				0.0	0.0	3.6	0.0	1.4	0.0	0.0	6.2	6.4
Cycle Q Clear(g_c), s				3.5	0.0	3.6	1.4	1.4	0.0	0.0	6.2	6.4
Prop In Lane				0.20		0.38	0.08		0.00	0.00		0.18
Lane Grp Cap(c), veh/h				741	0	524	685	554	0	0	625	621
V/C Ratio(X)				0.20	0.00	0.22	0.28	0.30	0.00	0.00	0.36	0.36
Avail Cap(c_a), veh/h				741	0	524	685	554	0	0	625	621
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	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				10.9	0.0	11.0	2.4	2.4	0.0	0.0	11.4	11.4
Incr Delay (d2), s/veh				0.6	0.0	1.0	1.0	1.4	0.0	0.0	1.6	1.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.7	0.0	1.4	0.7	0.7	0.0	0.0	2.8	2.8
LnGrp Delay(d),s/veh				11.5	0.0	12.0	3.4	3.7	0.0	0.0	13.0	13.1
LnGrp LOS				B		B	A	A			B	B
Approach Vol, veh/h					268			355			449	
Approach Delay, s/veh					11.7			3.5			13.0	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		30.5		29.5		30.5		
Change Period (Y+Rc), s		4.5		4.0		4.5		
Max Green Setting (Gmax), s		26.0		25.5		26.0		
Max Q Clear Time (g_c+I1), s		3.4		5.6		8.4		
Green Ext Time (p_c), s		3.3		0.9		3.1		

Intersection Summary			
HCM 2010 Ctrl Delay			9.6
HCM 2010 LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	65	696	20	0	0	0	0	280	65	94	320	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		1.00	1.00		0.89	0.96		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1644	1685	1710	0	0	1710	0	1462	1710	1710	1513	0
Adj Flow Rate, veh/h	65	696	20	0	0	0	0	280	65	94	320	0
Adj No. of Lanes	1	2	0	0	0	1	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	1	1	0	0	0	0	20	20	16	16	0
Cap, veh/h	772	1322	38	0	0	0	0	969	218	271	829	0
Arrive On Green	0.14	0.14	0.14	0.00	0.00	0.00	0.00	0.44	0.44	0.88	0.88	0.00
Sat Flow, veh/h	1566	3172	91		0		0	2267	494	412	1945	0
Grp Volume(v), veh/h	65	351	365		0.0		0	174	171	196	218	0
Grp Sat Flow(s),veh/h/ln	1566	1601	1663				0	1389	1300	981	1308	0
Q Serve(g_s), s	2.2	12.2	12.2				0.0	4.8	5.1	1.7	1.8	0.0
Cycle Q Clear(g_c), s	2.2	12.2	12.2				0.0	4.8	5.1	6.8	1.8	0.0
Prop In Lane	1.00		0.05				0.00		0.38	0.48		0.00
Lane Grp Cap(c), veh/h	772	667	693				0	613	574	522	578	0
V/C Ratio(X)	0.08	0.53	0.53				0.00	0.28	0.30	0.37	0.38	0.00
Avail Cap(c_a), veh/h	772	667	693				0	613	574	522	578	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.0	20.4	20.4				0.0	10.7	10.8	2.2	2.1	0.0
Incr Delay (d2), s/veh	0.2	3.0	2.9				0.0	1.2	1.3	2.1	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	6.0	6.2				0.0	2.0	2.0	0.7	0.8	0.0
LnGrp Delay(d),s/veh	16.2	23.3	23.2				0.0	11.9	12.1	4.3	3.9	0.0
LnGrp LOS	B	C	C					B	B	A	A	
Approach Vol, veh/h		781						345			414	
Approach Delay, s/veh		22.7						12.0			4.1	
Approach LOS		C						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		31.0		29.0		31.0		
Change Period (Y+Rc), s		4.5		4.0		4.5		
Max Green Setting (Gmax), s		26.5		25.0		26.5		
Max Q Clear Time (g_c+I1), s		7.1		14.2		8.8		
Green Ext Time (p_c), s		3.2		0.8		3.1		

Intersection Summary			
HCM 2010 Ctrl Delay			15.3
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	25	139	64	155	305	0	0	267	65
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.92	0.95		1.00	1.00		0.86
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	0.90
Adj Sat Flow, veh/h/ln	0	1810	0	1900	1810	1900	1900	1810	0	0	1810	1900
Adj Flow Rate, veh/h	0	0	0	25	139	64	155	305	0	0	267	65
Adj No. of Lanes	0	1	0	0	2	0	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	5	0	5	5	5	5	5	0	0	5	5
Cap, veh/h	0	439	0	191	485	203	454	784	0	0	990	232
Arrive On Green	0.00	0.00	0.00	0.24	0.24	0.24	0.39	0.39	0.00	0.00	0.39	0.39
Sat Flow, veh/h	0	1810	0	171	1998	836	621	2094	0	0	2629	594
Grp Volume(v), veh/h	0	0	0	132	0	96	228	232	0	0	177	155
Grp Sat Flow(s),veh/h/ln	0	1810	0	1755	0	1250	1069	1564	0	0	1719	1414
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	1.8	3.1	3.0	0.0	0.0	2.0	2.1
Cycle Q Clear(g_c), s	0.0	0.0	0.0	1.7	0.0	1.8	5.2	3.0	0.0	0.0	2.0	2.1
Prop In Lane	0.00		0.00	0.19		0.67	0.68		0.00	0.00		0.42
Lane Grp Cap(c), veh/h	0	439	0	576	0	303	628	610	0	0	670	551
V/C Ratio(X)	0.00	0.00	0.00	0.23	0.00	0.32	0.36	0.38	0.00	0.00	0.26	0.28
Avail Cap(c_a), veh/h	0	1235	0	1415	0	918	1574	1916	0	0	2105	1731
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	8.8	0.0	8.9	6.9	6.2	0.0	0.0	5.9	6.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.9	0.0	0.6	1.4	1.3	0.0	0.0	1.0	0.8
LnGrp Delay(d),s/veh	0.0	0.0	0.0	8.9	0.0	9.1	7.0	6.4	0.0	0.0	6.0	6.1
LnGrp LOS				A		A	A	A			A	A
Approach Vol, veh/h		0			228			460			332	
Approach Delay, s/veh		0.0			9.0			6.7			6.0	
Approach LOS					A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		17.1		11.4		17.1		11.4
Change Period (Y+Rc), s		6.0		4.5		6.0		* 4.5
Max Green Setting (Gmax), s		35.0		21.0		35.0		* 20
Max Q Clear Time (g_c+I1), s		7.2		3.8		4.1		0.0
Green Ext Time (p_c), s		3.7		0.8		3.7		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		7.0
HCM 2010 LOS		A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	85	644	115	0	0	0	0	210	5	72	315	0
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		1.00	1.00		0.78	0.86		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1810	1900	0	0	1810	0	1810	1900	1810	1810	0
Adj Flow Rate, veh/h	85	644	115	0	0	0	0	210	5	72	315	0
Adj No. of Lanes	0	3	0	0	0	1	0	2	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	5	5	5	0	0	5	0	5	5	5	5	0
Cap, veh/h	249	1711	298	0	0	0	0	1185	28	432	663	0
Arrive On Green	0.47	0.47	0.47	0.00	0.00	0.00	0.00	0.37	0.37	0.37	0.37	0.00
Sat Flow, veh/h	369	3667	638		0		0	3322	76	965	1810	0
Grp Volume(v), veh/h	311	265	268		0.0		0	111	104	72	315	0
Grp Sat Flow(s),veh/h/ln	1692	1498	1484				0	1719	1589	965	1810	0
Q Serve(g_s), s	1.5	6.9	7.0				0.0	2.6	2.7	3.3	8.0	0.0
Cycle Q Clear(g_c), s	6.8	6.9	7.0				0.0	2.6	2.7	5.9	8.0	0.0
Prop In Lane	0.27		0.43				0.00		0.05	1.00		0.00
Lane Grp Cap(c), veh/h	866	699	692				0	630	583	432	663	0
V/C Ratio(X)	0.36	0.38	0.39				0.00	0.18	0.18	0.17	0.47	0.00
Avail Cap(c_a), veh/h	866	699	692				0	630	583	432	663	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	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.3	10.4	10.4				0.0	12.9	12.9	14.9	14.6	0.0
Incr Delay (d2), s/veh	1.2	1.6	1.6				0.0	0.6	0.7	0.8	2.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	3.1	3.1				0.0	1.3	1.3	1.0	4.4	0.0
LnGrp Delay(d),s/veh	11.5	11.9	12.0				0.0	13.5	13.5	15.7	17.0	0.0
LnGrp LOS	B	B	B					B	B	B	B	
Approach Vol, veh/h		844						215			387	
Approach Delay, s/veh		11.8						13.5			16.8	
Approach LOS		B						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		33.5		26.5				26.5
Change Period (Y+Rc), s		5.5		4.5				4.5
Max Green Setting (Gmax), s		28.0		22.0				22.0
Max Q Clear Time (g_c+I1), s		9.9		5.6				11.0
Green Ext Time (p_c), s		3.3		2.1				1.8

Intersection Summary			
HCM 2010 Ctrl Delay			13.4
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	80	599	145	35	485	0	0	648	70
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.91	0.97		1.00	1.00		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	0	1710	1710	1692	1710	1710	1551	0	0	1582	1710
Adj Flow Rate, veh/h	0	0	0	80	599	145	35	485	0	0	648	70
Adj No. of Lanes	0	0	1	0	2	0	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	1	1	1	11	11	0	0	9	9
Cap, veh/h	0	0	0	156	916	216	109	1146	0	0	1159	125
Arrive On Green	0.00	0.00	0.00	0.43	0.43	0.43	0.87	0.87	0.00	0.00	0.43	0.43
Sat Flow, veh/h		0		202	2156	509	94	2714	0	0	2753	288
Grp Volume(v), veh/h		0.0		471	0	353	270	250	0	0	363	355
Grp Sat Flow(s),veh/h/ln				1627	0	1239	1397	1341	0	0	1502	1460
Q Serve(g_s), s				7.2	0.0	13.7	0.0	2.4	0.0	0.0	10.8	10.9
Cycle Q Clear(g_c), s				13.8	0.0	13.7	2.1	2.4	0.0	0.0	10.8	10.9
Prop In Lane				0.17		0.41	0.13		0.00	0.00		0.20
Lane Grp Cap(c), veh/h				762	0	527	673	581	0	0	651	633
V/C Ratio(X)				0.62	0.00	0.67	0.40	0.43	0.00	0.00	0.56	0.56
Avail Cap(c_a), veh/h				762	0	527	673	581	0	0	651	633
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	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				13.8	0.0	13.9	2.4	2.4	0.0	0.0	12.7	12.7
Incr Delay (d2), s/veh				3.7	0.0	6.7	1.8	2.3	0.0	0.0	3.4	3.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.9	0.0	5.6	1.1	1.1	0.0	0.0	5.1	5.0
LnGrp Delay(d),s/veh				17.6	0.0	20.5	4.2	4.7	0.0	0.0	16.1	16.3
LnGrp LOS				B		C	A	A			B	B
Approach Vol, veh/h					824			520			718	
Approach Delay, s/veh					18.8			4.5			16.2	
Approach LOS					B			A			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		30.5		29.5		30.5		
Change Period (Y+Rc), s		4.5		4.0		4.5		
Max Green Setting (Gmax), s		26.0		25.5		26.0		
Max Q Clear Time (g_c+I1), s		4.4		15.8		12.9		
Green Ext Time (p_c), s		5.6		2.7		4.6		

Intersection Summary	
HCM 2010 Ctrl Delay	14.3
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	150	426	40	0	0	0	0	405	97	128	550	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	1.00		1.00	1.00		0.88	0.97		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1676	1695	1710	0	0	1710	0	1534	1710	1710	1582	0
Adj Flow Rate, veh/h	150	426	40	0	0	0	0	405	97	128	550	0
Adj No. of Lanes	1	2	0	0	0	1	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	1	1	0	0	0	0	13	13	10	10	0
Cap, veh/h	666	1008	94	0	0	0	0	1175	276	272	1024	0
Arrive On Green	0.11	0.11	0.11	0.00	0.00	0.00	0.00	0.52	0.52	1.00	1.00	0.00
Sat Flow, veh/h	1597	2951	275		0		0	2351	535	360	2054	0
Grp Volume(v), veh/h	150	231	235		0.0		0	257	245	298	380	0
Grp Sat Flow(s),veh/h/ln	1597	1610	1616				0	1458	1351	975	1367	0
Q Serve(g_s), s	5.2	8.0	8.1				0.0	6.2	6.4	4.5	0.0	0.0
Cycle Q Clear(g_c), s	5.2	8.0	8.1				0.0	6.2	6.4	10.9	0.0	0.0
Prop In Lane	1.00		0.17				0.00		0.40	0.43		0.00
Lane Grp Cap(c), veh/h	666	550	552				0	753	698	589	706	0
V/C Ratio(X)	0.23	0.42	0.43				0.00	0.34	0.35	0.51	0.54	0.00
Avail Cap(c_a), veh/h	666	550	552				0	753	698	589	706	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.8	21.1	21.1				0.0	8.5	8.6	0.5	0.0	0.0
Incr Delay (d2), s/veh	0.8	2.3	2.4				0.0	1.2	1.4	3.1	2.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	3.9	4.0				0.0	2.7	2.7	1.5	0.6	0.0
LnGrp Delay(d),s/veh	20.6	23.4	23.5				0.0	9.7	9.9	3.6	2.9	0.0
LnGrp LOS	C	C	C					A	A	A	A	
Approach Vol, veh/h		616						502			678	
Approach Delay, s/veh		22.8						9.8			3.2	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		35.5		24.5		35.5		
Change Period (Y+Rc), s		4.5		4.0		4.5		
Max Green Setting (Gmax), s		31.0		20.5		31.0		
Max Q Clear Time (g_c+I1), s		8.4		10.1		12.9		
Green Ext Time (p_c), s		5.7		0.6		5.3		

Intersection Summary			
HCM 2010 Ctrl Delay			11.8
HCM 2010 LOS			B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↰↑↱			↰↑↑			↑↑↱	
Volume (veh/h)	0	0	0	30	461	173	115	420	0	0	369	60
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.94	0.96		1.00	1.00		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	0.90
Adj Sat Flow, veh/h/ln	0	1810	0	1900	1810	1900	1900	1810	0	0	1810	1900
Adj Flow Rate, veh/h	0	0	0	30	461	173	115	420	0	0	369	60
Adj No. of Lanes	0	1	0	0	2	0	0	2	0	0	2	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	5	0	5	5	5	5	5	0	0	5	5
Cap, veh/h	0	635	0	131	774	281	284	852	0	0	973	155
Arrive On Green	0.00	0.00	0.00	0.35	0.35	0.35	0.35	0.35	0.00	0.00	0.35	0.35
Sat Flow, veh/h	0	1810	0	64	2206	801	390	2487	0	0	2835	437
Grp Volume(v), veh/h	0	0	0	387	0	277	259	276	0	0	228	201
Grp Sat Flow(s),veh/h/ln	0	1810	0	1789	0	1282	1230	1564	0	0	1719	1462
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	6.4	2.5	4.9	0.0	0.0	3.5	3.7
Cycle Q Clear(g_c), s	0.0	0.0	0.0	6.3	0.0	6.4	6.2	4.9	0.0	0.0	3.5	3.7
Prop In Lane	0.00		0.00	0.08		0.62	0.44		0.00	0.00		0.30
Lane Grp Cap(c), veh/h	0	635	0	737	0	450	582	554	0	0	609	518
V/C Ratio(X)	0.00	0.00	0.00	0.53	0.00	0.62	0.45	0.50	0.00	0.00	0.37	0.39
Avail Cap(c_a), veh/h	0	990	0	1158	0	755	1359	1536	0	0	1688	1436
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	9.5	0.0	9.6	9.1	9.0	0.0	0.0	8.6	8.6
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.2	0.0	0.5	0.2	0.3	0.0	0.0	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	3.2	0.0	2.3	2.1	2.1	0.0	0.0	1.7	1.5
LnGrp Delay(d),s/veh	0.0	0.0	0.0	9.8	0.0	10.1	9.3	9.3	0.0	0.0	8.7	8.8
LnGrp LOS				A		B	A	A			A	A
Approach Vol, veh/h		0			664			535			429	
Approach Delay, s/veh		0.0			9.9			9.3			8.7	
Approach LOS					A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		18.6		17.0		18.6		17.0
Change Period (Y+Rc), s		6.0		4.5		6.0		* 4.5
Max Green Setting (Gmax), s		35.0		21.0		35.0		* 20
Max Q Clear Time (g_c+I1), s		8.2		8.4		5.7		0.0
Green Ext Time (p_c), s		4.5		2.4		4.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	9.4
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	95	482	100	0	0	0	0	335	10	99	320	0
Number	5	2	12	1	6	16	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	1.00		1.00	1.00		0.77	0.88		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1810	1900	0	0	1810	0	1810	1900	1810	1810	0
Adj Flow Rate, veh/h	95	482	100	0	0	0	0	335	10	99	320	0
Adj No. of Lanes	0	3	0	0	0	1	0	2	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	5	5	5	0	0	5	0	5	5	5	5	0
Cap, veh/h	284	1301	262	0	0	0	0	1441	43	462	814	0
Arrive On Green	0.38	0.38	0.38	0.00	0.00	0.00	0.00	0.45	0.45	0.45	0.45	0.00
Sat Flow, veh/h	525	3393	683		0		0	3293	95	886	1810	0
Grp Volume(v), veh/h	251	212	214		0.0		0	179	166	99	320	0
Grp Sat Flow(s),veh/h/ln	1642	1498	1460				0	1719	1578	886	1810	0
Q Serve(g_s), s	3.1	6.1	6.4				0.0	3.8	3.9	4.6	7.1	0.0
Cycle Q Clear(g_c), s	6.3	6.1	6.4				0.0	3.8	3.9	8.5	7.1	0.0
Prop In Lane	0.38		0.47				0.00		0.06	1.00		0.00
Lane Grp Cap(c), veh/h	712	574	560				0	774	710	462	814	0
V/C Ratio(X)	0.35	0.37	0.38				0.00	0.23	0.23	0.21	0.39	0.00
Avail Cap(c_a), veh/h	712	574	560				0	774	710	462	814	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	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	13.3	13.3	13.4				0.0	10.1	10.1	12.7	11.0	0.0
Incr Delay (d2), s/veh	1.4	1.8	2.0				0.0	0.7	0.8	1.1	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	2.8	2.9				0.0	1.9	1.8	1.3	3.8	0.0
LnGrp Delay(d),s/veh	14.7	15.1	15.3				0.0	10.8	10.9	13.8	12.4	0.0
LnGrp LOS	B	B	B					B	B	B	B	
Approach Vol, veh/h		677						345			419	
Approach Delay, s/veh		15.0						10.9			12.8	
Approach LOS		B						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		28.5		31.5				31.5
Change Period (Y+Rc), s		5.5		4.5				4.5
Max Green Setting (Gmax), s		23.0		27.0				27.0
Max Q Clear Time (g_c+I1), s		9.4		6.8				11.5
Green Ext Time (p_c), s		2.4		3.0				2.8

Intersection Summary			
HCM 2010 Ctrl Delay			13.4
HCM 2010 LOS			B

Appendix 3

Transportation and Parking Demand Management Plan for 1640 Broadway Development in Oakland

Fehr & Peers, Inc.

December 9, 2015

FEHR & PEERS

MEMORANDUM

Date: December 9, 2015

To: Nat Taylor, Lamphier Gregory

From: Bill Burton, Fehr & Peers

Subject: Transportation and Parking Demand Management Plan for 1640 Broadway Development in Oakland

OK15-0054.00

This memorandum consists of the proposed Transportation and Parking Demand Management (TDM) program for the 1640 Broadway development project (Project) in Oakland, which consists of 254 residential units and 6,900 square feet of commercial space.[1] The Project will provide 232 residential parking spaces—parking will not be provided for commercial employees and visitors. Preparation of a TDM plan is a requirement of the City of Oakland's Standard Conditions of Approval (Department of Planning and Building, Bureau of Planning, Revised July 22, 2015 – Section 71). Section 71 of the Standard Conditions of Approval states the following:

> The project applicant shall submit a Transportation and Parking Demand Management (TDM) plan for review and approval by the City. The intent of the TDM plan shall be to reduce vehicle traffic and parking demand generated by the project to the maximum extent practicable consistent with the potential traffic and parking impacts of the project.
>
> The goal of the TDM shall be to achieve the following project vehicle trip reductions (VTR):
>
> - Projects generating 50 to 99 net new AM or PM peak hour vehicle trips: 10 percent VTR
> - Projects generating 100 or more net new AM or PM peak hour vehicle trips: 20 percent VTR

---

[1] It is likely that the final commercial square footage will be about 5,000; however, this study assumes a worst-case condition of 6,900 square feet.

The TDM plan shall include strategies to increase pedestrian, bicycle, transit, and carpool use, and reduce parking demand. All four modes of travel shall be considered, as appropriate. VTR strategies to consider include, but are not limited to, the following:

a) Inclusion of additional long term and short term bicycle parking that meets the design standards set forth in chapter five of the Bicycle Master Plan, and Bicycle Parking Ordinance (chapter 17.117 of the Oakland Planning Code), and shower and locker facilities in commercial developments that exceed the requirement.

b) Construction of and/or access to bikeways per the Bicycle Master Plan; construction of priority Bikeway Projects, on-site signage and bike lane striping.

c) Installation of safety elements per the Pedestrian Master Plan (such as cross walk striping, curb ramps, count-down signals, bulb outs, etc.) to encourage convenient and safe crossing at arterials, in addition to safety elements required to address safety impacts of the project.

d) Installation of amenities such as lighting, street trees, trash receptacles per the Pedestrian Master Plan and any applicable streetscape plan.

e) Construction and development of transit stops/shelters, pedestrian access, way finding signage, and lighting around transit stops per transit agency plans or negotiated improvements.

f) 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).

g) Provision of a transit subsidy to employees or residents, determined by the project sponsor and subject to review by the City, if the employees or residents use transit or commute by other alternative modes.

h) Provision of an ongoing contribution to AC Transit service to the area between the development and nearest mass transit station prioritized as follows: 1) Contribution to AC Transit bus service; 2) Contribution to an existing area shuttle or streetcar service; and 3) Establishment of new shuttle or streetcar service. The amount of contribution (for any of the above scenarios) would be based upon the cost of establishing new shuttle service (Scenario3).

i) Guaranteed ride home program for employees, either through 511.org or through separate program.

j) Pre-tax commuter benefits (commuter checks) for employees.

k) 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.

l) Onsite carpooling and/or vanpooling program that includes preferential (discounted or free) parking for carpools and vanpools.

m) Distribution of information concerning alternative transportation options.

n) 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.

o) Parking management strategies; including attendant/valet parking and shared parking spaces.

p) Requiring tenants to provide opportunities and the ability to work off-site.

q) 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).

r) Provide or require tenants to provide employees with staggered work hours involving a shift in the set work hours of all employees at the workplace or flexible work hours involving individually determined work hours.

The TDM Plan shall indicate the estimated VTR for each strategy proposed based on published research or guidelines. For TDM Plans containing ongoing operational VTR strategies, the Plan shall include an ongoing monitoring and enforcement program to ensure the Plan is implemented on an ongoing basis during project operation. If an annual compliance report is required, as explained below, the TDM Plan shall also specify the topics to be addressed in the annual report.

The project applicant shall implement the approved TDM Plan on an ongoing basis. For projects that generate 100 or more net new AM or PM peak hour vehicle trips and contain ongoing operational VTR strategies, the project applicant shall submit an annual compliance report for the first five years following completion of the project (or completion of each phase for phased projects) for review and approval by the City. The annual report shall document the status and effectiveness of the TDM program, including the actual VTR. If deemed necessary, the City may elect to have a peer review consultant, paid for by the project applicant, review the annual report. If timely reports are not submitted and/or the annual reports indicate that the project applicant has failed to implement the TDM Plan, the project will be considered in violation of the Conditions of Approval and the City may initiate enforcement action as provided for in these Conditions of Approval. The project shall not be considered in violation of this Condition if the TDM Plan is implemented but the VTR goal is not achieved.

In response to this requirement, Fehr & Peers has prepared this TDM program for the Project. The Project is forecast to generate more than 100 new peak hour vehicle trips, thus the measures specified for such projects above are applicable to the Project.

Project Location Means Reduced Auto Trip Generation and Parking Demand

The Project is located in a high-density, transit-rich and pedestrian-friendly neighborhood within Downtown Oakland and along the commercial corridors of Telegraph Avenue and Broadway, as demonstrated by the following characteristics:

- Employment and commercial centers, such as Downtown Oakland and the Telegraph Avenue and Broadway corridors, are within easy walking and biking distance.
- The 19th Street and 12th Street/City Center BART Stations are within easy walking distance (two blocks), providing access to regional destinations and employment centers, including Downtown San Francisco. The walking time from the Project's main entrance to the closest 19th Street BART Station portal is approximately one minute.
- There are 18 bus lines serving close stops along Broadway, including AC Transit's trunk Routes 1/1R, 72/72M/72R, and 51A; local buses; night buses; Transbay buses; and the "Free B," Oakland's free downtown circulator shuttle.

Mandatory Transportation Demand Management Strategies

Site management shall implement the following strategies to limit automobile use and encourage non-automotive travel:

- *Parking Management:* Restrict parking to one parking space per household or less, thereby discouraging multiple car ownership and/or use. Exceptions will only be made for residents with management approved Reasonable Accommodation Requests. A Reasonable Accommodation Request shall need to demonsrate a hardship wherein a household requires more than one vehicle. Examples could include households with two disabled residents requiring vehicles or two income households with both places of work inaccessible via transit. Currently the Project proposes a total of 232 parking spaces for 254 units, with all of the parking dedicated to the residential uses (parking ratio is 0.91 spaces per unit).
- *Unbundle Parking:* Unbundling of parking cost from housing costs shall be a requirement of the Project, and would result in residents paying one price for the residential unit and a separate price for parking, should they opt for a space. The cost of parking can be adjusted such that resident parking demand and supply are in equilibrium.

- *Resident and Employee Education*: Site management shall provide residents and employees information about transportation options. This information would also be posted at central location(s) and be updated as necessary. This information shall include:
    - *Transit Routes*: Promote the use of transit by providing user-focused maps. These maps provide residents and employees with wayfinding to nearby transit stops and transit-accessible destinations, and are particularly useful for those without access to portable mapping applications.
    - *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 City CarShare, by informing residents and employees of nearby car sharing locations and applicable membership information.
    - *Ridesharing:* Provide residents and employees with phone numbers and contact information for ride sharing options including Uber, Rideshare, and Oakland taxi cab services.
    - *Carpooling:* Provide residents and employees with phone numbers and contact information for carpool matching services such as the Metropolitan Transportation Commission's 511 RideMatching.
    - *Guaranteed Ride Home:* Provide information about registering with Guaranteed Ride Home, a service of the Alameda County Transportation Commission that provides reimbursement for transit users' emergency taxi or rental car use in the event of an emergency.
    - *Walking and Biking Events*: Provide information about local biking and walking events, such as Oaklavia, as events are planned.
    - *Bike Share*: When bike sharing systems become available, educate residents and employees about nearby bike sharing station locations and membership information.

Bike Parking: As shown in the **Table 1** below, the proposed Project would provide 16 short-term and 66 long-term bike parking spaces. City Code requires 15 short-term and 66 long-term bike parking spaces.

TABLE 1: PROJECT BIKE PARKING SUPPLY AND CODE REQUIREMENTS

Use	Code Requirement	Supply	Difference
Short Term Bike Parking	15	16	+1
Long Term Bike Parking	66	66	-

Source: Fehr & Peers, 2015.

Auto Parking: **Table 2** summarizes automobile parking demand for the Project. Based on the five-year, 2013 American Community Survey (ACS) data, average automobile ownership in Downtown Oakland[2] is about 0.54 vehicles per unit, which corresponds to peak parking demand of about 137 vehicles for the residents. There could be additional parking demand for the visitors of the residents, which is not captured in the residential parking demand. Commercial uses on the site are expected to generate demand for an additional fifteen vehicles using parking demand rates from the Institute of Transportation Engineers' (ITE) *Parking Generation, 4th Edition* reference. These rates were adjusted using City standard factors for transit, bicycle and walk trips in this portion of the City. Overall, the site is expected to have a parking surplus of approximately 95 residential spaces and a deficit of 15 commercial spaces. Any demand generated by the commercial portions of the site would need to be accommodated in local on-street parking or in other area parking garages that are open to the public.

TABLE 2: PROJECT AUTOMOBILE PARKING SUPPLY AND DEMAND

Use	Units[1]	Parking Demand Rate	Parking Demand	Parking Supply	Difference
Residential	254 DU	0.54[2]	137[4]	232	+95
Commercial	6.9 KSF	2.14[3]	15	0	-15

Notes:
1. DU = dwelling unit.
2. Average automobile ownership per residential unit in Downtown Oakland based on 2013 ACS.
3. ITE Parking Demand, 4th Edition, Land Use Code 820 (Rate = 3.76 spaces/KSF), adjusted by 43% to account for transit, walk and bike trips per City Guidelines
4. This does not take into account potential parking demand for visitors of the residential units.

Source: Fehr & Peers, 2015.

It should be noted that as the Project proposes parking supply in excess of forecast demand, the potential for shared parking arrangements exist. If attended/valet parking were provided, any excess spaces could be used to support the proposed commercial uses.

Table 3 presents the off-street automobile parking requirement for the Project. Based on City of Oakland Municipal Code requirements, the Project would be required to provide 254 parking spaces for the residential use; commercial uses in this portion of the central business district do

[2] Census tracts for Downtown Oakland were selected as tracts 4028, 4029, 4030, and 4031.

not need to provide parking. Since the Project would provide 232 parking spaces, there would be a deficit of 22 parking spaces. The Project would need a Conditional Use Permit to allow the proposed parking deficit.

TABLE 3: PROJECT AUTOMOBILE PARKING SUPLY AND CODE REQUIREMENTS

Use	*Units*[1]	*Code Requirement*
Residential	254 DU	254[2]
Commercial	6.9 KSF	0[3]
Total Parking Required		254
Parking Supply		232
Parking Surplus (Deficit)		**(22)**

Notes:

1. DU = dwelling unit; KSF = 1,000 square feet.
2. City Municipal Code Section 17.116.060 for multi-family dwellings in Zone CBD-P.
3. City Municipal Code Section 17.116.080 for commercial uses in Zone CBD-P.

Source: Fehr & Peers, 2015.

Additional Transportation Demand Management Strategies

The Project should consider the implementation of some or all of the following additional strategies to limit automobile use and encourage non-automotive travel. If the TDM program does not meet the required goals, the implementation of some or all of these measures may become necessary.

- Provide AC transit passes to residents for the first year of their residency, or other specified time period. Passes would be provided on a per resident basis (rather than per unit).
- Many residential developments provide additional TDM measures such as partially or fully subsidizing the cost of transit. Typically, these costs are passed on to tenant in the form of higher rents. A $25.00 Clipper Card could be issued to each household upon the initial move-in.
- Provide a carshare pod within the building or other location in close proximity to the Project (within 800 feet).
- Assign specific parking spaces to tenants who opt to pay for parking spaces and provide flexible parking space terms that allow for termination of the parking space lease during the residential lease term. Assigned parking spaces allows site management to regulate the number of vehicles residents park in the garage, and prevents guests from parking in

spaces dedicated to residents. Without assigned parking, the number of vehicles owned by residents could exceed the number of available spaces.

- Implement variable parking pricing such that each subsequent parking space leased by a unit costs more than the previous space, (i.e., the second parking space is more expensive than the first; the third is more expensive than the second, etc.), and if the percentage of leased parking spaces is higher than the percentage of leased units, the parking price is adjusted until equilibrium is reached. For example, if 90 percent of parking spaces are leased but only 85 percent of units are leased, the monthly cost of parking should be increased such that new tenants opt to lease parking at a lower rate—higher cost—than existing tenants.

- If guest parking is supplied, implement restrictions on the use of guest parking spaces, such as: requiring guest vehicles to be registered with the building management; limiting the number of times the same guest vehicle can park overnight within the garage; limiting the number of guest permits a resident can request per month (strategy could increase on-street demand and would need to be monitored for effectiveness); implementing time restrictions during daytime hours. If guest parking were implemented it would need to be monitored and enforced by building management. Violations of the policy could be subject to resident fines and/or towing.

- Personalized trip planning, in the form of in-person assistance or as a web tool, provides residents and employees with a customized menu of options for commuting. Trip planning reduces the barriers the residents and employees see to making a walk, bike, or transit trip to the site. Transit trip making tools, such as those available from Google or 511.org, could be promoted to inform residents and employees of transit options to/from work. Providing a map of preferred walking routes to residents and employees living within one mile of the site and a map of bicycling routes to all residents and employees living within five miles of the site would be a proactive strategy to encourage those employees to use alternatives to driving.

- Install a bike share station near the entrance of the building.

- Provide a lease to own program for electric bicycles for residents that do not own an automobile. Under such a program the Project would provide the financial backing to allow residents to lease to own electric bicycles which can be considerably more expensive than traditional bicycles.

- Levee a $50 a month surcharge on residential parking with the funds collected being distributed to residents that do not own an automobile to assist them with paying for their alternative modes of travel. Under such a program the Project sponsor would bear no additional costs other than the implementation and monitoring of the fund collection and distribution.

- Implement shared parking strategies to more efficiently make use of the provided spaces. Such strategies could include attendent/valet parking which would enable retail users to park on site. Other shared parking strategies such as tandem parking would provide additional spaces without enlarging the Project's footprint.

- Provide additional long and short term bicycle parking over and above City requirements, and what is currently proposed. Provide shower and locker facilities for the use of the employees of the commerical establishments for those that chose to commute via bicycle.

TDM Program Goals and Requirements

As the Project generates more than 100 net new park hour trips the City's Standard Conditions of Approval require the TDM program to reduce automobile trips by 20 percent. Therefore, this TDM program establishes the following goals:

- Reduce the project automobile mode share by 20 percent. As the Project is forecast to generate 108 AM peak hour and 144 PM peak hour trips, a 20 percent reduction would equate to 22 fewer AM peak hour trips (86 total) and 29 fewer PM peak hour trips (115 total)

Anticipated Vehicle Trip Reduction

Because of its location in an area rich with non-automotive transportation options and nearby amenities, the Project is estimated to generate fewer auto trips and lower parking demand than comparable developments elsewhere. Implementation of an effective TDM program can advance strategies such as transit and car share promotion, bicycle amenities and parking polices that can further decrease usage of the automobile as a primary mode of travel for the developments' residents and employees. In areas with high transit availability exemplary TDM programs have been shown to reduce vehicle trips by about 25 percent. If the mandatory measures do not achieve the required VTR goals, additional measures are to be implemented, as described in the following section.

Monitoring, Evaluation and Enforcement

Consistent with the requirements of the City's Standard Conditions of Approval, this TDM program requires regular periodic evaluation of the program to determine if the program goals in reducing automobile mode share are satisfied and to assess the effectiveness of the various strategies implemented. Site management shall conduct annual travel mode surveys of residents and visitors to monitor the percentage of site trips that are made by driving.

As previously discussed, the goal of the TDM program is to reduce automobile mode share by 20 percent so that the project generate no more than the following:

- 86 total AM peak hour automobile trips
- 115 total PM peak hour automobile trips

Based on the results of the surveys, TDM programs shall be increased if these goals are not met. This program ensures the implementation of the mandatory TDM measures and related requirements through compliance with the Mitigation Monitoring and Reporting Program, as implemented through the Conditions of Approval adopted for the Project. If following the annual monitoring the TDM goals are not satisfied, additional measures shall be implemented until the goal is met. Following the surveys, site management shall prepare and submit an annual report documenting the results, comparison to the TDM program requirements and additional measures to be implemented, if any.

If in two successive years the Project's TDM goals are not satisfied, site management shall prepare and submit for City approval a Corrective Action Plan. The Corrective Action Plan shall detail the additional TDM measures to be implemented on site and their expected modal split reduction.

If, one year after the Corrective Action Plan is implemented, the required automobile mode share reduction target is still not being achieved, or if site management fails to submit a report as described above, or if the reports do not meet City requirements outlined above, the City may, in addition to its other remedies, (a) assess the Project a financial penalty based on the observed reduction in the automobile mode share compared to the target; or (b) refer the matter to the City Planning Commission for scheduling of a compliance hearing to determine whether the Project's approvals should be revoked, altered or additional conditions of approval imposed.

The penalty as described in (a) above shall be determined by assigning a cost to the number of additional automobile trips to be reduced in order to meet the required goal. Assuming the cost per new alternative commuter is $26/day and that there are 261 workdays per year, the annual cost per new alternative commuter is $6,790. The Project shall therefore pay a penalty of $6,790 per year for each trip that should have been using an alternative mode if the 20 percent reduction after completion of the Project had been achieved.

In determining whether a financial penalty or other remedy is appropriate, the City shall not impose a penalty if the Project has made a good faith effort to comply with the TDM program. The City would only have the ability to impose a monetary penalty after a reasonable cure period and in accordance with the enforcement process outlined in Planning Code Chapter 17.152. If a financial penalty is imposed, such penalty sums shall be used by the City solely toward the implementation of the TDM plan.

If in five successive years the project is found to meet the stated TDM goal, additional surveys and monitoring shall be suspended until such a time as the City deems they are needed.

Please contact Bill Burton (925.357.3381) with questions or comments.

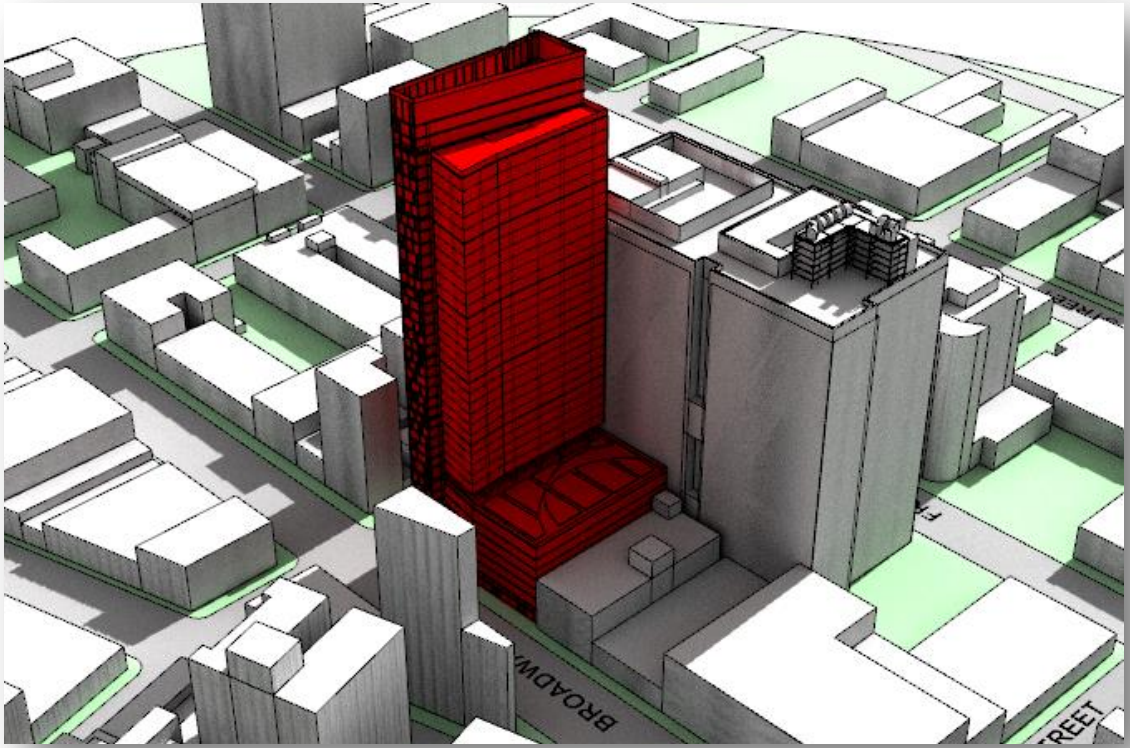
Appendix 4

1640 Broadway, Oakland California -
Sun-Shadow Study

Rowan Williams Davies & Irwin Inc.
September 2, 2015

1640 Broadway
Oakland, CA

Sun-Shadow Study
RWDI # 1502129
September 2, 2015



3D Model of the proposed project and surroundings (View from west)

SUBMITTED TO

Nathaniel Taylor
Senior Planner
Lamphier-Gregory
1944 Embarcadero
Oakland, CA 94606
ntaylor@lamphier-gregory.com

SUBMITTED BY

Rowan Williams Davies & Irwin Inc.
650 Woodlawn Road West
Guelph, Ontario, Canada N1K 1B8
519.823.1311

Neetha Vasan, M.A.Sc., LEED AP
Technical Coordinator
Neetha.Vasan@rwdi.com

Anne McIntosh
Senior Graphics Coordinator
Anne.McIntosh@rwdi.com

Jon Barratt, P.Eng.
Project Manager
Jon.Barratt@rwdi.com

Hanqing Wu, Ph.D., P.Eng.
Project Director
Hanqing.Wu@rwdi.com

1. Introduction

Rowan Williams Davies & Irwin Inc. (RWDI) was retained by Lamphier-Gregory to conduct a Sun-Shadow Study for the proposed 1640 Broadway development in Oakland, CA. The objectives of this study were to illustrate the sun and shadow patterns for various times and dates and to determine the potential exposure to sunlight and shadow on and around the study site.

This study involved the use of a three-dimensional (3D) computer model of the project site with the existing surroundings and the proposed development in place. The 3D model was used to produce renderings of the shadows cast around the project site by the proposed development. The following report provides a discussion of the methodology and graphic results of the Sun-Shadow Study.

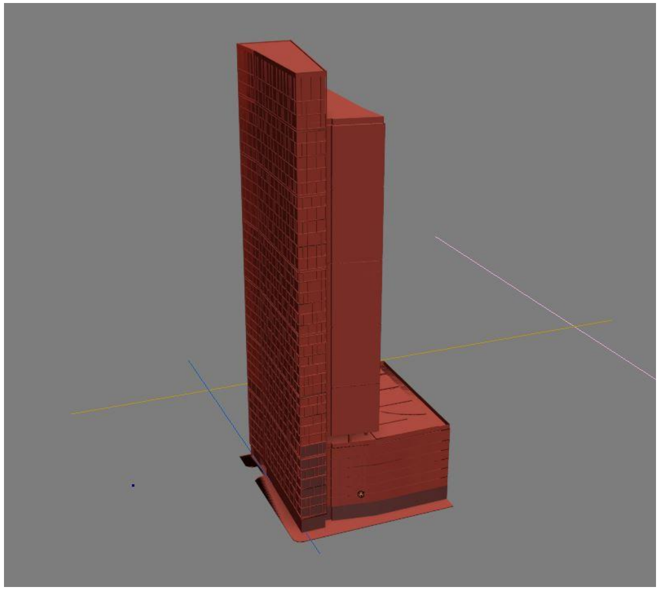


Image 1: 3D-Model of the Proposed Project – View from Northwest
(Courtesy of SCB Architecture)

2. Building and Site Information

The proposed development would be located on the northwest corner of the block bounded by Broadway, 17th Street, Franklin Street and 15th Street, in Oakland, California. The development would be a 32-story tower, that includes a five-story podium, rising to a height of approximately 406 ft. Image 1 shows a 3D model of the project provided by Solomon Cordwell Buenz (SCB) Architecture.

Image 2 shows an aerial view of the site and its immediate surroundings. Currently the site is an unoccupied lot, surrounded by mid-rise and high-rise buildings in the immediate vicinity and low-rise buildings in the distance. Lake Merritt is less than half a mile to the east.

Image 2: Aerial View of Site and Surroundings
(Courtesy of GoogleEarth™)

3. Methodology

The shadow patterns illustrated in this report were generated with the aid of a computer graphics program and are shown in Section 4. A Computer Aided Design (CAD) three-dimensional computer model of the study site was created by our graphics department to reflect the design of the proposed development and its surroundings. The model was prepared in accordance with the architectural information provided by Solomon Cordwell Buenz (SCB) Architecture, received as of July 24, 2015.

The analysis in this study relies on discussion of the magnitude of the shade created by the proposed development. The CAD generated 3D model was incorporated into a computer graphics program with the appropriate settings to simulate the geographic characteristics and solar angles for Oakland. The computer generated renderings exhibit the simulated shadow conditions anticipated to occur in the vicinity of the study site. The tests conducted in this study assume bright sunlight from sunrise to sunset, in order to properly identify shadow patterns created by the proposed structure.

Table 1 identifies the dates and times shadow conditions were simulated. The times listed are either Pacific Standard Time (PST) or Pacific Daylight Saving Time (PDT), whichever is in effect on the dates specified.

Table 1 – Dates and Times Studied

Date	Time
March 21st (PDT)	9:00am, 12:00 noon, 3:00pm
June 21st (PDT)	9:00am, 12:00 noon, 3:00pm, 6:00pm
September 21st (PDT)	9:00am, 12:00 noon, 3:00pm
December 21st (PST)	9:00am, 12:00 noon, 3:00pm

The approximate sunrise and sunset times for the four days of the year studied are included in Table 2 as they may be of interest when assessing the shadow conditions.

Table 2 – Approximate Sunrise and Sunset Times

Date	Sunrise Time	Sunset Time
March 21st (PDT)	7:10am	7:20pm
June 21st (PDT)	5:50am	8:35pm
September 21st (PDT)	6:55am	7:10pm
December 21st (PST)	7:20am	4:55pm

RWDI CONSULTING ENGINEERS & SCIENTISTS

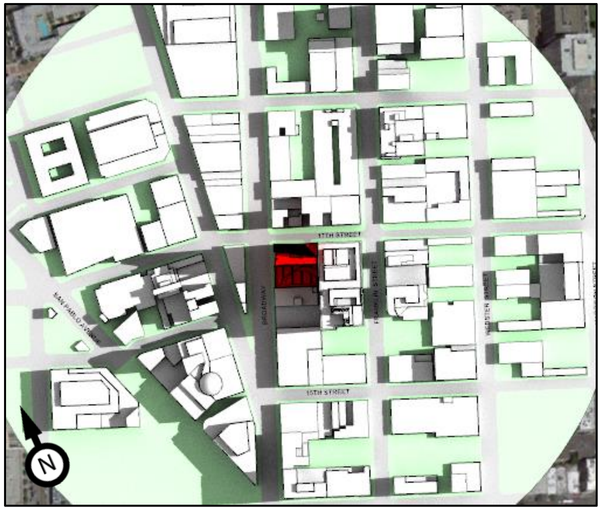
4. Simulation Results – March 21st (PDT)

9:00 am

12:00 noon

3:00 pm

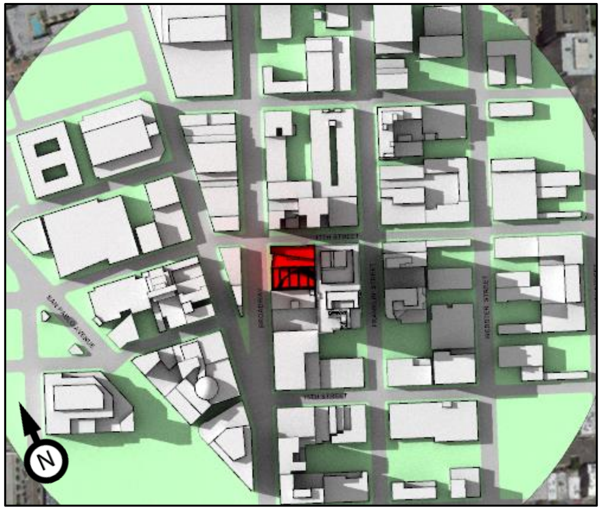
4. Simulation Results – June 21st (PDT)



9:00 am

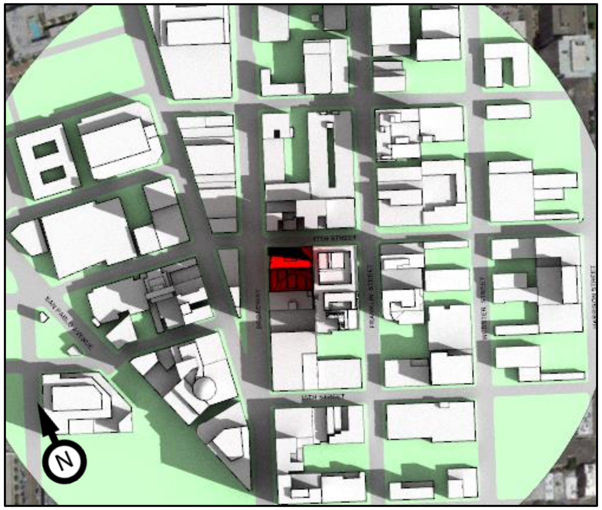
12:00 noon

3:00 pm



6:00 pm

4. Simulation Results – September 21st (PDT)

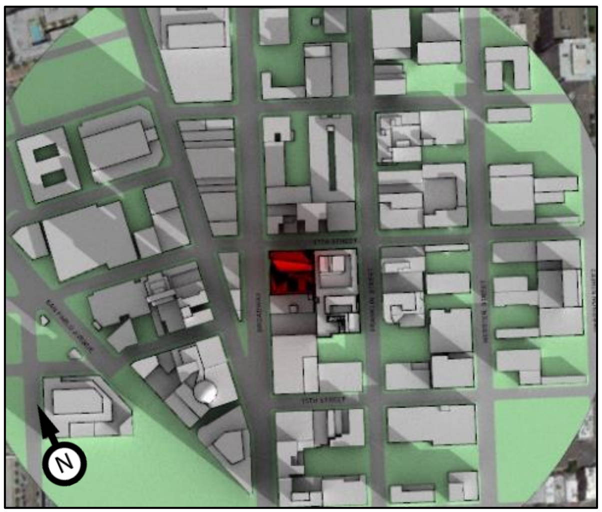


9:00 am

12:00 noon

3:00 pm

4. Simulation Results – December 21st (PST)



9:00 am

12:00 noon

3:00 pm

5. Conclusions

The renderings included in this report illustrate the shadows cast by the proposed conditions for the 1640 Broadway project site. Images have been produced at three prime hours (9 am, 12 noon and 3 pm) on the 21st day of March, September and December and at four prime hours (9 am, 12 noon, 3 pm and 6 pm) on the 21st day of June.

The project is adjacent to other high rise buildings and therefore, shadows cast by the Project overlap those cast by the other buildings at most of the instances simulated. Shadows cast by the Project fall on Broadway at 9 am and on 17th Street at 12 noon to 3 pm on all solstice days. Longest shadows are seen on December 21st at 9 am and 3pm. Shortest shadows are seen in the summer (June 21).

The City of Oakland requires that a building not cast shadows that would substantially impair the beneficial use of any public or quasi-public park, lawn, garden, or open space. Known public open spaces in the vicinity include Frank H. Ogawa Plaza to the southwest and Snow Park to the northeast – both a few blocks away from the Project. Shadows cast by the Project do not extend to these areas. In addition, we are unaware of any buildings with passive solar technology or historical significance that would be impacted by the Project.

6. Applicability of Results

The results presented in this report pertain to the model of the proposed 1640 Broadway project generated using the architectural information received as of July 24, 2015. Should there be any design changes that deviate from this list of drawings, the results presented may change. Therefore, if changes in the design are made, RWDI should be contacted and requested to review the potential effects of the changes on sun/shadow conditions.

Appendix 5

1640 Broadway, Oakland California -
Pedestrian Wind Conditions Consultation, Wind Tunnel Tests

Rowan Williams Davies & Irwin Inc.
December 3, 2015

1640 Broadway
Oakland, California

Final Report

Pedestrian Wind Conditions Consultation
Wind Tunnel Tests
RWDI # 1502129
December 3, 2015

SUBMITTED TO

Nathaniel Taylor
Senior Planner
Lamphier-Gregory
1944 Embarcadero
Oakland, CA 94606
T: (510) 535-6674
ntaylor@lamphier-gregory.com

SUBMITTED BY

Jesse Brydges, B.Eng., E.I.T.
Technical Coordinator
Jesse.Brydges@rwdi.com

Jon Barratt, P.Eng.
Project Manager
Jon.Barratt@rwdi.com

Hanqing Wu, Ph.D., P.Eng.
Project Director
Hanqing.Wu@rwdi.com

TABLE OF CONTENTS

Tables

Figures

Appendices

1. INTRODUCTION

Rowan Williams Davies & Irwin Inc. (RWDI) was retained by Lamphier-Gregory to provide consultation on the Pedestrian Wind Conditions for the 1640 Broadway development in Oakland, California. The purpose of the study was to assess the wind environment around the development in terms of pedestrian wind comfort, and wind hazard relative to wind metrics specified in the City of Oakland Significant Wind Impact Criterion. The study objective was achieved through the wind tunnel testing of a 1:300 (1" = 25') scale model for development scenarios with and without the Project as described below; inferences were drawn from the results of those tests to indicate the likely effect under cumulative conditions:

A – Existing

Existing conditions (e.g existing buildings, trees and topography) within 1.125 feet of the Project site.

B – Existing Plus Project

The Existing Plus Project scenario consists of the Existing conditions, as described in A, the proposed 1640 Broadway Project, inclusive of proposed additional street trees along the fronting property of the 1640 Broadway site and a proposed canopy on the ATT building at the corner of 17^{th} and Franklin Streets.

C – Cumulative

Cumulative conditions consist of the Existing Plus Project scenario plus reasonably forseeable development within 1.125 feet of the Project site (the geographic range of the wind Proximity Model).

The project site is located in Oakland, California. The development site is located at the southeast corner of the intersection of Broadway Street and 17^{th} Street. The proposed tower is approximately 406 feet tall, including the rooftop parapet height. The test model was constructed using the design information and drawings listed in Appendix A.

This report summarizes the methodology of the wind tunnel studies for the pedestrian wind conditions, describes the wind comfort and wind hazard criteria associated with wind force used in the current study, and presents the test results.

The placement for wind measurement locations was based on our experience and understanding of pedestrian usage for this site, and was reviewed by Lamphier-Gregory prior to the wind tunnel test.

2. PRINCIPAL RESULTS

The results of the tests may be summarized as follows:

A. Existing Conditions: There are currently no wind hazard exceedances (i.e. no exceedance of City of Oakland CEQA Thresholds) for Existing Conditions, but there are 14 wind comfort exceedances.

B. Existing Plus Project: The Project is anticipated to reduce the number of wind comfort exceedances and create no wind hazard exceedances (i.e. no CEQA impact).

C. Cumulative: The results of the Existing Plus Project scenario are not expected to change in the Cumulative scenario.[1]

3. METHODOLOGY

3.1 Wind Tunnel Testing

As shown in Figures 1a and 1b, the wind tunnel model includes the project site and all relevant surrounding buildings and topography within a 1125 foot radius of the study site. The mean speed profile and turbulence of the natural wind approaching the modelled area were simulated in RWDI's boundary-layer wind tunnel. The model was instrumented with 37 wind speed sensors to measure mean and gust wind speeds at a full-scale height of approximately 5 ft above grade. These measurements were recorded for 36 equally incremented wind directions.

3.2 Local Climate

Wind statistics recorded at the Metropolitan Oakland International Airport between 1984 and 2014 and between the hours of 7:00 am and 6:00 pm were analyzed for annual wind conditions. Figure 2 graphically depicts the directional distributions of annual wind frequencies and speeds. Winds are frequent from the west-northwest through west-southwest directions throughout the year, as indicated by the wind rose. Strong winds of a mean speed greater than 20 mph measured at the airport (at an anemometer height of 33ft) occur 3.5% of the time annually.

Wind statistics from the Metropolitan Oakland International Airport were combined with the wind tunnel data in order to predict the frequency of occurrence of full-scale wind speeds. The full-scale wind predictions were then compared with the City of Oakland Significant Wind Impact Criterion for pedestrian safety.

[1] Reasonably foreseeable future development projects within 1.125 feet of the Project site (the geographical range of the Wind Proximity Model) consist of recently approved developments at 1900 Broadway and 1700 Webster Street. These projects are located to the north and east of the Project site, respectively, where winds are frequent from the west-northwest through southwest directions. Therefore, based on our professional experience and judgment, these other recently approved projects would not be expected to contribute to wind hazard exceedances at the Project site under the Cumulative scenario.

3.3 CEQA Threshold

For the purposes of this study, the City of Oakland considers a significant wind hazard impact to occur if a project were to "Create winds exceeding 36 mph for more than one hour during daylight hours during the year". A wind analysis is required if the project's height is 100 feet or greater (measured to the roof) and one of the following conditions exists: (a) the project is located adjacent to a substantial water body (i.e. Oakland Estuary, Lake Merritt or San Francisco Bay); or (b) the project is located in Downtown. Since the proposed project exceeds 100 feet in height and is located in Downtown, it is subject to analysis.

The equivalent wind speeds were calculated according to the specifications in the City of Oakland Significant Wind Impact Criterion, whereby the mean hourly wind speed is increased when the turbulence intensity is greater than 15% according to the following formula:

$$\boldsymbol{EWS} = \boldsymbol{V_m} \times (\mathbf{2} \times \boldsymbol{TI} + \mathbf{0.7})$$

where $\boldsymbol{EWS}$ = equivalent wind speed
$\boldsymbol{V_m}$ = mean pedestrian-level wind speed
$\boldsymbol{TI}$ = turbulence intensity

4. TEST RESULTS

Wind speed measurements were taken at 37 locations. Table 1, located in the tables section of this report, presents the wind comfort results for these locations. For each measurement point, the measured 10% exceeded (90th percentile) equivalent wind speed and the percentage of time that the wind speed exceeds 11 mph are shown for areas considered to be used primarily for walking.

Table 2 presents the wind hazard results, and lists the predicted wind speed to be exceeded one hour per year. The predicted number of hours per year that the City of Oakland Significant Wind Impact Criterion (one minute wind speed of 36 mph) is exceeded is also provided.

4.1 Wind Comfort Conditions (non-CEQA Threshold)

For the Existing Conditions (Figure 3a), wind speeds exceeding the 11mph comfort threshold are expected around the project site and along 17th Street to the east of the project site (total of 14 locations, as shown in Table 1). Wind speeds at the remaining areas are considered appropriate. The average wind speed of all 37 locations is 11 mph.

In the Existing Plus Project scenario (Figure 3b), the total number of locations where wind speeds are anticipated to exceed the 11 mph comfort threshold is reduced from 14 in the Existing Conditions to 7. The average wind speed of the 37 locations is predicted to be 10 mph.

4.2 Wind Hazard Conditions (CEQA Threshold)

Of the 37 test locations, there are no locations which are expected to be exposed to wind speeds that exceed the wind hazard criteria of 36 mph in the Existing or the Existing Plus Project scenarios (Figures 4a and 4b). These results are summarized in Table 2.

Wind conditions would be expected to remain below the wind hazard criteria level at the Project site under cumulative conditions, including the presence of planned developments at 1900 Broadway and 1700 Webster Street. Both of these projects are located to the north and east of the 1640 Broadway site, and therefore are not located upwind of the Project under prevailing wind conditions. As such, these new buildings are not expected to contribute to any cumulative pedestrian wind hazard conditions at the Project site.

5. APPLICABILITY OF RESULTS

The results presented in this report pertain to the model of the proposed 1640 Broadway project constructed using the architectural design drawings listed in Appendix A. Should there be design changes that deviate substantially from this list of drawings, (i.e. the building height or width dimension change by more than 15 percent, or if the proposed canopies on the proposed Project and the ATT building are not constructed) the results presented may change. Therefore, if any such substantial changes in the design are made, it is recommended that RWDI be contacted and requested to review their potential effects on wind conditions.

Table 1: Wind Comfort Results
Comfort Criterion Speed = 11 mph

References	A Existing			B Existing Plus Project			
Location Number	Wind Speed Exceeded 10% of Time (mph)	Percent of Time Wind Speed Exceeds 11 mph	Exceeds	Wind Speed Exceeded 10% of Time (mph)	Percent of Time Wind Speed Exceeds 11 mph	Speed Change Relative to Exisiting (mph)	Exceeds
1	14	24	e	11	10	-3	
2	14	22	e	9	5	-5	
3	14	24	e	8	2	-6	
4	13	19	e	14	22	1	e
5	14	25	e	8	2	-6	
6	14	27	e	9	3	-5	
7	14	24	e	7	2	-7	
8	11	10		8	2	-3	
9	14	21	e	12	12	-2	e
10	9	4		9	5	0	
11	8	4		9	5	1	
12	11	10		11	10	0	
13	11	10		9	6	-2	
14	13	18	e	10	8	-3	
15	13	19	e	13	21	0	e
16	11	10		10	6	-1	
17	13	19	e	10	8	-3	
18	15	32	e	12	12	-3	e
19	11	10		12	14	1	e
20	13	20	e	12	12	-1	e
21	9	2		10	6	1	
22	10	6		8	2	-2	
23	9	3		10	7	1	
24	9	4		10	6	1	
25	9	3		8	3	-1	
26	8	2		8	3	0	
27	9	5		9	4	0	
28	9	3		9	4	0	
29	10	6		10	7	0	
30	8	2		8	2	0	
31	11	10		10	6	-1	
32	7	1		11	10	4	
33	9	3		10	5	1	
34	9	4		10	7	1	
35	12	12	e	12	13	0	e
36	7	1		8	2	1	
37	9	4	e	11	10	2	

CONSULTING ENGINEERS & SCIENTISTS

Table 1: Wind Comfort Results
Comfort Criterion Speed = 11 mph

References	A Existing			B Existing Plus Project			
Location Number	Wind Speed Exceeded 10% of Time (mph)	Percent of Time Wind Speed Exceeds 11 mph	Exceeds	Wind Speed Exceeded 10% of Time (mph)	Percent of Time Wind Speed Exceeds 11 mph	Speed Change Relative to Exisiting (mph)	Exceeds
Average Speed, Average % Exceedance, Total Exceedances	**11 mph**	**11 %**	**14 of 37**	**10 mph**	**7 %**	**-1 mph**	**7 of 37**

CONSULTING ENGINEERS & SCIENTISTS

Table 2: Wind Hazard Results
Hazard Criterion Speed = 36 mph

References	A Existing			B Existing Plus Project			
Location Number	Wind Speed Exceeded 1hr/year (mph)	Hours per Year Wind Speeds Exceed Hazard Criteria	Exceeds	Wind Speed Exceeded 1 hour/year (mph)	Hours per Year Wind Speeds Exceed Hazard Criteria	Hours Change Relative to Existing	Exceeds
1	34	0		27	0	0	
2	30	0		26	0	0	
3	29	0		22	0	0	
4	27	0		31	0	0	
5	30	0		22	0	0	
6	32	0		18	0	0	
7	31	0		22	0	0	
8	25	0		21	0	0	
9	36	0		36	0	0	
10	26	0		26	0	0	
11	26	0		28	0	0	
12	30	0		36	0	0	
13	29	0		31	0	0	
14	26	0		26	0	0	
15	28	0		28	0	0	
16	28	0		25	0	0	
17	31	0		32	0	0	
18	35	0		31	0	0	
19	28	0		25	0	0	
20	28	0		29	0	0	
21	18	0		23	0	0	
22	22	0		21	0	0	
23	22	0		26	0	0	
24	21	0		28	0	0	
25	21	0		19	0	0	
26	23	0		22	0	0	
27	27	0		25	0	0	
28	24	0		23	0	0	
29	28	0		29	0	0	
30	19	0		19	0	0	
31	25	0		25	0	0	
32	17	0		25	0	0	
33	20	0		29	0	0	
34	23	0		25	0	0	
35	32	0		31	0	0	
36	20	0		21	0	0	
37	22	0		24	0	0	

Table 2: Wind Hazard Results
Hazard Criterion Speed = 36 mph

References	A Existing			B Existing Plus Project			
Location Number	Wind Speed Exceeded 1hr/year (mph)	Hours per Year Wind Speeds Exceed Hazard Criteria	Exceeds	Wind Speed Exceeded 1 hour/year (mph)	Hours per Year Wind Speeds Exceed Hazard Criteria	Hours Change Relative to Existing	Exceeds
Average Speed, Total Hours, Total Exceedances	**26 mph**	**0 hrs**	**0 of 37**	**26 mph**	**0 hrs**	**0 hrs**	**0 of 37**

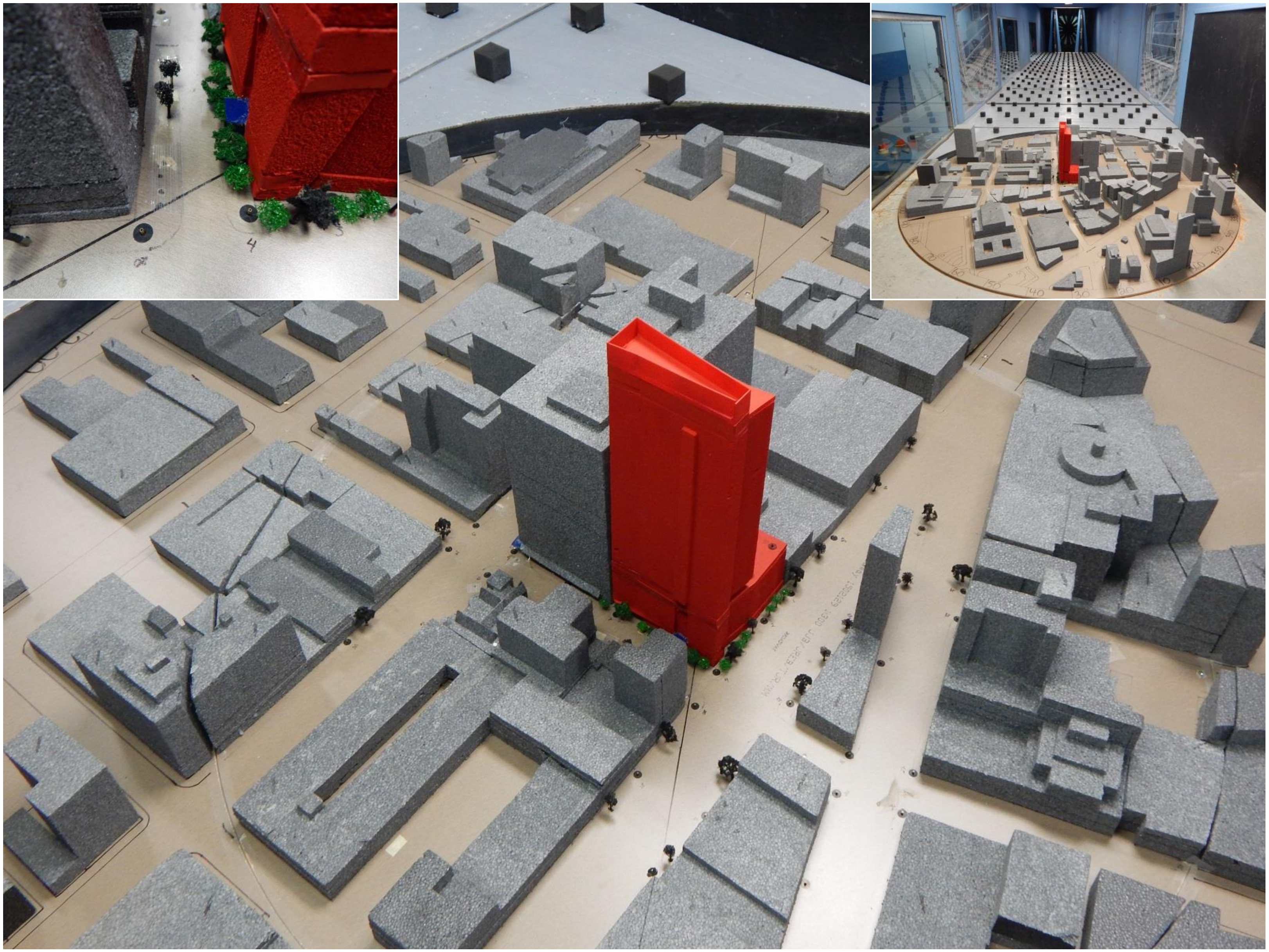
Wind Tunnel Study Model
Existing

1640 Broadway – Oakland, CA

Project #1502129

Figure No. 1a

Date: Nov. 9, 2015

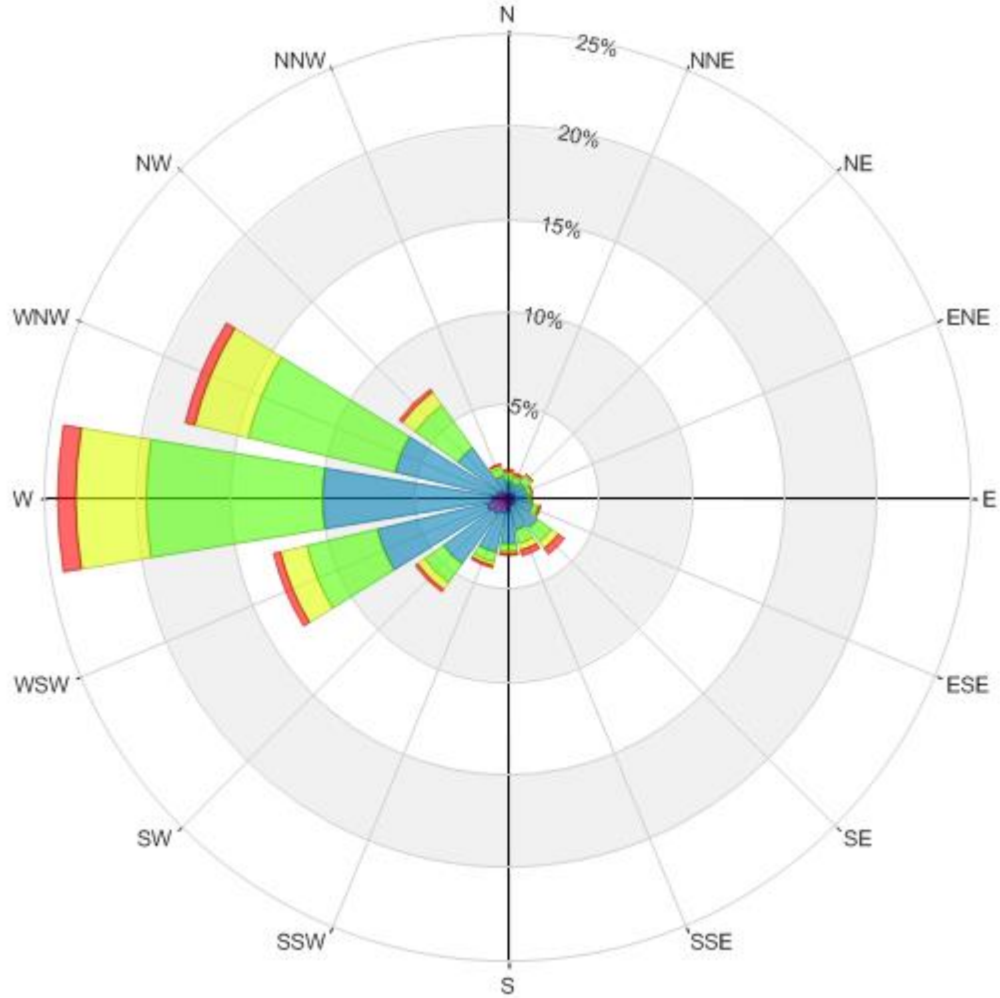


Wind Tunnel Study Model
Existing Plus Project

1640 Broadway – Oakland, CA

Project #1502129

Figure No.	1b
Date: Nov. 9, 2015	



Annual Winds

	Wind Speed (mph)	Probability (%)
	Calm	6.6
(purple)	1-5	9.2
(blue)	6-10	38.9
(green)	11-15	30.4
(yellow)	16-20	11.4
(red)	>20	3.5

Directional Distribution (%) of Winds (Blowing From)
Metropolitan Oakland International Airport (1984 - 2014)
7:00 AM - 6:00 PM
1640 Broadway – Oakland, California

Project #1502129

Figure No. 2

Date: November 17, 2015

RWDI

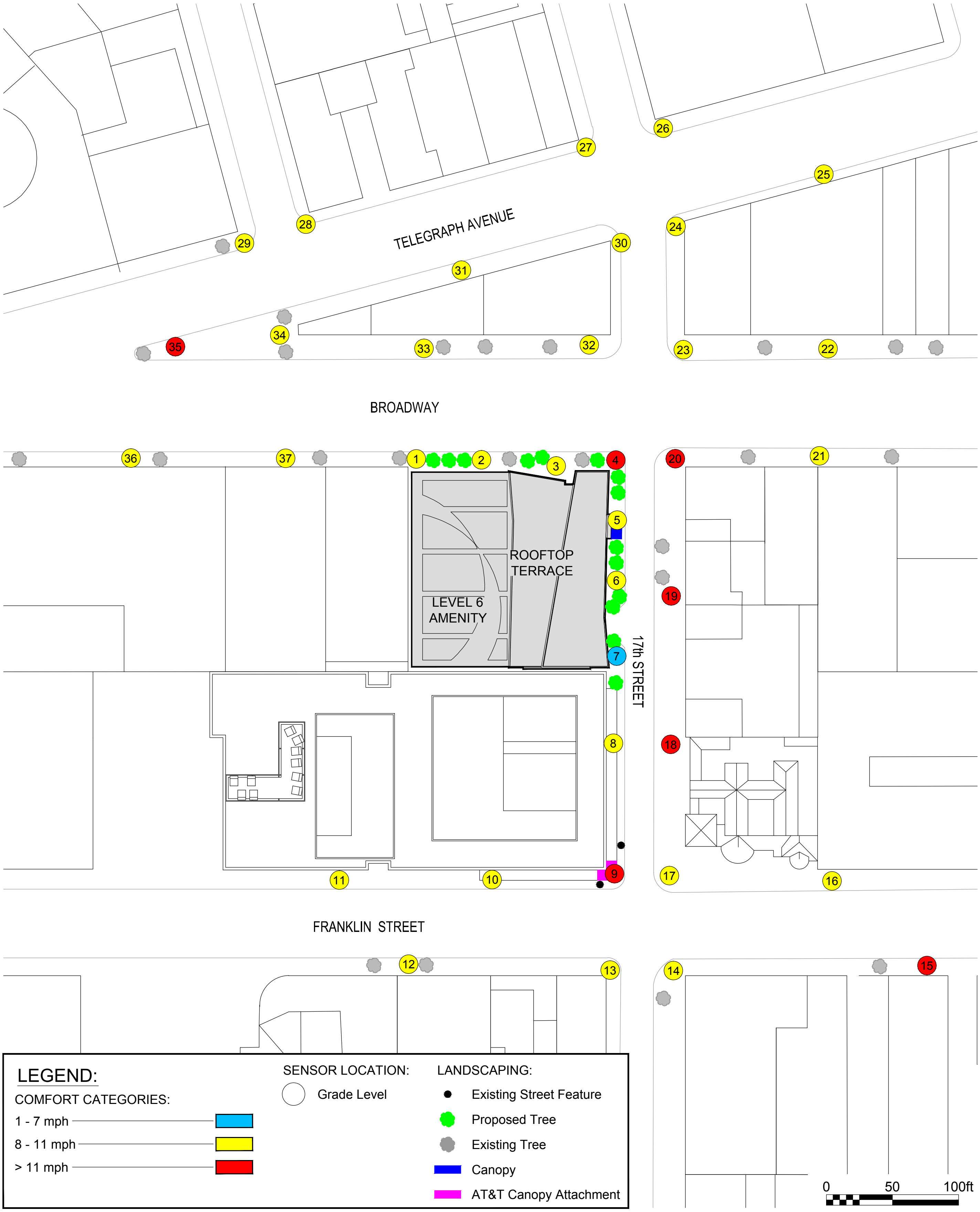
Pedestrian Wind Comfort Conditions - Existing
Annual (January to December)

1640 Broadway - Oakland, CA

Project #1502129

Drawn by: ESM	Figure: 3a
Approx. Scale:	1"=100'
Date Revised:	Sept. 23, 2015

RWDI



Pedestrian Wind Comfort Conditions - Existing Plus Project

Annual (January to December)

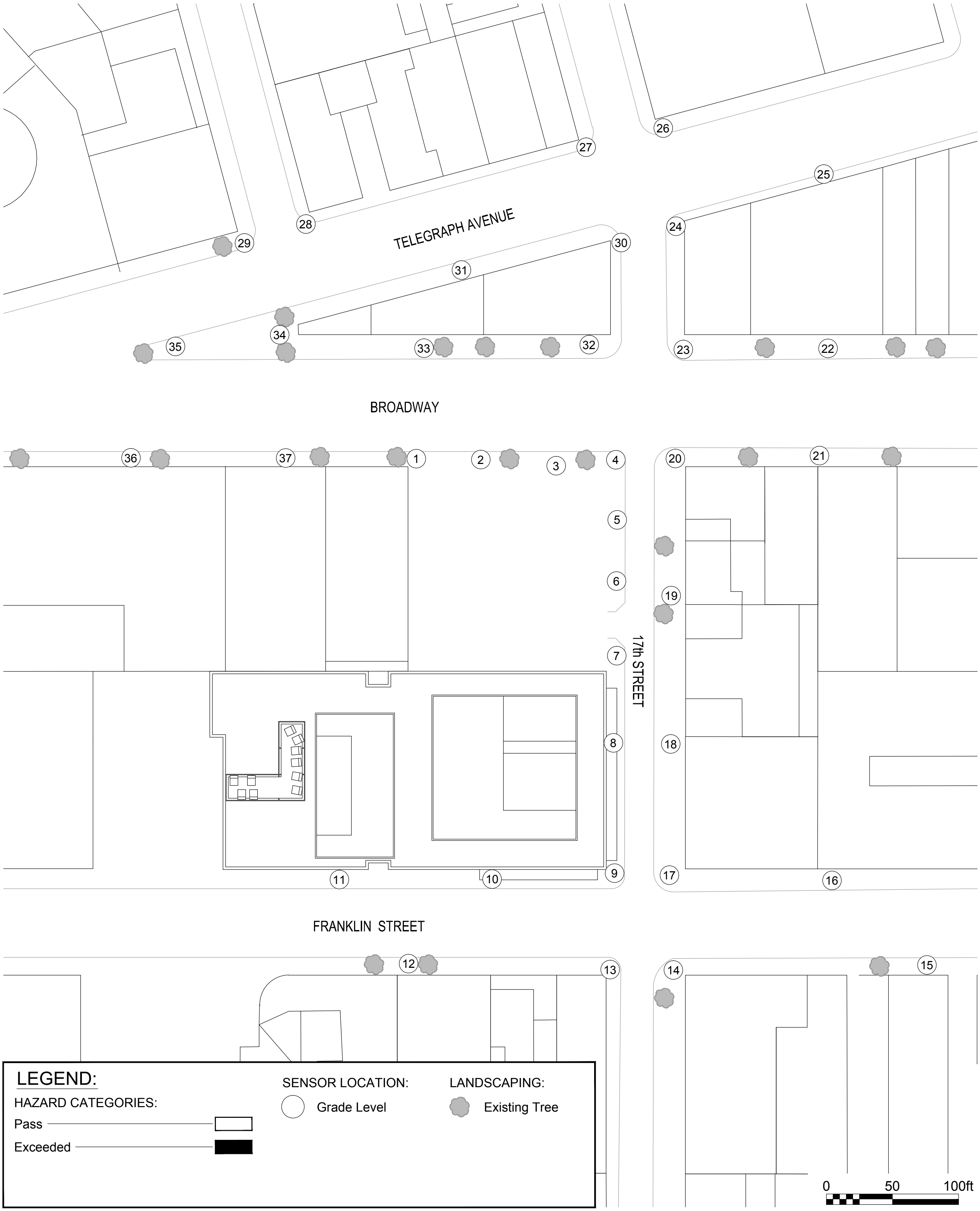
1640 Broadway - Oakland, CA

True North

Project #1502129

Drawn by: ESM	Figure: 3b
Approx. Scale:	1"=100'
Date Revised:	Oct. 28, 2015

RWDI



LEGEND:

HAZARD CATEGORIES:

Pass

Exceeded

SENSOR LOCATION:

Grade Level

LANDSCAPING:

Existing Tree

Pedestrian Wind Hazard Conditions - Existing

Annual (January to December)

1640 Broadway - Oakland, CA

True North

Project #1502129

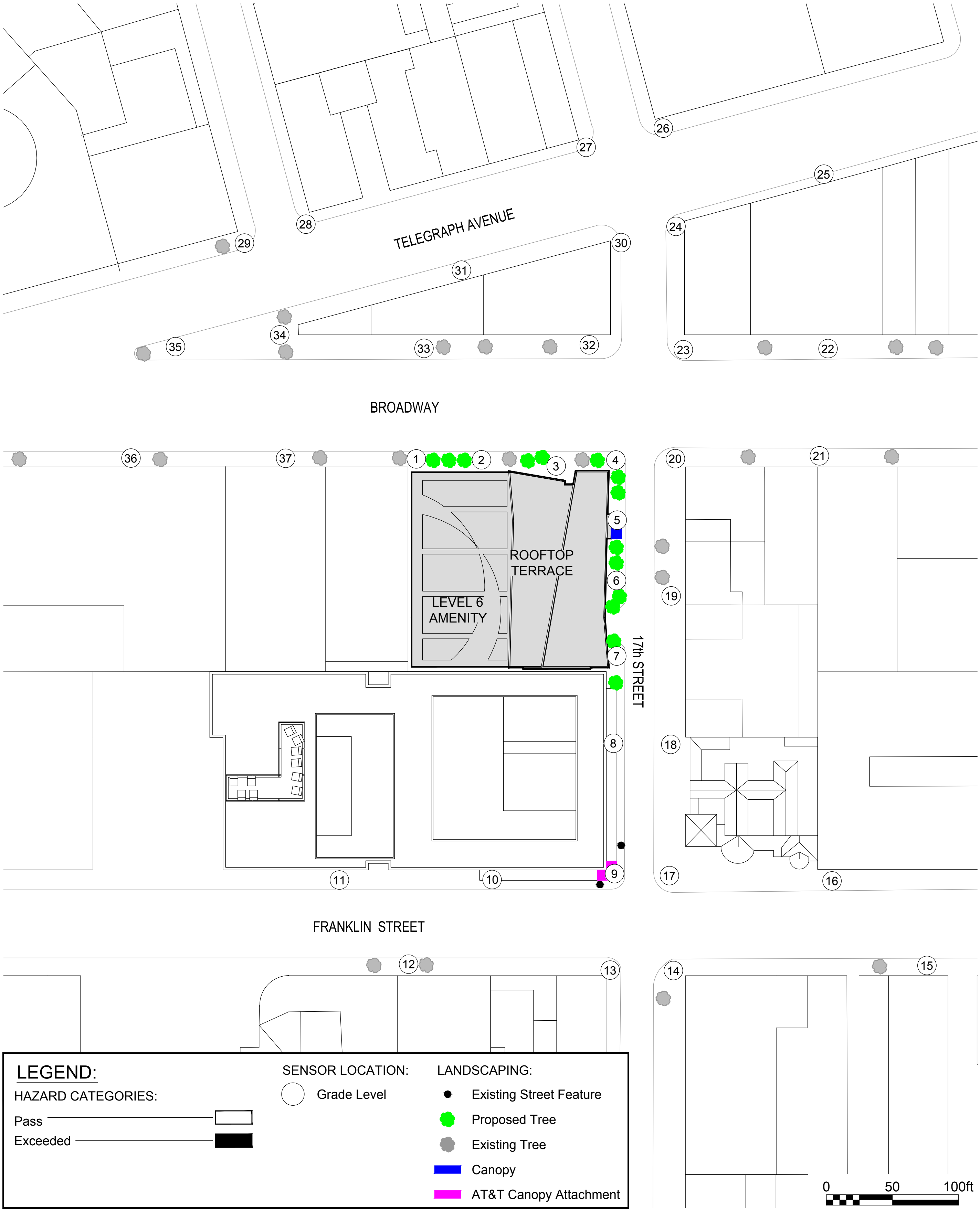
Drawn by: ESM

Figure: 4a

Approx. Scale: 1"=100'

Date Revised: Sept. 23, 2015

RWDI



LEGEND:

HAZARD CATEGORIES:

Pass

Exceeded

SENSOR LOCATION:

Grade Level

LANDSCAPING:

Existing Street Feature

Proposed Tree

Existing Tree

Canopy

AT&T Canopy Attachment

Pedestrian Wind Hazard Conditions - Existing Plus Project

Annual (January to December)

1640 Broadway - Oakland, CA

Project #1502129

True North

Drawn by: ESM	Figure: 4b
Approx. Scale:	1"=100'
Date Revised:	Oct. 28, 2015

RWDI

APPENDIX A: DRAWING LIST FOR MODEL CONSTRUCTION

The drawings and information listed below were received from Lamphier-Gregory and were used to construct the scale model of the proposed 1640 Broadway development. Should there be any design changes that deviate from this list of drawings, the results may change. Therefore, if changes in the design area made, it is recommended that RWDI be contacted and requested to review their potential effects on wind conditions.

Description	File Name	File Type	Date Received (dd/mm/yyyy)
CAD 3-D Model	Plans4SB	CAD	24/07/2015
Canopy Detail	Plans7C_SB_toWind21Aug2015	CAD	21/08/2015
Mitigation Detail	Plans20C_SB_WindStudy_No2	CAD	15/09/2015
Landscape Plan	Fig3a with trees	PDF	17/09/2015
Updated Landscape Plan	2015_1001_Wind Test Diagram	PDF	6/10/2015
Drawings and Renderings	1640 Broadway – 0930 Design Committee	PDF	7/10/2015