ATTACHMENT D
CLASS 32 CATEGORICAL EXEMPTION EVALUATION REPORT

CITY OF PASADENA

CLASS 32 CATEGORICAL EXEMPTION EVALUATION REPORT

Huntington Hospital Medical Office Building Project
758 and 766 S. Fair Oaks Avenue, Pasadena, CA 91103

November 9, 2021

This report evaluates the eligibility of the proposed Huntington Hospital Medical Office Building Project (Project) for a Categorical Exemption from the California Environmental Quality Act (CEQA).

Project Description and Location

The Project site consists of two parcels totaling approximately 0.98-acre (42,682 square feet) and located at the southeast corner of the intersection of South Fair Oaks Avenue and Fillmore Street, in Pasadena, Los Angeles County, California. The Project site is bound by South Fair Oaks Avenue to the west, Fillmore Street to the north, Edmondson Alley to the east, and the Huntington Dialysis Center to the south. See **Figures 1** and **2** for the Regional Location Map and the Project Location Map.

Proposed Project

The proposed Project is a 4-story, 100,285-square-foot office and retail use building consisting of 80,285 square feet (sf) of medical office and ancillary retail uses and 20,000 sf of administrative professional office uses, with three levels of underground parking.

The proposed Project would provide a total of 251 parking spaces, which would include 9vanpool/carpool parking spaces and 2 electric vehicle charging stations. The Project would also provide 17 bicycle parking spaces. Access to the site is provided via two driveways along Fillmore Street. The western driveway allows entrance only and routes vehicles to the drop-off area, while the eastern driveway allows ingress and egress. Both driveways provide access to the driveway ramp to the subterranean parking. The Project development also includes a loading dock at the southeast corner of the property, which would be accessed from Edmondson Alley.

The proposed 4-story building would have a maximum elevation of 56 feet and would be designed in a contemporary style conveying visibility and spaciousness with use of large glass faces, an outdoor plaza area and an oblique building orientation at the property frontage along South Fair Oaks Avenue and Fillmore Street. The design also includes vertical and horizontal articulation features to reduce the appearance of massing, and landscaping along Fair Oaks Avenue and Fillmore Street.

Construction of the proposed Project is planned to begin in June 2022, with anticipated Project occupation in January 2024. Project construction, including demolition, site preparation, and construction, would result in approximately 43,500 cubic yards of soil export.

The proposed Project would require the following discretionary approvals from the City of Pasadena:

- Conditional Use Permit

- Minor Conditional Use Permit for shared parking

Existing Conditions

The Project site is owned by Huntington Hospital (Collis P. & Howard Huntington Memorial Hospital), and the property site is fully developed with a one-story, 18,250-square-foot commercial building and paved surface parking, which are currently used for the Huntington Collection, a resale shop for Huntington Hospital that sells merchandise through consignment and donations.

The Project site does not contain any existing trees, however there are a total of 8 street trees varying in size and maturity within the public right-of-way along Fair Oaks Avenue and Fillmore Street at the Project site. The trees consist of three camphor trees (*Cinnamomum camphora)* and five crape myrtle (*Lagerstroemia indica)*. Of these, one camphor tree is considered mature, and none of the trees are or eligible as native, heritage, or landmark trees. As part of the proposed Project, the street trees would be removed], and any request to remove a public and/or street tree must be reviewed by the Urban Forestry Division in the Public Works Department.

The Project property is zoned Industrial, General (IG), within the South Fair Oaks Specific Plan which accommodates commercial, public and semi-public, residential, industrial, accessory, and temporary uses. Offices, including medical and business, and retail uses are permitted in the IG SP-2 zoning district. The South Fair Oaks Specific Plan requires a conditional use permit for new construction greater than 75,000 square feet in gross floor area. The South Fair Oaks Specific Plan was adopted in April 1998 and an Addendum to the Specific Plan was adopted by the City on January 25, 2016. The Specific Plan area has developed into an area with a focus on medical uses, and currently consist of a variety of medical outpatient, medical diagnostic centers, and the Huntington Memorial Hospital.

The Project site is largely surrounded by medical uses, including the Pasadena Medical Plaza and Optum Urgent Care to the west and southwest, GEM Transitional Care Center (nursing and rehabilitation facility) to the north, a medical treatment and office building to the east, and Huntington Dialysis Center to the south. Other surrounding uses include a vacant lot to the northeast and a fitness center to the southeast. The Project site is located within the Metro Fillmore/Gold Line Station Transit-Oriented Development (TOD) area, as the Fillmore Station is located approximately 300 feet to the east of the Project site, at the T-intersection of Fillmore Street and South Raymond Avenue.

Categorical Exemption

CEQA and the State CEQA Guidelines require the preparation of environmental documents to assess and report the environmental impacts of certain types of projects that could result in adverse effects on the environment. Pursuant to CEQA Section 21084, the CEQA Guidelines (Section 15300 et seq.) also define classes of projects that are found by the Secretary of the California Natural Resources Agency to not have a significant effect on the environment and thus are declared to be categorically exempt from the requirement for the preparation of environmental documents. These types of projects are exempt from CEQA, provided that none of the exceptions to the use of categorical exemptions apply (CEQA Guidelines Section 15300.2).

Among the list of categorically exempt classes of projects is Class 32 In-Fill Development Projects, as defined in CEQA Guidelines Section 15332. Class 32 projects consist of those characterized as infill development meeting the following conditions identified in Section 15332:

(a) the project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations;

(b) the proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses;

(c) the project site has no habitat for endangered, rare, or threatened species;

(d) approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality; and

(e) the site can be adequately served by all required utilities and public services.

The paragraphs below evaluate the Project's satisfaction of these criteria.

Consistency with General Plan Designation and Policies and Zoning Designation and Regulations

As discussed above, the proposed Project consists of a four-story office building consisting of medical office and administrative professional offices, and three levels of subterranean parking. The Project site is located in the South Fair Oaks Specific Plan Industry, General zoning district, and is designated in the General Plan as High Mixed-Use. According to the City of Pasadena Zoning Code Section 17.24.040, office uses, such as those proposed, are allowable uses within the South Fair Oaks Specific Plan zoning designation.

The Pasadena General Plan Land Use Element states that High Mixed-Use designations have a permissible floor area ratio (FAR) of up to 3.0:1. As proposed, the 100,285 square-foot building results in a 2.35 FAR, which is below the 3.0 maximum established by the General Plan.

As mentioned, the Project site is located within the IG-SP2 (Industrial, General, South Fair Oaks Specific Plan) zoning district. According to the Pasadena Zoning Code Section 17.35.050.C (SP-2 Development Incentives, Height Bonus), parcels that abut Fair Oaks Avenue south of Pico Street and which do not abut a residential use are permitted a maximum height of 56 feet. Furthermore, appurtenances covering not more than 25 percent of the roof area may exceed the height limit by a maximum of 15 feet. As proposed, the building would have a height of 56'-0" to the top of the parapet and 71'-0" to the top of the mechanical screen, located on the roof of the proposed building.

The General Plan identifies the South Fair Oaks Specific Plan area as the entrance to the City from the south at the termination of the Historic Arroyo Parkway, 110 Freeway. The Specific Plan's planning area includes the Huntington Memorial Hospital, Art Center College of Design (south campus), and the Fillmore Metro Gold Line station, and is one of the major employment opportunity areas in the City. The General Plan vision for South Fair Oaks capitalizes on the presence of these uses, focusing development adjoining the Fillmore Metro Gold Line Station, such as the proposed Project, and converting underutilized industrial areas for new businesses and job-generating uses leveraged by the medical and creative office uses. The General Plan also states that "areas adjoining the transit station are envisioned to accommodate higher-density mixed use developments incorporating retail, office and housing uses to encourage transit use and walkability."[1] The proposed Project would develop the currently underutilized space to increase employment opportunities near the Fillmore Metro Gold Line Station. The Project would provide administrative professional and medical office uses, and would leverage the existing medical

[1] City of Pasadena. General Plan Section 1, Land Use Element. Page 37, 2016.

services in the Project vicinity to provide additional medical capacity as well as invite other office and retail uses that would increase the diversity of services in the Project area.

The Pasadena Zoning Code identifies off street parking requirements by use classification, with Offices - Medical uses requiring 4 spaces per 1,000 sf of development, Offices - Administrative Business Professional uses requiring 3 spaces per 1,000 sf of development. However, as the Project site is located within the Metro Fillmore/Gold Line Station TOD area, Pasadena Zoning Code requires that the minimum number of required off-street parking spaces for other non-residential uses, such as the medical office use, be reduced by 10 percent, with an optional reduction of up to 20 percent, and that the minimum number of required off-street parking spaces for administrative professional offices use be reduced by 25 percent, with an optional reduction up to 35 percent.

Based on the Pasadena Zoning Code 17.46.040, Table 4-6, and the allowed TOD parking reductions, the Project's proposed 100,285 sf building development with 80,285 sf of medical office and 20,000 sf of administrative professional office uses, would require a minimum of 296 spaces. The project would provide 251 spaces within three levels of subterranean parking, with the remaining required 45 parking spaces to be shared in two adjacent parking facilities: the parking lot at 10 Congress Street, located within 225 feet of the Project site; and the parking structure at 802 Fairmount Ave, located within 630 feet of the Project site. A Minor Conditional Use Permit is required for shared parking.

Therefore, the Project would be consistent with the South Fair Oaks Specific Plan's vision, as well as consistent with the Project site's zoning and General Plan designations and all relevant General Plan policies and zoning regulations.

Consistency with the City of Pasadena Climate Action Plan

The Pasadena Climate Action Plan (CAP), adopted on March 5, 2018, is a strategic framework for measuring, planning, and reducing the City's share of GHG emissions and includes an ambitious goal of reducing emissions by more than half by the year 2035. The purpose of the Pasadena CAP is to analyze GHG emissions at a programmatic-level, outline a strategy to reduce and mitigate municipal and community-wide GHG emissions, demonstrate Pasadena's commitment to achieving the state-wide emissions reduction targets, and serve as a qualified GHG reduction plan consistent with CEQA Guidelines Section 15183.5.

To determine whether new development projects are consistent with the Pasadena CAP, and to ensure that projects are contributing to GHG reductions, the Pasadena CAP Consistency Checklist (Checklist) is used for discretionary projects subject to and not exempt from CEQA. Projects seeking a Class 32 Categorical Exemption from CEQA are also required to demonstrate consistency with the CAP.

The Project's consistency with the Pasadena CAP is analyzed in accordance with Steps 1 through 3 of the Pasadena CAP Consistency Checklist. Step 1 of the Checklist requires the completion of a Master Land Use Application Form. Step 2 of the Checklist requires demonstrating consistency with the Land Use Element of the City of Pasadena General Plan (General Plan), adopted August 18, 2015. Step 3 of the Checklist requires that the Project demonstrate consistency with one of three options: Option A (Sustainable Development Actions), Option B (GHG Efficiency), and/or Option C (Net Zero GHG Emissions). For the purpose of this project, consistency with Option A is utilized. Option A requires implementation of sustainable development actions, as deemed

appropriate by the Pasadena CAP, which would become conditions of the entitlement for approval of a project.

Step 1: Complete a Master Land Use Application Form

In compliance with Step 1, the Project Applicant is required to submit a Master Land Use Application Form to the City.

Step 2: Demonstrate Consistency with the Land Use Element of the General Plan

As discussed above in the General Plan Consistency section, the proposed Project would be consistent with the South Fair Oaks Specific Plan, the Project site's zoning and General Plan designations, and all relevant General Plan policies and zoning regulations. Therefore, the proposed Project is compliant with Checklist Step 2.

Step 3: Demonstrate Consistency with Pasadena's CAP

As discussed above, Option A (Sustainable Development Actions) has been chosen to demonstrate consistency with the Pasadena CAP.

Mandatory Actions

In accordance with Checklist Option A, the City requires a project to implement the Mandatory Actions shown in **Table 1: Pasadena CAP Mandatory Actions**, to be considered consistent with the Pasadena CAP.

Table 1: Pasadena CAP Mandatory Actions

GHG Reduction Strategy	Sustainable Development Actions
T-1.2: Continue to improve bicycle and pedestrian safety	**Bicycle Storage:** Does the project provide bicycle storage lockers, racks, or other bicycle storage facilities for residents/employees?
T-3.1: Decrease annual commuter miles traveled by single occupancy vehicles	**Transportation Demand Management (TDM):** Does the project include a TDM plan? A TDM plan is required for the following projects: multifamily residential development that are 100 or more units; mixed-use developments with 50 or more residential units or 50,000 square feet or more of non-residential development; or non-residential projects which exceed 75,000 square feet.
T-4.1: Expand the availability and use of alternative fuel vehicles and fueling infrastructure	**Alternative Vehicle Fueling Wiring:** For projects with more than three parking spaces, does the project provide wiring for at least one 240V Type II electric car charger?
E-1.2: Encourage the use of energy conservation devices and passive design concepts that make use of the natural climate to increase energy efficiency	**Passive Design Features:** Does the project utilize passive design techniques such as awnings or overhangs on the east, west, and south facing windows which block the high summer sun but allow in lower winter sun?
WC-1.1: Reduce potable water usage throughout Pasadena	**Irrigation Efficiency:** Will the project utilize drought tolerant landscaping and/or drip irrigation and/or weather controllers to reduce outdoor water use?
WR-1.1: Continue to reduce solid waste and landfill GHG emissions	**Facilitate Recycling:** Does the project include a space for separate trash and recycling bins as well as provide informational signage/handouts for residents/employees outlining materials to be recycled?

Source: City of Pasadena, *Pasadena Climate Action Plan Appendix D, Climate Action Plan Consistency Checklist*, adopted March 5, 2018.

The Proposed Project would include the following sustainable design features that would satisfy the Mandatory Actions shown in **Table 1**:

- **T-1.2:** Bicycle Storage – The proposed Project would provide 17 bicycle spots, which meet the City's development standards for bicycle parking, provided to employees and visitors (PMC 17.46.320).
- **T-3.1:** Travel Demand Management (TDM) Plan – In accordance with PMC Section 17.46.290, Trip Reduction Requirements for Residential and Nonresidential, nonresidential projects that exceed 75,000 sf must submit a TDM Program Plan as required by Chapter 10.64 of the PMC. Therefore, as a nonresidential project exceeding 75,000 square feet, the proposed Project would be required by Code to include a TDM plan and would thereby satisfy this action.
- **T-4.1:** Alternative Vehicle Fueling Wiring – In accordance with Section 5.106.5.2 of the 2019 California Green Building Code (CalGreen), nonresidential new projects that add 10 or more vehicular parking spaces are required to provide designated parking for any combination of low-emitting, fuel efficient and carpool/van pool vehicles. The proposed Project would add more than 10 vehicle parking spaces and, therefore, would be required to provide at least 8 percent (19 spaces) of the total 252 spaces for clean air vehicles. The Project would exceed the required 8 percent of the spaces by providing 31 carpool/van pool spaces and 2 electric vehicle charging stations. Therefore, by complying with the CalGreen code, the proposed Project would satisfy this action.
- **E-1.2:** Passive Design Features – The proposed Project will be designed with the sun orientation in mind, creating opportunities for natural light and ventilation with window location, operability and shading orientation. The proposed Project includes passive design features such maximizing north-facing windows that receive less direct sunlight, and implementing overhangs and recessed windows facing west that block the high summer sun.
- **WC-1.1:** Drought-Tolerant Landscaping – In accordance with the City's development code, the proposed Project would include drought tolerant landscaping and weather controllers to reduce outdoor water use (PMC 17.44.050).
- **WR-1.1:** Facilitate Recycling – In accordance with PMC Section 17.40.120 - Refuse Storage Facilities, the proposed Project is required to include a space for separate trash and recycling bins. Additionally, the solid waste collector would provide informational handouts to its customers every six months (PMC 8.61.175). Therefore, by complying with the Municipal Code, the proposed Project would satisfy this action.

Selective Actions

In addition to the Mandatory Actions outlined in **Table 1**, the Project would also be required to implement Selective Actions consistent with Checklist Option A. Selective Actions are classified into five categories: Energy Efficiency and Conservation, Sustainable Mobility and Land Use, Water Conservation, Waste Reduction, and Urban Greening. Examples of Selective Actions include renewable energy, bike and car sharing, rainwater capture and reuse, on-site composting, and public greenspace, among others.

In accordance with Checklist Option A, the Project would be required to include, at a minimum, the following Selective Actions:

- One additional action in the Energy Efficiency and Conservation category;
- One additional action in the Sustainable Mobility and Land Use category; and
- Three additional actions from any category.

The potential Selective Actions from Checklist Option A are shown in **Table 2: Pasadena CAP Selective Actions.**

Table 2: Pasadena CAP Selective Actions

GHG Reduction Strategy	Sustainable Development Actions
ENERGY EFFICIENCY AND CONSERVATION	
E-1.1: Increase energy efficiency requirements of new buildings to perform better than the 2016 Title 24 Standards	**Zero-Net Energy (ZNE):** Does the project generate 100% of electricity required on site?
	Energy Efficiency (Exceed 2016 Title 24): Does the project exceed the 2016 Title 24 Efficiency Standards by at least 5%?
E-4.1: Increase city-wide use of carbon neutral energy by encouraging and/or supporting carbon-neutral technologies	**Renewable Energy:** Does the project generate at least 60% of the building's projected electricity needs through renewable energy?
SUSTAINABLE MOBILITY AND LAND USE	
T-1.1: Continue to expand Pasadena's bicycle and pedestrian network	**End-of-Trip Bicycle Facilities (Commercial Development):** Does the project provide at least one shower for every 50 employees?
	Bike Share: Does the project include a bike share station? Please include these specifications on the project plans.
T-3.1: Decrease annual commuter miles traveled by single occupancy vehicles.	**Car Sharing:** Does the project provide/facilitate car sharing by providing a designated car share space on or within the immediate vicinity of the project site? Examples of car share options include ZipCar, PitCarz, and Getaround. Please include these specifications on the project plans
	Parking De-Coupling: Does the project separate the cost of parking from the cost of commercial space and/or residential housing by charging for each individually? Please include these specifications on the project plans
	Transportation Demand Management (TDM): Does the project include a TDM plan? Please submit the TDM plan for review (Note: this measure cannot be combined with the mandatory measure that requires a TDM plan for projects that meet certain size thresholds.)
T-4.1: Expand the availability and use of alternative fuel vehicles and fueling infrastructure.	**Alternative Vehicle Fueling Infrastructure:** Does the proposed project include functioning 240V Type II electric car chargers at 3% of parking spaces (at least one charger) AND conduit to allow for future charger installation to 25% of spaces?
T-5.1: Facilitate high density, mixed-use, transit-oriented, and infill development.	**Transit Oriented Development:** Is the project located within 0.25 mile of a major transit stop as defined in the Zoning Code. Please include a map outlining the nearest transit stop.
T-6.1: Reduce GHG emissions from heavy duty construction equipment and vehicles.	**Reduce GHG emissions from heavy-construction equipment:** Will the project utilize at least 30% alternative fueled construction equipment (by pieces of equipment) and implement an equipment idling limit of 3 minutes? Please provide idling limit plan including implementation strategies along with the total pieces of equipment and those utilizing alternative fuels.
WATER CONSERVATION	
WC-1.1: Reduce potable water use throughout Pasadena.	**Indoor Water Efficiency:** Will the project achieve at least a 35% reduction in indoor water use per the LEED V4 Indoor Water Use Reduction Calculator? Please attach the calculator output.
WC-2.1: Increase access to and use of non-potable water.	**Rainwater Capture and Reuse:** Does the project utilize a rainwater capture and reuse system to reduce the amount of potable water consumed on site? Please include these specifications on the project plans.
	Indoor & Outdoor Recycled Water: Will the project be plumbed to utilize recycled water for either indoor or outdoor water use? Please include these specifications on the project plans.
	Greywater: Will the project be plumbed to take advantage of greywater produced on site such as a laundry to landscape

GHG Reduction Strategy	Sustainable Development Actions
	system or another on-site water reuse system? Please include these specifications on the project plans.
WC-3.1: Improve storm water to slow, sink, and treat water run-off, recharge groundwater, and improve water quality.	**Permeable Surfaces:** Is at least 30% of the hardscape (e.g., surface parking lots, walkways, patios, etc.) permeable to allow infiltration? Please include these specifications on the project plans.
	Stormwater Capture: Is the project designed to retain stormwater resulting from the 95th percentile, 24 hour rain event as defined by the Los Angeles County 95th percentile precipitation isohyetal map?
WASTE REDUCTION	
WR-1.1: Continue to reduce solid waste and landfill GHG emissions.	**Recycled Materials:** Does the project utilize building materials and furnishings with at least 50% (pre- or post-consumer) recycled content or products which are designed for reuse? At a minimum, projects must show at least 10% of the material by cost meets the recycled content requirement? Please submit the plan for review.
WR-3.1: Implement a city-wide composting program to limit the amount of organic material entering landfills.	**On-Site Composting:** Does the project include an area specifically designated for on-site composting? Please include these specifications on the project plans.
URBAN GREENING	
UG-1.1: Continue to preserve, enhance, and acquire additional green space throughout Pasadena to improve carbon sequestration, reduce the urban heat-island effect, and increase opportunities for active recreation.	**Greenspace:** Does the project include at least 500 sq. ft. of public use greenspace (landscaped yards, parklets, rooftop garden, etc.)? At a minimum, 50% of the required greenspace must include softscape landscaping (e.g., trees, plants, grass, etc.).
UG-2.1: Continue to protect existing trees and plant new ones to improve and ensure viability of Pasadena's urban forest	**Trees:** Does the project result in a net gain of trees? Please include these specifications on the project plans.

Source: City of Pasadena, *Pasadena Climate Action Plan Appendix D, Climate Action Plan Consistency Checklist*, adopted March 5, 2018.

The proposed Project would incorporate the following five sustainable design features that would satisfy the Selective Actions criterion discussed above for Checklist Option A:

Energy Efficiency and Conservation

- **E-1.1**: Energy Efficiency (Exceed 2016 Title 24) – The proposed Project includes energy efficiency features including use of rooftop photovoltaic solar panels, and would exceed 2019 Title 24 by 5 percent. Since 2019 Title 24 efficiency standards exceed the 2016 Title 24 standards by 30 percent, the proposed Project would meet and exceed this action.

Sustainable Mobility and Land Use

- **T-3.1:** Car Sharing -- The Project would facilitate car sharing by providing dedicated carpool/vanpool parking spaces on the Project site.

- **T-5.1:** Transit Oriented Development – The State CEQA Guidelines defines a major transit stop as "a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods." The proposed Project is located approximately 400 feet (0.08 mile) from the Fillmore Metro Station of the Metro L (Gold) Line located at the intersection of Fillmore Street and Raymond Avenue. Additionally, LA Metro and Pasadena Transit (PT) provide public bus services to the Project area. The locations of public bus stops near the Project site are the following:

    - Fair Oaks Avenue at Del Mar Boulevard, northeast corner: Metro 260 and 267

- Fair Oaks Avenue at Del Mar Boulevard, southwest corner: PT 20 and 51; Metro 260
- Fair Oaks Avenue at California Boulevard, northeast corner: PT 20; Metro 260
- Fair Oaks Avenue at Del Mar Boulevard, southwest corner: PT 20 and 51; Metro 260
- Fair Oaks Avenue at Glenarm Street, northeast corner: PT 20; Metro 260
- Fair Oaks Avenue at Glenarm Street, southeast corner PT 20
- Raymond Avenue at California Boulevard, northeast corner: PT 51 and 52
- Raymond Avenue at Fillmore Street, northeast corner: PT 51 and 52; Metro Goldline
- Raymond Avenue at Glenarm Street, northeast corner: PT 51 and 52
- Arroyo Parkway at California Boulevard, southeast and southwest corners: PT 20

Given the proximity of multiple transit stops and transit lines near the Project site, including the Metro Fillmore Station and transit lines with 15 minute or less service intervals during the peak hours, the proposed Project satisfies this action.

- **UG-1.1:** Greenspace -- The proposed Project would provide more than 500 sf of greenspace. The Project would be designed with of 6,413 sf of landscaped area, including 3,000 sf of open space, which includes a landscaped 1,240 sf outdoor plaza area and rooftop garden terraces on the building, as shown on the conceptual landscape plans.

- **UG-2.1:** Trees -- The Project would result in a net gain of trees. The Project site contains 8 existing street trees. As proposed, the Project would have approximately 21 street trees and 8 trees on the site, which are shown on the conceptual landscape plans.

As discussed above, the proposed project includes sustainable design features that would satisfy the requirements for Pasadena CAP Consistency Checklist Option A. As part of the City's normal design review and plan check process, the City will verify that final Project design plans comply with the Mandatory Actions and Selective Actions identified above. As such, the Project would be consistent with the Pasadena CAP.

<u>Project Location within City Limits on a Site no more than 5 Acres Substantially Surrounded by Urban Uses</u>

The Project site is located in an urbanized and developed area within the southwestern portion of the City of Pasadena. The approximately 0.98-acre (42,682-square-foot) site is surrounded by medical uses, including the Pasadena Medical Plaza and Optum Urgent Care to the west and southwest, GEM Transitional Care Center (nursing and rehabilitation facility) to the north, a medical treatment and office building to the east, and Huntington Dialysis Center to the south. Other surrounding uses include a vacant lot to the northeast and a fitness center to the southeast. As such, the Project site is within the Pasadena City limits, located on a site that is less than 5 acres in size, and is substantially surrounded by urban land uses. Therefore, the Project is consistent with this condition.

<u>Habitat for Endangered, Rare, or Threatened Species</u>

The Project site does not contain any habitat that is biologically sensitive as the site is fully developed by the existing building and surface parking. Further, the Project site is located in an urbanized, built-out portion of the City, and is completely surrounded by development. The Project site is covered with pavement and buildings, with approximately 8 street trees and landscaping along Fair Oaks Avenue and Fillmore Street.

The California Department of Fish and Wildlife's California Natural Diversity Database (CNDDB) records indicated that there have been endangered, rare, or threatened species identified in the

Pasadena Quadrangle, which encompasses the Project site.[2] However, the Project site neither contains any Critical Habitat, as delineated by the US Fish and Wildlife Service, nor contains suitable habitat necessary to support sensitive species. Additionally, the Project site is not identified by the City of Pasadena as a biologically sensitive area[3], nor does it contain any wetland or riparian habitat as identified by the National Wetlands Inventory. [4]

Therefore, because Project-related demolition and construction activities would take place on a site that has been disturbed by existing commercial uses and past construction activities, and because the Project Site is located within a fully urbanized environment that is surrounded by disturbed areas (such as a sidewalks, residential homes, commercial uses, overhead powerlines and streetlights, and major arterial streets), implementation of the Proposed Project would not result in loss of habitat utilized by endangered, rare, or threatened species.

<u>Effects Relating to Traffic, Noise, Air Quality, or Water Quality</u>

Traffic

The analysis provided in this section is based on the Transportation Impact Analysis, CEQA Evaluation for 758 & 766 South Fair Oaks Avenue prepared for the proposed Project by the City of Pasadena's Department of Transportation, as provided in **Appendix A** of this report.[5]

As mentioned, the proposed Project is bound by Fair Oaks Avenue to the west, Fillmore Street to the north, Edmondson Alley to the east, and an existing medical treatment facility (Huntington Dialysis Center) to the south.

Fair Oaks Avenue is a north/south City Connector with two through travel lanes in each direction and turn lanes at key intersections. It has a speed limit of 35 miles per hour (mph) and is classified as Commercial – Suburban between California Boulevard and Congress Street, Commercial – Suburban between Congress Street and Arlington Drive, and Commercial – Urban between Arlington Drive and Glenarm Street in the City's Street Design Guide. Fillmore Street is an east/west Access Road between Fair Oaks Avenue and Marengo Avenue bisected by the Metro L (Gold) Line east of Raymond Avenue. Parking is allowed along Fillmore Street. Edmondson Alley is a north/south alley that serves as the easterly boundary of the project and provides local access to various land uses.

Access to the site is provided via two driveways along Fillmore Street. The western driveway allows entrance only and routes vehicles to the drop-off area, while the eastern driveway allows ingress and egress. Both driveways provide access to the driveway ramp to the subterranean parking.

Project analyses are based on the City of Pasadena's Transportation Impact Analysis Guidelines. Proposed projects are analyzed using the City's calibrated travel demand forecasting model (TDF) built on Southern California Association of Governments' (SCAG) regional model. The City's TDF model uses TransCAD software to simulate traffic levels and travel patterns for the City of Pasadena.

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[2] California Department of Fish and Wildlife, CNDDB Quad Species List, Pasadena Quadrangle. Accessed October 20, 2021.

[3] City of Pasadena. Pasadena General Plan Draft Environmental Impact Report. Figure 5.3-2, Sensitive Areas Designated for Development. January 2015.

[4] US Fish and Wildlife Service. National Wetlands Inventory, Wetlands Mapper (www.fws.gov.wetlands/Data/Mapper.html). Accessed October 20, 2021.

[5] City of Pasadena. Transportation Impact Analysis, CEQA Evaluation for 758 & 766 South Fair Oaks Avenue. September 29, 2021.

Projects with proposed land uses that are consistent with the General Plan and complementary to their surrounding land uses are expected to reduce the trip length associated with adjacent land uses and/or increase the service population access to pedestrians, bike, and transit facilities if the project is within a quarter mile of those facilities.

The City of Pasadena has five metrics with impact thresholds that determine significance pursuant to CEQA. These thresholds of significance are displayed in **Table 3** below and are further described in the included Transportation Impact Analysis prepared for the proposed Project.

Table 3
City of Pasadena CEQA Thresholds of Significance

Metric	Description	Impact Threshold
1. VMT (vehicle miles traveled) Per Capita	VMT in the City of Pasadena per service population (population + jobs).	CEQA Threshold: An increase over existing Citywide VMT per capita of 22.6.
2. VT (vehicle trips) Per Capita	VT in the City of Pasadena per service population (population + jobs).	CEQA Threshold: An increase over existing Citywide VT per capita of 2.8.
3. Proximity and Quality of Bicycle Network	Percent of service population (population + jobs) within a quarter mile of bicycle facility types.	CEQA Threshold: Any decrease in existing citywide 31.7% of service population (population + jobs) within a quarter mile of Level 1 & 2 bike facilities.
4. Proximity and Quality of Transit Network	Percent of service population (population + jobs) located within a quarter mile of transit facility types.	CEQA Threshold: Any decrease in existing citywide 66.6% of service population (population + jobs) within a quarter mile of Level 1 & 2 transit facilities.
5. Pedestrian Accessibility	The Pedestrian Accessibility Score uses the mix of destinations and a network-based walk shed to evaluate walkability.	CEQA Threshold: Any decrease in the Citywide Pedestrian Accessibility Score.

Source: City of Pasadena, Pasadena Department of Transportation, *Transportation Impact Analysis, CEQA Evaluation, 758 & 766 South Fair Oaks Avenue*. September 29, 2021.

Based on the Project's vehicular and non-vehicular trip-generating characteristics, trip length, and its interaction with other surrounding/Citywide land uses, as well as the City's transportation network, the Project would not exceed any adopted CEQA thresholds of significance, as shown in **Table 4**, below.

Therefore, the analysis conducted by the City of Pasadena's Department of Transportation determined that demolition of existing structures and the construction of the proposed Project located at the southeast corner of South Fair Oaks Avenue and Fillmore Street would not exceed any of the CEQA thresholds outlined in the City's guidelines. As such, impacts would be less than significant, and no mitigation measures are required.

Table 4
Transportation Performance Metrics Summary and Significance Determination

Transportation Performance Metrics	Significant Impact Cap (Existing)	Incremental Change (Existing + Project)	Significant Impact?
VMT Per Capita	>22.6	22.3	No
VT Per Capita	>2.8	2.1	No
Proximity and Quality of Bicycle Network	<31.7%	31.8	No
Proximity and Quality of Transit Network	<66.6%	66.7	No
Pedestrian Accessibility	<3.9	3.9	No

Notes: VMT = Vehicle Miles Traveled, VT = Vehicle Trips
Source: City of Pasadena, Pasadena Department of Transportation, *Transportation Impact Analysis, CEQA Evaluation, 758 & 766 South Fair Oaks Avenue*. September 29, 2021.

Noise

The analysis in the following paragraphs is a summary of the Noise Technical Memorandum prepared for the proposed Project, provided as **Appendix B** of this evaluation.[6] The Project would generate noise as part of Project construction and operation. Construction activities would occur over approximately 20 months and would include the following phases: demolition, grading, building construction, and architectural coating. Project construction would require a variety of equipment, including concrete/industrial saws, rubber-tired dozers, and tractors, loaders, and backhoes during demolition; graders, rubber-tired dozers, loaders, and tractors/loaders/backhoes during grading; cranes, forklifts, generator sets, tractors, loaders, backhoes, and welders during building construction; and air compressors during architectural coatings. The nearest sensitive receptor is identified as the nursing and rehabilitation facility, the GEM Transitional Care Center, which is across Fillmore Street from the Project site to the north, approximately 130 feet from the Project property. Additionally, a school, the Pasadena Art Center, is located approximately 330 feet southeast of the Project site, and a hospital, Shriners for Children Medical Center, is located approximately 430 feet to the southwest of the site. Additionally, the closest residential building is located approximately 670 feet to the southwest of the Project site.

However, the Project would adhere to the City's Noise Ordinance governing hours of construction, prescribed noise levels generated by construction and mechanical equipment, and the allowed level of ambient noise (Municipal Code Chapter 9.36). In accordance with these regulations, construction noise would be limited to normal working hours (7:00 a.m. to 7:00 p.m. Monday through Friday, 8:00 a.m. to 5:00 p.m. on Saturday, in or within 500 feet of a residential area; construction activities are not allowed on Sundays or holidays). Municipal Code Section 9.36.080, Construction Equipment, prohibits operation of any powered construction equipment if the operation of such equipment emits noise at a level in excess of 85 dBA when measured at a distance of 100 feet from such equipment. Due to geometric spreading, these noise levels would diminish with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. As shown in the Noise Technical Memorandum prepared for this Project, the loudest piece of equipment associated with Project construction (a concrete saw) would operate at a maximum noise level of 84 dBA at 100 feet from the source. Therefore, construction noise levels

[6] Michael Baker International, Huntington Hospital Medical Office Building Project – Noise Technical Memorandum, October 27, 2021.

would not exceed the City's Noise Ordinance threshold of 85 dBA at 100 feet and the impact associated with construction noise would be considered less than significant.

With respect to Project operation, the Project would generate vehicle traffic, which would incrementally add to the existing mobile traffic noise along Fair Oaks Avenue and Fillmore Street. In community noise assessments, a 3 dBA increase is considered "barely perceptible," and increases over 5 dBA are generally considered "readily perceptible".[7] The Project would generate a maximum of 1,532 daily trips, including 163 a.m. peak hour trips and 146 p.m. peak hour trips. Under existing conditions (without the Project), noise levels at a distance of 100 feet from the roadway centerlines in the Project area would range from approximately 54.6 dBA to 64.3 dBA, with the highest noise levels occurring along Arroyo Parkway south of California Boulevard. When the Project trip generation is added to the existing conditions, under the existing plus project scenario, noise levels at a distance of 100 feet from the roadway centerline would range from approximately 54.7 dBA to 64.3 dBA, with the highest noise also occurring along Arroyo Parkway south of California Boulevard. These noise levels would not exceed the normally acceptable land use compatibility standard. Additionally, the highest noise level increase is 0.2 dBA along Fair Oaks Avenue between California and Fillmore Street and along Glenarm Street between Fair Oaks Avenue and Raymond Avenue and would not exceed the 3 dBA threshold. Thus, the Project would result in a less than significant impact in this regard.

The Project would also generate stationary noise, such as noise generated by the operation of mechanical equipment (e.g., heating ventilation and air conditioning (HVAC) units), parking lot activities, and outdoor gathering areas. The HVAC units would be installed in the subterranean parking garage of the proposed building, and the mechanical exhaust vent would be located on the roof. Noise generated from HVAC units in the subterranean parking garage would be inaudible at off-site uses as the structure would be completely enclosed underground. The nearest sensitive receptor to the exhaust vent is the nursing home (GEM Transitional Center) located to the north of the project site approximately 150 feet from the exhaust vent measured from the property line of the nursing home. The proposed building would be approximately 65 feet high. Therefore, the distance between the ground level property line of the closest sensitive receptors and the exhaust vent would be approximately 168 feet. The Noise Technical Memorandum prepared for this Project states that at this distance, noise generated by HVAC equipment would be 44 dBA at the nearest sensitive receptor (GEM Transitional Center), and would not exceed the City's 70 dBA CNEL normally acceptable exterior noise compatibility standard for nursing homes. Further, the Noise Technical Memorandum found that parking lot activities can result in noise levels up to 61 dBA at a distance of 50 feet. The access driveway to the subterranean parking garage is located near the northern boundary of the Project site approximately 130 feet from the property line of the closest sensitive receptor to the north. At this distance, noise levels from parking activities would be up to 53 dBA. In addition, parking lot noise is generated by the existing surface parking lot on-site and is part of the baseline environmental setting. Therefore, the proposed parking activities would not result in substantially greater noise levels than existing conditions in the project vicinity. As such, the noise level at the property line of the closest sensitive receptors would not exceed the City's 70 dBA CNEL normally acceptable exterior noise compatibility standard for nursing homes and would not generate noise levels in excess of 5 dBA over existing ambient noise level (67.6 dBA L_{eq}) in compliance with Section 9.36.050 of the City's Noise Ordinance. Therefore, parking related noise associated with the Project is not expected to exceed the City's noise

[7] California Department of Transportation (Caltrans). Technical Noise Supplement to the Traffic Noise Analysis Protocol. September 2013. Website: https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf, accessed October 12, 2021.

standards and would not introduce a new noise source compared to existing conditions. Impacts would be less than significant in this regard.

The project would include a plaza and a terrace for the tenants, with the plaza being closer to the closest sensitive receptor than the terrace. The plaza has the potential to be accessed by groups of people intermittently. Noise generated by groups of people (i.e., crowds) is dependent on several factors including vocal effort, impulsiveness, and the random orientation of the crowd members. Crowd noise is estimated at 60 dBA at one meter (3.28 feet) away for raised normal speaking.[8] This noise level would have a +5 dBA adjustment for the impulsiveness of the noise source, and a -3 dBA adjustment for the random orientation of the crowd members.[9] Therefore, crowd noise would be approximately 62 dBA at one meter from the source (i.e., the plaza). The closest sensitive receptor to the north of the project site is located approximately 148 feet from the plaza measured from the property line of the receptor. At the distance of 148 feet, crowd noise would be reduced to approximately 29 dBA, which would not exceed the City's 70 dBA CNEL normally acceptable exterior noise compatibility standard for nursing homes and would not generate noise levels in excess of 5 dBA over existing ambient noise level (67.6 dBA L_{eq}) in compliance with Section 9.36.050 of the City's Noise Ordinance. As such, the proposed outdoor plaza area would not generate noise levels that would exceed the City's noise standards at the closest sensitive receptors. Therefore, impacts would be less than significant.

Lastly, Project construction can generate varying degrees of groundborne vibration, depending on the construction procedure and the construction equipment used. Operation of some heavy-duty construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source; however, these vibrations can have effects on nearby structures. Using Federal Transit Administration data, the Noise Technical Memorandum prepared for the Project determined that vibration velocities from typical heavy construction equipment operations would range from 0.003 to 0.21 inch/second peak particle velocity (PPV) at 25 feet from the source of activity. The nearest structure is located approximately 27 feet to the east of the project site. The vibration velocities at the nearest structure ranges from 0.027 to 0.1871 inch/second PPV. As such, the construction activities would not be capable of exceeding the 0.2 inch/second PPV significance threshold for vibration to the nearest structure and a less than significant impact would occur in this regard.

Operation of the project would not include or require equipment, facilities, or activities that would result in perceptible groundborne vibration. According to the FTA, it is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. As such, it can be reasonably inferred that project operations would not create perceptible vibration impacts to the nearest sensitive receptors. A less than significant impact would occur in this regard. The Project is not located in the vicinity of a public or private airstrip or located within an airport and use plan. The nearest public use airport to the project site is the San Gabriel Valley Airport (previously known as El Monte Airport) which lies approximately 7.3 miles to the southeast of the Project site. According to the *Airport Influence Area of El Monte Airport*, the project site is not located within the San Gabriel Valley Airport CNEL contours. As a result, the Project would have a less than significant impact related to noise and groundborne vibration impacts.

[8] M.J. Hayne, et al. Prediction of Crowd Noise, Acoustics. November 2006.

[9] Ibid.

Air Quality

The analysis in the following paragraphs summarizes the Air Quality Technical Memorandum prepared for the proposed Project, provided as **Appendix C.1** of this evaluation.[10] The Project is located within the South Coast Air Basin (Basin). The South Coast Air Quality Management District (SCAQMD) has jurisdiction in the Basin, which has a history of recorded air quality violations and is an area where both state and Federal ambient air quality standards are exceeded. In order to reduce emissions, the SCAQMD adopted the 2016 Air Quality Management Plan (AQMP) which establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving State and Federal air quality standards. The 2016 AQMP pollutant control strategies are based on the latest scientific and technical information and planning assumptions, including the 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) prepared by the Southern California Association of Governments (SCAG), updated emission inventory methodologies for various source categories, and SCAG's latest growth forecasts. SCAG's latest growth forecasts were defined in consultation with local governments and with reference to local general plans. The SCAQMD considers projects that are consistent with the AQMP to have a less than significant cumulative air quality impacts.

The SCAQMD established two criteria for determining consistency with the AQMP. The first criterion considers whether a project would result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay attainment of air quality standards. The second criterion considers whether a project would be consistent with the population, housing, and employment growth projections utilized by the AQMP. For determining consistency with AQMP consistency criterion 1, **Table 5** and **Table 6,** below, show Project-related emissions for construction and operation, as well as the SCAQMD thresholds for determining a significant impact.

In the short term, Project-related emissions would be generated by construction equipment, fugitive dust, worker vehicle exhaust, and applications of asphalt and surface coatings. In accordance with the SCAQMD Guidelines, the Air Quality Technical Memorandum utilized CalEEMod to model construction emissions for ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$, which are shown in **Table 5**, below.

Table 5
Project Construction Emissions

Emissions Source	Maximum Daily Emissions (pounds/day)[1]					
	ROG[2]	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Year 1						
Construction Related Emissions[2]	2.04	35.46	15.50	0.09	5.65	2.67
Year 2						
Construction Related Emissions[2]	1.78	13.01	15.15	0.03	1.45	0.76
Year 3						
Construction Related Emissions[3]	47.83	5.89	9.21	0.01	0.43	0.30
Maximum Daily Emissions	**47.83**	**35.46**	**15.50**	**0.09**	**5.65**	**2.67**
SCAQMD Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Is Threshold Exceeded?	***No***	***No***	***No***	***No***	***No***	***No***

[10] Michael Baker International. Huntington Hospital Medical Office Building Project – Air Quality Technical Memorandum, November 4, 2021.

ROG = reactive organic gases; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter up to 10 microns; $PM_{2.5}$ = particulate matter up to 2.5 microns.
Notes:
1. Emissions were calculated using CalEEMod, version 2020.4.0. Winter emissions represent worst-case.
2. Modeling assumptions include compliance with SCAQMD Rule 403 which requires the following: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces three times daily; cover stock piles with tarps; water all haul roads twice daily; and limit speeds on unpaved roads to 15 miles per hour.

Source: Refer to Appendix A, *Air Quality Emissions Data*, of the Air Quality Technical Memorandum (see Appendix C.1) prepared for this Project for detailed model input/output data.

As indicated in **Table 5**, above, criteria pollutant emissions during construction of the Proposed Project would not exceed the SCAQMD significance thresholds. Thus, total construction-related air emissions would be less than significant.

Long-term emissions would be generated by the Proposed Project via mobile source emissions (i.e., motor vehicles), energy emissions (e.g., electricity and natural gas usage), and area source emissions (e.g., consumer products, architectural coatings, and landscaping equipment). Operational pollutant emissions are shown in **Table 6**, below. Project emissions were calculated for winter and summer to account for worst-case emission levels, which occur during these seasons.

Table 6
Long-Term Operational Air Emissions

Emissions Source	Maximum Daily Emissions (lbs/day)[1]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Existing Conditions Winter Emissions[2]						
Area Source Emissions	0.41	<0.01	<0.01	<0.01	<0.01	<0.01
Energy Emissions	<0.01	0.01	0.01	<0.01	<0.01	<0.01
Mobile Emissions	2.92	3.43	24.82	0.05	4.70	1.29
Total Emissions[2]	**3.33**	**3.44**	**24.82**	**0.05**	**4.70**	**1.29**
Proposed Project Winter Emissions						
Area Source[3]	2.15	<0.01	0.02	<0.01	<0.01	<0.01
Energy Source[4]	0.03	0.26	0.22	<0.01	0.02	0.02
Mobile	6.84	7.65	65.06	0.14	15.52	4.21
Total Emissions[2]	**9.02**	**7.91**	**65.30**	**0.14**	**15.54**	**4.23**
Net Increase of Total Emissions[2]	***5.69***	***4.47***	***40.48***	***0.10***	***10.84***	***2.94***
SCAQMD Regional Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**
Existing Conditions Summer Emissions[2]						
Area Source	0.41	<0.01	<0.01	<0.01	<0.01	<0.01
Energy Source	0.00	0.01	0.01	<0.01	<0.01	<0.01
Mobile	3.05	3.21	25.31	0.05	4.70	1.29
Total Emissions[2]	**3.46**	**3.22**	**25.31**	**0.05**	**4.70**	**1.29**
Proposed Project Summer Emissions[2]						
Area Source[3]	2.15	<0.01	0.02	<0.01	<0.01	<0.01
Energy Source[4]	0.03	0.26	0.22	<0.01	0.02	0.02
Mobile	7.13	7.12	66.91	0.15	15.52	4.21
Total Emissions[2]	**9.30**	**7.38**	**67.15**	**0.15**	**15.54**	**4.23**
Net Increase of Total Emissions[2]	***5.84***	***4.16***	***41.84***	***0.10***	***10.84***	***2.94***
SCAQMD Regional Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes:
1. Emissions were calculated using CalEEMod, version 2020.4.0.
2. The numbers may be slightly off due to rounding.
3. Area source emissions account for the project design feature of using all electric landscape equipment.
4. Energy source emissions account for project design features, including 5 percent more energy efficient that 2019 Title 24 standards and using energy efficient appliances.

Source: Refer to Appendix A, *Air Quality Emissions Data*, of the Air Quality Technical Memorandum (see Appendix C.1) prepared for this Project for detailed model input/output data.

As indicated in **Table 6**, above, criteria pollutant emissions during operation of the proposed Project would not exceed the SCAQMD significance thresholds. Thus, operation-related air emissions would be less than significant. As such, because the Proposed Project would result in long-term and short-term emissions below the SCAQMD thresholds, the Project would not have the potential to cause a violation of the ambient air quality standards.

Because AQMP consistency criterion 1 pertains to pollutant concentrations, rather than to total regional emissions, an analysis of the Project's pollutant emissions relative to localized pollutant concentrations is also used for evaluating project consistency. As stated in the Air Quality Technical Memorandum prepared for this Project, localized significance thresholds (LSTs) only apply to the operational phase of a project if the project includes stationary sources or attracts mobile sources that may spend extended periods queuing and idling at the site (e.g., warehouse or transfer facilities). Since the Project does not include such uses, an LST analysis is not necessary for Project operation. However, Project construction would result in on-site emissions, including off-road construction equipment emissions and fugitive dust. **Table 7**, below, displays the localized significance of construction emissions for the proposed Project, as well as the SCAQMD LST screening thresholds for determining significance.

Table 7
Localized Significance of Construction Emissions

Maximum Emissions	Maximum Daily Emissions (pounds/day)			
	NO_X	**CO**	**PM_{10}**	**$PM_{2.5}$**
Year 1[1,4]	16.98	13.96	3.40	1.96
Year 2[2,4]	11.71	12.61	0.51	0.50
Year 3[3,4]	5.86	8.83	0.28	0.26
Maximum Daily Emissions	**16.98**	**13.96**	**3.40**	**1.96**
Localized Significance Threshold Mass Rate Screening Criteria[3]	69	535	4	3
Thresholds Exceeded?	***No***	***No***	***No***	***No***

Notes:
1. Maximum on-site daily emissions occur during grading phase for NOx, PM_{10}, and $PM_{2.5}$, and during demolition phase for CO in Year 1.
2. Maximum on-site daily emissions occur during building construction phase for NOx, CO, PM_{10}, and $PM_{2.5}$ in Year 2.
3. Maximum on-site daily emissions occur during paving phase for NOx, CO, PM_{10}, and $PM_{2.5}$ in Year 3.
4. Modeling assumptions include compliance with SCAQMD Rule 403 which requires: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces three times daily; cover stock piles with tarps; water all haul roads twice daily; and limit speeds on unpaved roads to 15 miles per hour.

The Localized Significance Threshold Mass Rate Screening Criteria was determined using Appendix C of the SCAQMD *Final Localized Significant Threshold Methodology* guidance document for pollutants NO_X, CO, PM_{10}, and $PM_{2.5}$. The Localized Significance Threshold Mass Rate Screening Threshold was based on the anticipated daily acreage disturbance for construction (one acre), the distance to sensitive receptors (25 meters), and the source receptor area (SRA 8).

As seen in **Table 7**, emissions would not exceed the LST screening thresholds for source receptor area 8 (SRA 8), which includes the Project site. Construction LST impacts would be less than significant in this regard. Therefore, because both Project-related emissions of criteria pollutants and construction-related localized pollutant emissions would be less than significant, the Project would be consistent with criterion 1 of the SCAQMD's AQMP consistency evaluation process.

As stated above, the second AQMP consistency criterion determines whether a project would be consistent with the population, housing, and employment growth projections, as well as land use strategies utilized by the AQMP. In the case of the 2016 AQMP, four sources of data form the basis for the projections of air pollutant emissions: the City of Pasadena General Plan, the South Fair Oaks Specific Plan, SCAG's regional growth forecast, and the SCAG RTP/SCS. The RTP/SCS also provides socioeconomic forecast projections of regional population growth. As stated above, the Project site is designated in the General Plan as High Mixed-Use within the South Fair Oaks Specific Plan area. The Project would not differ from the current General Plan and South Fair Oaks Specific Plan Land Use and Zoning Designations. Therefore, the proposed Project is consistent with the General Plan and South Fair Oaks Specific Plan, and is consistent with the types, intensity, and patterns of land use envisioned for the site vicinity. The population, housing, and employment forecasts, which are adopted by SCAG's Regional Council, are based on the local plans and policies applicable to the City. As the SCAQMD has incorporated these same projections into the 2016 AQMP, it can be concluded that the proposed Project would be consistent with the projections, and would therefore meet the second AQMP consistency criterion.

Regarding sensitive receptors (which are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses), the nearest sensitive receptor identified is the GEM Transitional Care Center, which is a nursing and rehabilitation facility located on the north site of Fillmore Street. The facility is approximately 140 feet north of the Project site. To identify impacts to sensitive receptors, the SCAQMD recommends addressing SCAQMD's LSTs for construction impacts (on-site emissions only) and operations impacts (only if the project includes stationary sources or attracts idling vehicles). As shown above, construction-related emissions, which were conservatively calculated at a distance of 25 meters (approximately 82 feet), would not exceed the LST screening thresholds established by the SCAQMD and Project operations do not include stationary sources or attract idling vehicles. Therefore, LST impacts would be less than significant.

Finally, the proposed Project would not cause any significant odor impacts. Land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed Project would not include any of these uses. While construction activities may generate detectable odors from heavy-duty equipment exhaust and architectural coatings, construction-related odors would be short term in nature and would cease upon Project completion. Further, existing state and regional regulations, such as state codes limiting idling time of construction equipment and SCAQMD's Rule 1113, which minimizes odor impacts from architectural coatings, would ensure that any odor impacts associated with the proposed Project would be less than significant.

Water Quality

The Project site is located within an urban setting and is currently covered with pavement and building footprints and surrounded by similarly developed properties with buildings and surface parking lots. Given this existing disturbance, the Project site is considered a flat urban lot that is

generally covered by impervious surfaces. The Project would represent a generally similar extent of impervious surfaces on the Project site. The Project site stormwater quality would be managed through compliance with local and regional controls. The Project applicant would implement the City's required best management practices (BMPs) outlined in Pasadena's Municipal Code, which aim to prevent erosion and other storm water pollutants from washing off-site during construction. These BMPs prohibit construction or industrial vehicle washing, require proper practices for storing soil on-site so as to minimize sediment erosion, and require clean up of materials tracked off-site within the same day during the rainy season (October 15 through April 15).

Once occupied, the Project site would be covered by either impervious surfaces or managed landscaping areas and, thus, would not be susceptible to erosion or siltation. In addition, in compliance with the County of Los Angeles' Municipal Separate Storm Sewer System (MS4) Permit, as a redevelopment project replacing more than 5,000 square feet of impervious surface area, the Project would be required to develop a low-impact development (LID) plan, to be approved by City of Pasadena staff during the Project's design review process. The LID plan requires projects to retain on-site stormwater runoff generated by the 85th percentile, 24-hour rain event, which in Pasadena would be approximately 1.0–1.2 inches per hour, through site design and use of BMPs such as rainwater capture or biofiltration systems.[11] Therefore, because the Project would be required to comply with existing local and regional water requirements, the Project would result in less than significant impacts related to water quality.

Utilities and Public Services

The Project site is currently served by electric, natural gas, trash, water, and wastewater services for the existing commercial (consignment sale) uses. The proposed commercial uses (medical office, administrative professional office, and retail) would require new service connections for electricity, water, wastewater, and natural gas services, which would be built during construction and could occur within the Project site. Water and electricity services to the Proposed Project would be provided by the Pasadena Department of Water and Power (PWP). The PWP's most recent Urban Water Management Plan (UWMP) uses the Pasadena General Plan's planned growth and development in the City to calculate future water demand projections within the City.[12] As such, since the Project would be consistent with its underlying zoning and General Plan designation, and since the UWMP demonstrates adequate water supply for all normal and dry year scenarios through the plan's horizon year (2040), the Project's water demand could be adequately served by PWP.

For wastewater services, the City of Pasadena operates and maintains its own sanitary sewer system, consisting of gravity pipelines that convey approximately 14 million gallons per day (gpd) of untreated wastewater to the Los Angeles County Sanitation Districts (Sanitation Districts) trunk sewer system.[13] The Project's wastewater would be conveyed through the sewer system to the Sanitation Districts' system of water reclamation plants (WRPs), including the Whittier Narrows WRP and the San Jose Creek WRP, which have treatment capacities of 15 million gpd[14] and 100 million

[11] City of Pasadena, Low Impact Development. Website: https://www.cityofpasadena.net/planning/building-and-safety/low-impact-development/. Accessed October 25, 2021.

[12] City of Pasadena, Water and Power Department, 2020 Urban Water Management Plan, June 2021.

[13] City of Pasadena, Sewer System Management Plan, November 2019.

[14] Los Angeles County Sanitation Districts, Whittier Narrows WRP, Website: https://www.lacsd.org/services/wastewater-sewage/facilities/whittier-narrows-water-reclamation-plant. Accessed October 23, 2021.

gpd[15], respectively. The Project, with 100,285 square feet of medical and administrative professional office, and retail space, would generate approximately 31,174gpd of wastewater. The Project's net increase in wastewater generation would be a small fraction of the Sanitation Districts' existing WRP capacity. Further, because PWP uses the City's General Plan as a basis for long-term sewer infrastructure planning efforts, the Project's consistency with the General Plan and South Fair Oaks Specific Plan indicates that the proposed Project uses have been taken into account in the City's sewer infrastructure. As a result, it is expected that adequate capacity is available to serve the proposed Project.

Electricity service is provided to the Project site by PWP, which manages a portfolio of power resources including renewable energy (29.6 percent), coal (39.6 percent), large hydroelectric (4.9 percent), natural gas (9.8 percent), nuclear (8.8 percent), and unspecified power sources provided by a combination of owned and contracted energy resources (7.3 percent in 2020.[16] This mix of resources enhances electrical system resilience by not relying on a single power source. PWP has the objective to maintain the electrical service system reliability and meet electrical demands. PMP's 2018 Power Integrated Resource Plan includes a resource procurement plan that states that "PWP is fully resourced for energy needs until 2025" and that PWP will "likely meet future energy needs through wind and solar resources, as well as a mix of shorter-term renewable contacts."[17] PWP's long-term forecasts for electricity demand within their service area, which includes the Project site, would account for Project-related electricity demand through PWP's demand forecast modeling. Further, a portion of the Project's electricity usage would be offset by the use of a roof-mounted solar PV system, which would generate electrical power for onsite use. In summary, it is expected that PWP's long-term planning and the Project's onsite generation would adequately support the Project's electrical service demands.

Southern California Gas Company (SoCalGas), which is the principal distributor of natural gas in Southern California, provides natural gas service in the Project area, including the Project site. SoCalGas forecasts that total natural gas demand will decline at an annual rate of 1.0 percent each year from 2020 to 2035 due to aggressive energy efficiency programs and statewide efforts to reduce greenhouse gas emissions, as well as modest economic growth, declines in commercial and industrial demand, and conservation savings resulting from Advanced Metering Infrastructure.[18] Further, SoCalGas is anticipated to meet a projected demand of 2,834 million cubic feet of natural gas per day in 2024 (extreme peak day demand) through a combination of withdrawals from underground storage facilities and flowing pipeline supplies. As such, because of SoCalGas's extremely large service area and natural gas supplies, in addition to decreasing natural gas demand, SoCalGas would have adequate capacity to support the Project.

The City of Pasadena does not collect solid waste from commercial units unless upon written request by the property owner. As such, trash collection services would be provided by the City or a private, commercial trash collection company approved by the City. According to CalRecycle's Solid Waste Information System facility database, one of the largest landfills in the Pasadena area is the Scholl Waste Landfill (located at 3001 Scholl Canyon Road in Glendale)

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[15] Los Angeles County Sanitation Districts. San Jose Creek WRP. Website: https://www.lacsd.org/services/wastewater=s-sewage/facilities/san-jose-creek-water-reclamation-plant. Accessed October 23, 2021.

[16] City of Pasadena, Water and Power Department. 2020 Power Content Label. Available online at: https://ww5.cityofpasadena.net/water-and-power/pcl/. Accessed October 25, 2021.

[17] City of Pasadena, Water and Power Department. 2018 Power Integrated Resource Plan, page 69, December 2018.

[18] California Gas and Electric Utilities. 2020 California Gas Report. Accessed online at: 2020_California_Gas_Report_Joint_Utility_Biennial_Comprehensive_Filing.pdf (socalgas.com). 2020.

which has a total remaining capacity of 9,900,000 cubic yards[19]. As such, with multiple trash collectors and existing capacity at nearby landfills, there is adequate trash service capacity to serve the Project.

The Project would also incrementally increase the demand for public services, such as fire protection and emergency medical services, police protection, and other public services, such as parks and libraries. The Pasadena Fire Department (PFD) would provide fire protection and emergency medical services. Project building plans would be reviewed by the PFD for compliance with applicable safety and emergency access standards, such as circulation standards and ensuring the facility has adequate fire flow and fire hydrant placement. The PFD has eight stations located throughout the 23-square-mile service area. The nearest station is Station No. 31, located at 135 South Fair Oaks Avenue, approximately 0.7 mile north of the Project site. The Pasadena Police Department (PPD) would provide law enforcement services to the Project. The PPD's service area includes the City of Pasadena, where services such as emergency response, community services, aerial patrol response, criminal investigations, field operations, and non-emergency support services are provided. The PPD has specialized units, such as Park Safety units, K-9 units, and homeless outreach units, that service five community services areas (CSAs). The Project site is located within the West CSA. The Project would adhere to all City impact fee requirements associated with public services provided by the police and fire departments in order to offset the Project's service requirements. Further, because the Project would be consistent with the Project Site's zoning and General Plan designation, the level of growth associated with the Project would be consistent with the City's long-term growth planning. As such, the Project would result in less than significant impacts related to utilities and public services.

Considerations of Exceptions to the Use of a Categorical Exemption

Section 15300.2 of the CEQA Guidelines identifies the following exceptions to the use of a categorical exemption:

a) Location. Classes 3, 4, 5, 6, and 11 are qualified by consideration of where the project is to be located—a project that is ordinarily insignificant in its impact on the environment may in a particularly sensitive environment be significant. Therefore, these classes are considered to apply in all instances, except where the project may impact on an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies.

b) Cumulative Impact. All exemptions for these classes are inapplicable when the cumulative impact of successive projects of the same type in the same place, over time is significant.

c) Significant Effect. A categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances.

d) Scenic Highways. A categorical exemption shall not be used for a project which may result in damage to scenic resources, including, but not limited to, trees, historic buildings, rock outcroppings, or similar resources, within a highway officially designated as a state scenic highway. This does not apply to improvements which are required as mitigation by an adopted negative declaration or certified EIR.

[19] CalRecycle. SWIS Facility/Site Details: School Canyon Landfill (10-AA-0012). Website: https://www2.calrecycle.ca.gov/SolidWaste/SiteActivity/Details/3531?siteID=1000. Accessed October 25, 2021.

e) Hazardous Waste Sites. A categorical exemption shall not be used for a project located on a site which is included on any list compiled pursuant to Section 65962.5 of the Government Code.

f) Historical Resources. A categorical exemption shall not be used for a project which may cause a substantial adverse change in the significance of a historical resource.

As evaluated below, none of these exceptions apply to the proposed Project. Therefore, the lead agency (the City of Pasadena) is not precluded from categorically exempting the Proposed Project from CEQA.

Location

The location exception does not apply to the Class 32 categorical exemption. Regardless, the Project site is not within a particularly sensitive environment and there are no designated environmental resources of hazardous or critical concern on the site or in the vicinity. The Project site is a fully developed urban lot that is surrounded by commercial development.

Cumulative Impact

Presently one individual project is in development within the South Fair Oaks Specific Plan area, which is a proposed 4-story, 99,996 sf medical office and administrative professional office building, with 212 parking spaces. The project is approximately 900 feet north of the proposed Project, and the Errata to the Addendum to the Certified Environmental Impact Report was approved in July 2021. Additionally, the South Fair Oaks Specific Plan area includes the Huntington Memorial Hospital Master Plan area located at 100 W California Boulevard, which was amended and approved on March 26, 2018. The eight-phase, 15-year Master Plan would allow for a total of 217,370 sf of new construction, 250,076 sf of existing building demolition, and a resulting net building reduction of 30,677 sf. The largest component of new development consists of two new buildings (West Annex A and West Annex B). West Annex A would be three stories tall and 60 feet in height, while West Annex B would be two stories tall and 42 feet in height. West Annex A includes one basement level, while West Annex B would include two subterranean parking levels. The master plan development would also add 17 new patient beds for a total of 642 beds at completion. One project was identified just outside of the planning boundaries for a proposed 4-story, 39,274 square-foot medical office building with 5-levels of subterranean parking garage at 650 South Raymond Avenue, that is currently under review, located approximately 660 feet northeast of the proposed Project. Additionally, another project located between 465 and 577 South Arroyo Parkway, approximately 0.3 mile northeast of the Project, proposes to demolish existing structures and develop two buildings, a 154,000-sf, 7-story medical office building with ground-floor commercial uses and a 184,376-sf, 7-story assisted living building, and provide up to 850 parking spaces in 5 subterranean levels. Alternatively, the medical office building with ground-floor commercial uses may be exchanged for 3,000 sf of commercial and a sales/leasing management office, up to 197 residential dwelling units, and up to 650 parking spaces in 4 subterranean levels. As described below, the proposed Project and these nearby projects would not result in any significant cumulative impacts.

The proposed Project would involve demolition of the existing retail/consignment sales building and surface parking lot, and construction of a 4-story commercial use building with medical and general office, and 3 levels of subterranean parking, and an outdoor plaza area, which would result in generation of noise and air pollutants. As stated above, the Project's construction- and operation-related noise would not generate noise levels that would exceed the City's noise

standards at the closest sensitive receptors. With regard to air quality, the SCAQMD considers projects that are consistent with the AQMP to have a less than significant cumulative air quality impacts. As stated above, and as further described in the Air Quality Technical Memorandum prepared for this Project, the Project would be consistent with the AQMP. As such, the Project would not result in cumulatively considerable air quality or noise impacts.

The CEQA transportation analysis conducted for the project, as discussed above, considered five measures of the Project's effect on the Citywide circulation system. By their nature, the City's CEQA transportation analyses are cumulative analyses, as they evaluate changes in citywide measurements of VMT/capita, VT/capita, access to the bicycle and transit networks, and pedestrian accessibility. As shown above, the Project's transportation impacts, as measured against these cumulative metrics, would be less than significant.

Based on the analysis herein, the Project would not considerably contribute to any significant impacts resulting from successive projects of the same type in the same place over time.

Significant Effect Due to Unusual Circumstances

There are no features that distinguish this Project from others in the exempt class; therefore, there are no unusual circumstances. Commercial office and retail developments are common in Pasadena, and the South Fair Oaks Specific Plan allows and encourages commercial development within the planning area.[20] Further, the Project site is located within a TOD area that is envisioned to allow retail and office uses to encourage transit use. Additionally, given that the Project would be constructed on a site in an urbanized area that has been previously developed, that the Project would be consistent with the development pattern in the area, and that the City regularly considers applications for commercial office and retail development projects as a normal course of business, there are no unusual circumstances.

Scenic Highways

The only designated state scenic highway that traverses the City of Pasadena is the Angeles Crest Highway (State Highway 2), which is located north of Arroyo Seco Canyon in the extreme northwest portion of the City.[21] The majority of the designated scenic highway segment of Angeles Crest Highway is within the Angeles National Forest. The Project site is approximately 6 miles from the closest segment of the Angeles Crest Highway, and the Project site does not contain scenic resources that contribute to views from this scenic highway.

The segment of I-210 between State Route 134 on the south and I-5 on the north has been classified by Caltrans as an "eligible" scenic highway.[22] This portion of I-210 has views of scenic resources that include the San Gabriel Mountains and open space to the north and west of I-210. The Project site is located approximately 1.3 miles east of I-210, and is not visible by motorists traveling on the segment of the eligible scenic highway. Therefore, the Project would have no impact on scenic resources within a state scenic highway.

Hazardous Waste Sites

Section 65962.5 of the Government Code requires that the California Department of Toxic Substances Control (DTSC), the California Department of Public Health (CDPH), and the State Water Resources Control Board compile lists of all hazardous waste facilities subject to corrective

[20] City of Pasadena. South Fair Oaks Specific Plan: Chapter 4.0, Land Use. Adopted 1998, and amended on January 25, 2016.
[21] California Department of Transportation. List of Designated and Eligible State Scenic Highways. August 2019.
[22] Ibid.

action; all sites included in the Abandoned Site Assessment Program; all drinking water wells that contain detectable levels of organic contaminants; all underground storage tanks with unauthorized releases; and all solid waste disposal sites with a migration of hazardous materials.

The Project site is not included on any of the above-described lists compiled by the DTSC, CDPH, or the State Water Resources Control Board. The DTSC maintains the EnviroStor database, which provides a list of all hazardous waste sites, as required by Section 65962.5 described above, as well as information about other sites that are under investigation of reported hazardous substance contamination and past cases where contamination was identified at a site and properly removed. The Project site is not listed in EnviroStor; however, two sites on nearby properties were identified on database.[23] One site is Huntington Medical Plaza, which is located approximately 100 feet southwest of the Project site, on the west side of South Fair Oaks Avenue, and was identified as a State Response facility on EnviroStor. The Plaza was identified as a result of 11 underground storage tanks (USTs) previously encountered during the construction of the property. The USTs resulted from previous vehicle storage, refueling, and maintenance activities conducted on the property. The tanks were removed and the cleanup was certified in September 1984 as complete. The second site is located at 707 S. Raymond Avenue, which is approximately 65 feet from the Project site. The listed property is currently a fenced off lot that was previously used for parking. The site is currently under evaluation and not open to the public. The proposed Project construction would not include activities that would extend to the nearby fenced off property on Raymond Avenue, and the previous clean-up site at the Huntington Medical Plaza would not be exacerbated by the Project-related ground disturbance during construction. Additionally, the Project site is not recorded in GeoTracker, a database maintained by the State Water Resources Control Board.[24] In summary, the Project would not affect listed sites in the Project vicinity, and because the Project is not listed on the hazardous waste/substances site list compiled pursuant to Section 65962.5 of the California Government Code, this exception does not apply to the Project.

Historical Resources

Section 15300.2 of the CEQA Guidelines states that a categorical exemption shall not be used for a project which may cause a substantial adverse change in the significance of a historical resource. CEQA Section 15064.5(b) states:

> A project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.
>
> (1) Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.
>
> (2) The significance of an historical resource is materially impaired when a project:
>
> (A) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical

[23] California Department of Toxic Substances Control. EnviroStor Data Management System. Accessed October 20, 2021. http://www.envirostor.dtsc.ca.gov/?surl=83pc4.

[24] State Water Resources Control Board. GeoTracker. Accessed October 20, 2021. http://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=Pasadena%2C+CA.

significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or

(B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code; … or

(C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.

(3) Generally, a project that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings … shall be considered as mitigated to a level of less than a significant impact on the historical resource.

The Project site is developed with a one-story building and surface parking lot constructed in 1986. The structure is approximately 18,250-sf in size and is characterized by utilitarian, painted grey concrete and painted on signage. The structure does not have any distinguishing features that could be attributable to a specific architectural style identified in any of the City of Pasadena's Historic Context Reports.[25] As such, the City of Pasadena Design and Historic Preservation Staff have evaluated the Project Site and have determined that there are no resources on the Site that are eligible for designation as a local historical resource or for listing on the California Register of Historical Resources or National Register of Historic Places. Therefore, the Project would not cause a substantial adverse change in the significance of a historical resource.

Conclusion

As described above, the proposed Project meets the requirements of Class 32 exemption, as it meets the definition of infill development; would be consistent with the applicable General Plan designation and all applicable General Plan policies as well as with the applicable zoning designation and regulations; occurs within City limits on a Project site of no more than 5 acres substantially surrounded by urban uses; would be located on a site that has no habitat for endangered, rare, or threatened species; would not result in any significant effects relating to traffic, noise, air quality, or water quality; and could be adequately served by all required utilities and public services. Further, none of the exceptions to the use of a categorical exemption apply to the Project. Therefore, the proposed Project is categorically exempt from CEQA pursuant to Section 15332 of the State CEQA Guidelines—Class 32, In-Fill Development Projects.

[25] City of Pasadena. Cultural Resources of the Recent Past: Historic Context Report. October 2007.

PN: 185971

HUNTINGTON HOSPITAL MEDICAL OFFICE BUILDING PROJECT
PASADENA, CA

Regional Vicinity

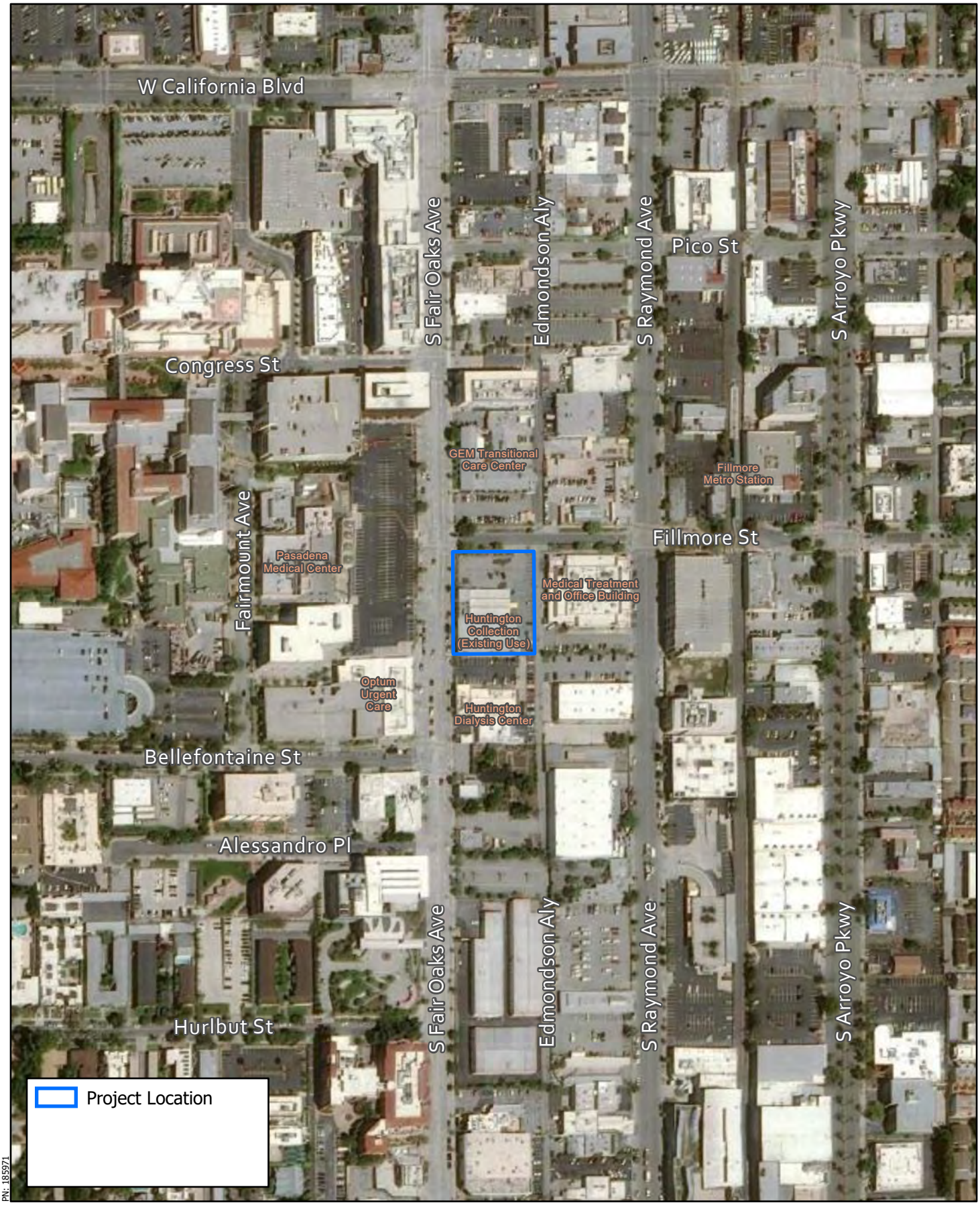
Michael Baker INTERNATIONAL

N

0 0.75 1.5 3 Miles

Source: Esri, ArcGIS Online, National Geographic World Map: *Pasadena, California*

Figure 1



PN: 185971

HUNTINGTON HOSPITAL MEDICAL OFFICE BUILDING PROJECT
PASADENA, CA

Michael Baker INTERNATIONAL

N

0 125 250 500 Feet

Source: Esri, ArcGIS Online, World Imagery: *Pasadena, California*

Project Location

Figure 2

Appendices

- **Appendix A.1:** Transportation Impact Analysis: CEQA Evaluation, City of Pasadena Department of Transportation
- **Appendix A.2:** Transportation Impact Analysis: Outside CEQA Evaluation, Iteris
- **Appendix B:** Noise Technical Memorandum, Michael Baker International
- **Appendix C.1:** Air Quality Technical Memorandum, Michael Baker International
- **Appendix C.2:** Greenhouse Gas Technical Memorandum, Michael Baker International

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APPENDIX A.1:

TRANSPORTATION IMPACT ANALYSIS: CEQA EVALUATION

PASADENA
DEPARTMENT OF TRANSPORTATION

Transportation Impact Analysis

CEQA Evaluation

Project Address: 758 & 766 South Fair Oaks Avenue

Project Summary: Construction of a 100,285 sf medical office and general office building with subterranean parking. Existing buildings on-site will be demolished.

Applicant: Huntington Hospital
100 West California Boulevard
Pasadena, CA 91105

Attention: Luis Rocha, Zoning Administrator
City Planning Department

September 29, 2021

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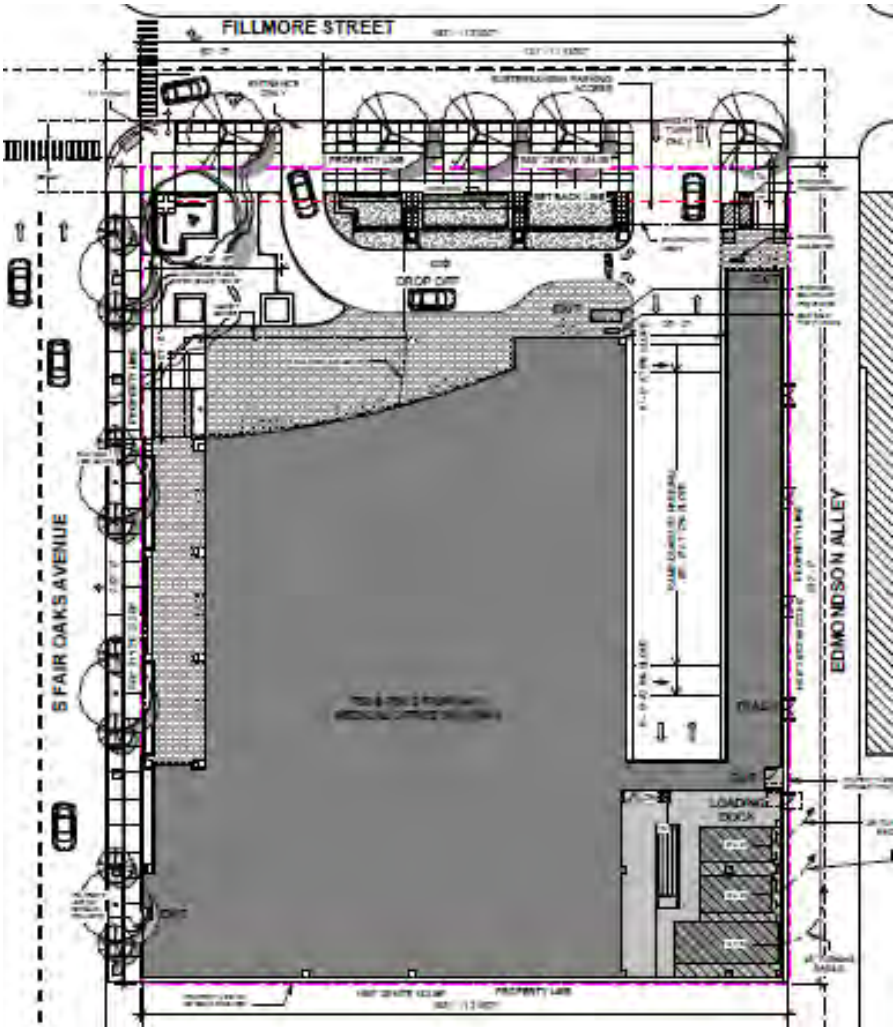
I. Study Objective

This report analyzed the impact the development will have on the City transportation system by estimating incremental changes in vehicle miles traveled (VMT) per capita, vehicle trips per capita (VT), the project impact on service population proximity access to transit and bike facilities, and walk accessibility score. Since the project application was deemed complete prior to February 2021, the 2013 model will be used in the CEQA analysis.

II. Project Description

The City of Pasadena Department of Transportation conducted an analysis to review potential transportation impacts related to the construction of a building with 80,285 sf medical office and 20,000 sf general office land uses with subterranean parking. Parking garage access is off of Fillmore Street. The latest plans available to DOT are dated August 5, 2021. Figure 1 depicts the proposed site plan.

Figure 1. Project Site Plan



III. Existing Transportation Network

Street System Classifications

Fair Oaks Avenue is a north/south **City Connector** with two through travel lanes in each direction and turn lanes at key intersections. It is also classified as Commercial – Urban between California Boulevard and Congress Street, Commercial – Suburban between Congress Street and Arlington Drive, and Commercial – Urban between Arlington Drive and Glenarm Street in the City's Street Design Guide. Fair Oaks Avenue has a speed limit of 35 mph.

Edmondson Alley is a north/south alley that serves as the easterly boundary of the project and provides local access to various land uses.

Raymond Avenue is a **City Connector** between Del Mar Boulevard to Glenarm Street. Per the City's Street Design Guide, Raymond Avenue is classified as a Commercial – Suburban between Bellevue Drive and Glenarm Street.

Arroyo Parkway is a north/south **City Connector** between Colorado Boulevard to the SR-110 freeway. South of California Boulevard, this street is also designated as a Commercial - Suburban with six through travel lanes provided during the peak hour. Arroyo Parkway is not designated as a bike lane or route.

Del Mar Boulevard is an east/west **City Connector** that generally offers two lanes in each direction. It is also designated as a Commercial – Urban between De Lacey Avenue and Marengo Avenue.

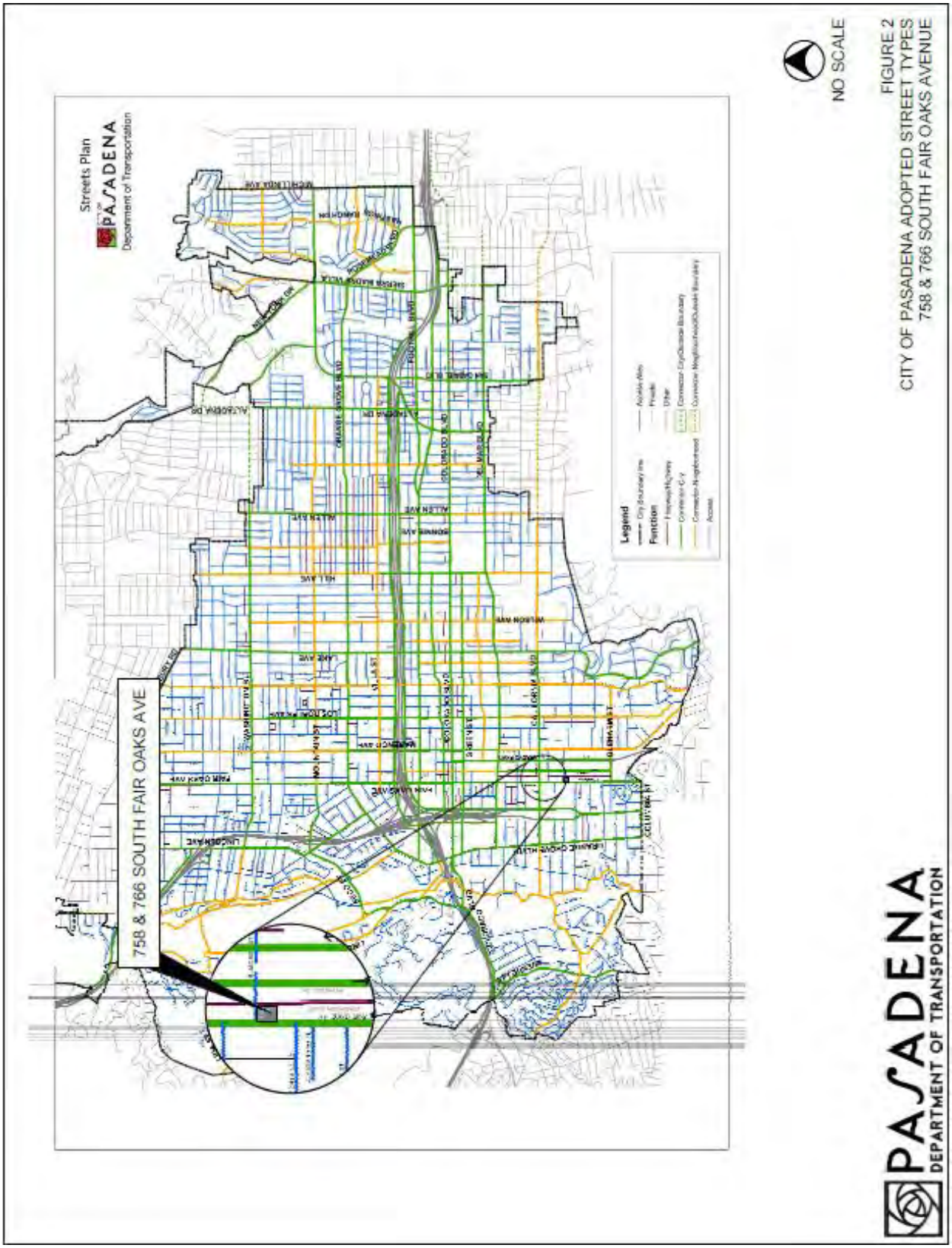
California Boulevard is an east/west roadway designated as a **City Connector**. One through travel lane is provided west of Orange Grove Boulevard, two travel lanes are provided east of Orange Grove Boulevard to Lake Avenue, and one through travel lane per direction is provided east of Lake Avenue. California Boulevard is posted for a 30 mph speed limit within the project study area.

Fillmore Street is an east/west **Access Road** between Fair Oaks Avenue and Marengo Avenue bisected by the Metro L Line east of Raymond Avenue.

Glenarm Street is an east/west oriented roadway that is classified as an **Access Road** between Pasadena Avenue to Fair Oaks Avenue, a **City Connector** between Fair Oaks Avenue to Arroyo Parkway, and a **Neighborhood Connector** between Arroyo Parkway to El Molino Avenue.

Figure 2 depicts the project in the City of Pasadena's Adopted Street Types map.

Figure 2. City of Pasadena Adopted Street Types Map



Existing Transit Service

Public transit service within the project study area is currently provided by LA Metro and Pasadena Transit (PT). The locations of public transit stops near the project are summarized as follows:

Location	Route
Fair Oaks Ave at California Blvd – Northeast side	PT 20; Metro 260
Fair Oaks Ave at California Blvd – Southwest corner	PT 20, 51; Metro 260
Fair Oaks Avenue at Congress St – Southwest corner	PT 20, 51; Metro 260
Fair Oaks Ave at Congress St – Northeast side	PT 20; Metro 260
Fair Oaks Ave at Bellefontaine St – Northeast corner	PT 20; Metro 260
Fair Oaks Ave at Bellefontaine St – Southwest corner	PT 20, 51; Metro 260
Raymond Ave at Fillmore St – Northeast corner	PT 51,52
Raymond Ave at Fillmore St – East side	Metro “L” (Gold) Line Station

IV. Transportation Analysis Methodology

With the City of Pasadena General Plan, the City’s guiding principles cumulatively represent the community’s vision for the future:

- Growth will be targeted to serve community needs and enhance quality of life.
- New construction that could affect the integrity of historic resources will be compatible with, and differentiated from, the existing historic resource.
- Economic vitality will be promoted to provide jobs, services, revenues, and opportunities.
- Pasadena will be a socially, economically, and environmentally sustainable community.
- Pasadena will be a city where people can circulate without cars.
- Pasadena will be promoted as a cultural, scientific, corporate, entertainment, and educational center for the region.
- Community participation will be a permanent part of achieving a greater city.
- Pasadena is committed to public education and a diverse educational system responsive to the broad needs of the community.

Understanding the goals and objectives of the General Plan, the Pasadena Department of Transportation sets forth goals and policies to improve overall transportation in Pasadena and create “a community where people can circulate without cars.” Inherent in

this vision statement is to accommodate different modes of transportation including vehicle, pedestrian, bicycle, and transit. The analysis is based on City Transportation Impact Analysis Guidelines. This report will assess accessibility of these different modes of travel and the project's transportation impacts using the City's adopted transportation performance measures.

Analysis Purpose

Pasadena reviews several types and sizes of projects that could be subject to environmental review under the California Environmental Quality Act (CEQA). Transportation impact analyses are an integral part of the environmental review process that is required for all proposed projects not categorically exempt under CEQA.

Analysis Cap Criteria - Transportation Performance Measures

The Pasadena Department of Transportation adopted a set of performance measures and CEQA thresholds that are closely aligned with the Mobility Element objectives and policies. Pasadena Department of Transportation's mobility performance measures assess the quality of walking, biking, transit, and vehicular travel in the City. A combination of vehicular and multimodal performance measures are employed to evaluate system performance in reviewing new development projects. They are:

- Vehicle Miles Traveled per Capita
- Vehicle Trips per Capita
- Proximity and Quality of the Bicycle Network
- Proximity and Quality of the Transit Network
- Pedestrian Accessibility

These performance measures align with the sustainability goals of the General Plan by evaluating the "efficiency" of projects by analyzing the per capita length and number of trips associated with changes in land use. With the expanded emphasis on sustainability and a continued focus on livability, the proposed performance measures will assist in determining how to balance travel modes as well as understand the mobility needs of the community.

VMT Per Capita

The Vehicle Miles Traveled (VMT) per Capita measure sums the miles traveled for trips within the City of Pasadena Travel Demand Model (that is based on the SCAG regional model). The VMT total considers 100% of the mileage of trips that begin and end inside Pasadena and 50% of the distance travelled for trips with one end outside of Pasadena. The City's VMT is then divided by the City's total service population, defined as the population plus the number of jobs.

Although VMT itself will likely increase with the addition of new residents, the City can reduce VMT on a per-capita basis with land use policies that help Pasadena residents meet their daily needs within a short distance of home, reducing trip lengths, and by

encouraging development in areas with access to various modes of transportation other than auto.

VT Per Capita

Vehicle Trips (VT) per Capita is a measure of motor vehicle trips associated with the City. The measure sums the trips with origins and destination within the City of Pasadena, as generated by the 2013 trip-based citywide Travel Demand Model. The regional VT is calculated by adding the VT associated with trips generated and attracted within City of Pasadena boundaries, and 50% of the VT associated with trips that either begin or end in the City, but have one trip end outside of the City. The City's VT is then divided by the City's total service population, defined as the population plus the number of jobs.

As with VMT, VT itself will likely increase with the addition of new residents, but the City can reduce VT on a per-capita basis with land use policies that help Pasadena residents meet their daily needs within a short distance of home, reducing trip lengths, and by encouraging development in areas with access to various modes of transportation other than auto.

Proximity and Quality of Bicycle Network

The Proximity and Quality of Bicycle Network provides a measure of the percent of the City's service population (population + jobs) within a quarter mile of bicycle facility types. The facility types are aggregated into three hierarchy levels, obtained from the City's (Draft) Bicycle Transportation Plan categories as shown in the following table:

Table 1. Bicycle Facilities Hierarchy

LEVEL	DESCRIPTION	FACILITIES INCLUDED
1	Advanced Facilities	Bike Paths Multipurpose Paths Cycle Tracks/Protected Bike Lanes
2	Dedicated Facilities	Buffered Bike Lanes Bike Lanes Bike Boulevards
3	Basic Facilities	Bike Routes Enhanced Bike Routes Emphasized Bikeways

For each bike facility level, a quarter-mile network distance buffer is calculated and the total service population (population + jobs) within the buffer is identified.

The City can improve measures of Bike Facility Access by improving and expanding existing bike facilities and by encouraging residential and commercial development in areas with high-quality bike facilities.

Proximity and Quality of Transit Network

The Proximity and Quality of Transit Network provides a measure of the percent of the City's service population (population + jobs) within a quarter mile of each of each of three transit facility types, as defined in the following table:

Table 2. Description of Transit Facilities

TRANSIT FACILITIES HIERARCHY	
LEVEL	FACILITIES INCLUDED
1	Includes all Gold Line stops as well as corridors with transit service, whether it be a single route or multiple routes combined, with headways of five minutes or less during the peak periods.
2	Includes corridors with transit headways of between six and 15 minutes in peak periods.
3	Includes corridors with transit headways of 16 minutes or more at peak periods.

For each facility level, a quarter-mile network distance buffer is calculated and the total service population (population + jobs) within the buffer is identified.

The City can improve the measures of Transit Proximity and Quality by reducing headways on existing transit routes, by expanding transit routes to cover new areas, and by encouraging residential and commercial development to occur in areas with an already high-quality transit service.

Pedestrian Accessibility Score

Proximity and Quality of Pedestrian Environment score provides a measure of the average walkability in the TAZ surrounding Pasadena residents, based on a Pedestrian Accessibility metric. The Pedestrian proximity metric is a simple count of the number of land use types accessible to a Pasadena resident or employee in a given TAZ within a 5-minute walk.

The ten categories of land uses are:

- Retail
- Personal Services
- Restaurant

- Entertainment
- Office (including private sector and government offices)
- Medical (including medical office and hospital uses)
- Culture (including churches, religious and other cultural uses)
- Park and Open Space
- School (including elementary and high schools)
- College

The following table summarizes the City's Metrics for determining CEQA Caps:

Table 3. City of Pasadena CEQA Thresholds of Significance

METRIC	DESCRIPTION	IMPACT THRESHOLD
1. VMT Per Capita	Vehicle Miles Traveled (VMT) in the City of Pasadena per service population (population + jobs).	CEQA Threshold: An increase over existing Citywide VMT per Capita of 22.6.
2. VT Per Capita	Vehicle Trips (VT) in the City of Pasadena per service population (population + jobs).	CEQA Threshold: An increase over existing Citywide VT per Capita of 2.8.
3. Proximity and Quality of Bicycle Network	Percent of service population (population + jobs) within a quarter mile of bicycle facility types	CEQA Threshold: Any decrease in existing citywide 31.7% of service population (population + jobs) within a quarter mile of Level 1 & 2 bike facilities.
4. Proximity and Quality of Transit Network	Percent of service population (population + jobs) located within a quarter mile of transit facility types.	CEQA Threshold: Any decrease in existing citywide 66.6% of service population (population + jobs) within a quarter mile of Level 1 & 2 transit facilities.
5. Pedestrian Accessibility	The Pedestrian Accessibility Score uses the mix of destinations, and a network-based walk shed to evaluate walkability	CEQA Threshold: Any decrease in the Citywide Pedestrian Accessibility Score

V. Project Transportation Impact Analysis

Project analyses are based on the City's Transportation Impact Analysis Guidelines. Proposed projects are analyzed using the City's calibrated travel demand forecasting model (TDF) built on SCAG's regional model.

The City's TDF model uses TransCAD software to simulate traffic levels and travel patterns for the City of Pasadena. The program consists of input files that summarize the City's land uses, street network, travel characteristics, and other key factors. Using this data, the model performs a series of calculations to determine the amount of trips

generated, the beginning and ending location of each trip, and the route taken by the trip. To be deemed accurate for project transportation impact on the transportation system, a model must be calibrated to a year in which actual land use data and traffic volumes are available and well documented. The Pasadena TDF has been calibrated to 2013 base year conditions using actual traffic counts, Census data, and land use data compiled by City staff with land uses' associated population and job increase estimates.

Projects with proposed land uses that are consistent with the General Plan and complimentary to their surrounding land uses are expected to reduce the trip length associated with adjacent land uses; and/or increase the service population access to pedestrians, bike, and transit facilities if the project is within a quarter mile of those facilities.

Table 4 summarizes the following analyses of the proposed project's impacts on the transportation system using the calibrated TDF model. The results are based on the project's vehicular and non-vehicular trip making characteristics, trip length, and its interaction with other surrounding/citywide land uses, and the City's transportation network.

Table 4. Transportation Performance Metrics Summary

Transportation Performance Metrics	Significant Impact Cap (existing)	Incremental change (existing + project)	Significant Impact?
VMT per Capita	>22.6	22.3	No
VT per Capita	>2.8	2.1	No
Proximity and Quality of Bicycle Network	<31.7%	31.8	No
Proximity and Quality of Transit Network	<66.6%	66.7	No
Pedestrian Accessibility	<3.9	3.9	No

The TDF model calculation results determined that the project does not exceed any of the CEQA thresholds of significance.

VI. Conclusion

The City of Pasadena Department of Transportation conducted an analysis to review potential transportation impacts related to the construction of a building with 80,285 sf medical office and 20,000 sf general office land uses with subterranean parking. Parking garage access is off of Fillmore Street.

Using the City's Transportation Demand Model, DOT found that the proposed project does not exceed any of the CEQA metrics outlined in the City's guidelines.

VII. Appendices

Memorandum of Understanding
City's Travel Demand Forecasting Model Output/Results

Appendix:
Memorandum of Understanding

PASADENA PERMIT CENTER
www.cityofpasadena.net/permitcenter

PLANNING DIVISION MASTER APPLICATION FORM

Project Address: 758 & 766 S. Fair Oaks Ave., Pasadena, CA

Project Name: Huntington Hospital Collection Site Medical Office Building

Project Description: (Please describe demolitions, alterations and any new construction) Removal of an existing 18,250 square foot, 1-story building and existing surface parking lot. Construction of a new 100,285 square foot, 4-story Medical Office Building with 3 levels of subterranean parking to provide 252 parking spaces. The 100,285 square feet includes 80,285 square feet of medical office and 20,000 square feet of general office.

Zoning Designation: IG-SP2 **General Plan Designation:** High Density Mixed Use

Estimated Valuation (Cost of Project): $70 MIL.

APPLICANT / OWNER INFORMATION

APPLICANT NAME: Thai Dinh Telephone: [619] 814-0080
Address: 1717 Kettner Blvd., Suite 100 Fax: [ ]
City San Diego State: CA Zip: 92101 Email: tdinh@mascariwarnerdinh.com

CONTACT PERSON: Brad McCoy Telephone: [626] 397-5555
Address: 100 W. California Blvd. Fax: [ ]
City Pasadena State: CA Zip: 91105 Email: brad.mccoy@huntingtonhospital.com

PROPERTY OWNER NAME: Collis P. & Howard Huntington Memorial Hospital Telephone: [ ]
Address: 100 W. California Blvd. Fax: [ ]
City Pasadena State: CA Zip: 91105 Email:

TYPE OF PLANNING REVIEW AND APPROVALS REQUIRED (Mark clearly the type of approval(s) required):

	ADJUSTMENT PERMIT		HEIGHT AVERAGING		PREDEVELOPMENT PLAN REVIEW
	AFFORDABLE HOUSING CONCESSION OR WAIVER		HILLSIDE DEVELOPMENT PERMIT		RELIEF FROM THE REPLACEMENT BUILDING PERMIT REQUIREMENT
	CERTIFICATE OF APPROPRIATENESS		HISTORIC DESIGNATION (MONUMENT, LANDMARK, TREE OR SIGN)		SIGN EXCEPTION
	CERTIFICATE OF EXCEPTION		HISTORICAL RESEARCH/EVALUATION		TENTATIVE PARCEL/TRACT MAP
	CHANGES TO APPROVED PROJECT		LANDMARK TREE PRUNING		TEMP. CONDITIONAL USE PERMIT
X	CONDITIONAL USE PERMIT		MASTER DEVELOPMENT PLAN		TREE PROTECTION PLAN REVIEW
	DESIGN REVIEW		MASTER SIGN PLAN		TREE REMOVAL
	DEVELOPMENT AGREMENT	X	MINOR CONDITIONAL USE PERMIT		VARIANCE
	EXPRESSIVE USE PERMIT		MINOR VARIANCE		VARIANCE FOR HISTORIC RESOURCES
	FLOOR AREA RATIO (FAR) INCREASE		PLANNED DEVELOPMENT ZONE		ZONE CHANGE (MAP AMENDMENT)
	GENERAL PLAN AMENDMENT		PRELIMINARY PLAN CHECK		OTHER:

Note: Space for signature is on reverse side

Master Application (without supplementals)5/27/20

SUPPLEMENT TO MASTER APPLICATION FORM
ENVIRONMENTAL ASSESSMENT

PROPOSED PROJECT INFORMATION:
This section of the Environmental Assessment is for information regarding the proposed project only.

Estimated Valuation: $70 MIL.
Explain if the project is located in a geological hazard area (i.e. hillside area, Seismic fault, erosive soils): _____

Amount of grading proposed: Cut: 54,000 CY Fill: 0 CY Balance: - 54,000 CY

Imported: 0 CY Exported: 54,000 CY

Type of development (single family residence, apartments, condominiums, commercial, industrial, institutional): Commercial

Total housing units: n/a Is this an affordable Housing Project? ☐ yes ☒ no # of affordable units: _____

Proposed Energy Types: ☐ All electrical ☐ Electric Kitchen ☐ Electric HVAC ☐ Gas kitchen

PROPOSED BUILDING(S)	BUILDING A	BUILDING B	BUILDING C	BUILDING D
Total gross square footage	100,285 SF			
Total commercial gross square footage	100,285 SF			
Total residential gross square footage				
Building footprint in square feet	29,800 SF			
Open space square footage	27,322 SF			
Landscaping square footage	2,478 SF			
Height of building in feet	56'			
Number of stories	4			
Number of parking spaces	252			
Number of housing units				
Number of bedrooms				
Hotel / motel number of rooms				
Hours of operation				
Number of employees				
Square feet of restaurant seating area				
Number of fixed seats (restaurant)				
Number of hotel / motel rooms to be demolished				
UBC occupancy group	B , S-1			
UBC construction type	1-A			
Fire sprinklers? yes / no	Yes			
Type of use (i.e. residential, commercial, mixed uses, etc.)	Commercial			

* If there are additional buildings on the site, please attach a separate sheet with the above information for each building.

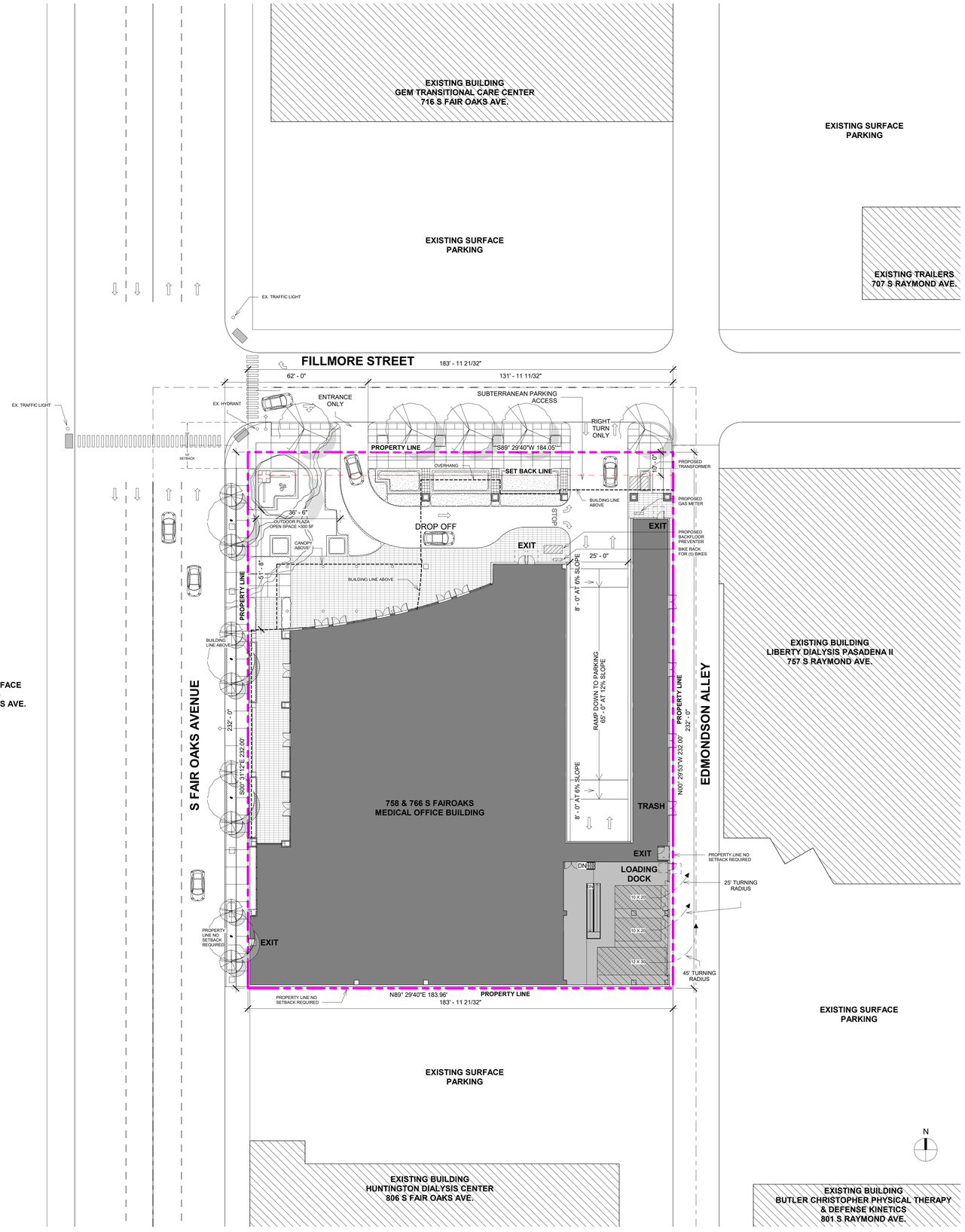
ATTACH AN EXPLANATION of any questions answered with yes.

☐ **yes** ☒ **no** Is this a phased project?

☒ **yes** ☐ **no** Will there be demolition or removal of any structure of any age?

☐ **yes** ☒ **no** Will there be any alteration of any existing structure?

PLANNING AND DEVELOPMENT DEPARTMENT // PLANNING DIVISION
175 NORTH GARFIELD AVENUE PASADENA, CA 91101
T 626-744-4009 F 626-744-4785



RENOVATION SITE PLAN
SCALE : 1" = 20'-0"

2

SITE PLAN LEGEND

- PROPERTY LINE
- SET BACK
- ACCESSIBLE ROUTE
- PERIMETER OF UNDERGROUND PARKING
- LANDSCAPING AREA
- PAVING/LANDSCAPING AREA
- EXISTING HYDRANT
- EXISTING STREET LIGHT

GENERAL NOTES

1. SEE LANDSCAPE PLANS FOR SITE IMPROVEMENTS
2. EXTERIOR BUILDING LIGHT ALONG EDMONDSON ALLEY TO BE COORDINATE WITH FUTURE SUBMITTALS.

LOADING SPACES (SECTION 17.46.260)

40,000 SF AND MORE REQUIRES 1 OF EVERY 40,000 SF OR FRACTION, WITH A MAXIMUM OF 4

REQUIRED: 3
PROVIDED: 3

SIZE PROVIDED:

(1) 12' X 30' WITH 14' VERTICAL CLEARANCE
(2) 10' X 20' WITH 12' VERTICAL CLEARANCE

MASCARI WARNER DINH
architects
1717 Kettner Blvd., Suite 100
San Diego, California 92101
619.814.0080 Fax 619.814.0081

LICENSED ARCHITECT
Thai Ba Dinh
C-34803
RENEWAL DATE
STATE OF CALIFORNIA

AGENCY APPROVAL

KEY PLAN

Huntington Hospital

758 & 766 S FAIR OAKS AVE.
PASADENA, CA 91105

MEDICAL OFFICE BUILDING

#

SITE PLAN

PROJECT NO.	2020012.20
DRAWN:	CHECK: Checker
ISSUE	DATE
CONDITIONAL USE PERMIT	AUGUST 5TH, 2021

A-002

8/5/2021 11:39:32 AM

Appendix:
City's Travel Demand Forecasting Model Output/Results

758 and 766 South Fair Oaks Avenue

VMT/Cap and VT/Cap Calculations Summary

Daily Trips	Internal	External
Internal	351,098	336,310
External	336,310	491,107

Pop	135,938
Emp	111,718
Ext. Factor	50%

FINAL REDUCED DAILY VMT BY SPEED BIN					EMFAC
Speed	**Internal**	**External**	**Regional**	**Total**	**INPUT**
5	110	0	1,743	1,852	0%
10	673	135	14,376	15,184	0%
15	4,636	1,351	45,933	51,920	1%
20	16,353	4,477	75,287	96,117	2%
25	96,782	12,656	150,399	259,838	5%
30	491,746	61,455	275,468	828,669	15%
35	822,296	139,851	320,617	1,282,764	23%
40	201,235	55,522	225,771	482,528	9%
45	135,954	105,060	169,633	410,648	7%
50	112,597	2,080	212,028	326,705	6%
55	95,606	7,987	229,609	333,202	6%
60	120,028	15,506	238,389	373,923	7%
65	323,818	20,503	181,267	525,588	9%
70	3,636	0	529,635	533,271	11%
75	0	0	77,371	77,371	
80	0	0	0	0	
85	0	0	0	0	
SUM	**2,425,471**	**426,584**	**2,747,525**	**5,599,580**	**100%**

TOTAL RAW DAILY SUMMARY					
Metric	**Internal**	**External**	**Regional**	**Total**	**Capita**
VMT	2,425,471	853,168	5,495,049	8,773,689	35.4
VT	351,098	672,620	-	1,023,718	4.1
Length	6.9	1.3	-	8.6	-

REDUCED DAILY SUMMARY					
Metric	**Internal**	**External**	**Regional**	**Total**	**Capita**
VMT	2,425,471	426,584	2,747,525	5,599,580	22.6
VT	351,098	336,310	-	687,408	2.8
Length	6.9	1.3	-	8.1	-

FINAL DAILY SCENARIO SUMMARY					
Pop	**Emp**	**VMT**	**VT**	**VMT/Cap**	**VT/Cap**
135,938	111,718	5,599,580	687,408	22.6	2.8

2013 EXISTING SUMMARY					
Pop	**Emp**	**VMT**	**VT**	**VMT/Cap**	**VT/Cap**
135,938	111,348	5,591,328	686,619	22.6	2.8

INCREMENTAL SCENARIO RESULTS					
Pop	**Emp**	**VMT**	**VT**	**VMT/Cap**	**VT/Cap**
0	370	8,252	789	22.3	2.1
				PASS	PASS

758 and 766 South Fair Oaks Avenue

Proximity and Quality Metric Calculations Summary

Proximity and Quality of Bicycle Network

Existing

Facility Type	Service Population	Service Population Adjustment	Final Service Population	Percent of Service Population
Level 2	78,415	0	78,415	31.7%
Level 3	123,670	0	123,670	50.0%
No Facility	45,202	0	45,202	18.3%
Exist City Total	247,286	0	247,286	100.0%

Existing + Project

Facility Type	Service Population	Service Population Adjustment	Final Service Population	Percent of Service Population
Level 2	78,415	370.2309327	78,785	31.8%
Level 3	123,670	0	123,670	49.9%
No Facility	45,202	0	45,202	18.3%
Exist City Total	247,286	370.2309327	247,657	100.0%

Proximity and Quality Metric Summary - Bicycle

Network	Service Population Adjustment	Significant Impact Threshold	Service Population %	Impact?
Bike	370.2309327	< 31.7%	31.8%	No

Proximity and Quality of Transit Network

Existing

Facility Type	Service Population	Service Population Adjustment	Final Service Population	Percent of Service Population
Level 1	90,600	0	90,600	36.6%
Level 2	74,298	0	74,298	30.0%
Level 3	50,495	0	50,495	20.4%
No Facility	31,893	0	31,893	12.9%
Exist City Total	247,286	0	247,286	100.0%

Existing + Project

Facility Type	Service Population	Service Population Adjustment	Final Service Population	Percent of Service Population
Level 1	90,600	370.2309327	90,971	36.7%
Level 2	74,298	0	74,298	30.0%
Level 3	50,495	0	50,495	20.4%
No Facility	31,893	0	31,893	12.9%
Exist City Total	247,286	370.2309327	247,657	100.0%

Proximity and Quality Metric Summary - Transit

Network	Service Population Adjustment	Significant Impact Threshold	Service Population %	Impact?
Transit	370.2309327	< 66.6%	66.7%	No

758 and 766 South Fair Oaks Avenue

Pedestrian Accessibility Calculations Summary

				Weighted Average:	**3.885781805**
PasadenaDTATAZ	Land Use Types	Population_In_TAZ	Employment_In_TAZ	Service_Population	Land Use Types

APPENDIX A.2:

TRANSPORTATION IMPACT ANALYSIS: OUTSIDE CEQA EVALUATION

Huntington Medical Building Transportation Impact Analysis Outside CEQA Evaluation

Final Report

October 1, 2021

Submitted to:

11341 | Prepared by **Iteris, Inc.**

Innovating Through Informatics™

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1 INTRODUCTION

This report summarizes the results of a transportation analysis for the proposed Huntington Hospital Collection Site Medical Building project, hereinafter referred to as the "project", located at 758 & 766 South Fair Oaks Avenue in the City of Pasadena. This report provides detailed information concerning the existing conditions, methodology, findings, and conclusions of the outside CEQA transportation impact analysis. Eight (8) existing intersections in the vicinity of the project site were analyzed. Additionally, Pedestrian Environmental Quality Index (PEQI) and Bicycle Environmental Quality Index (BEQI) were analyzed to identify potential impact of the proposed project on bicycle and pedestrian activity.

1.1 Project Description

The proposed project consists of a 4-story building consisting of 80,285 square feet of medical office and 20,000 square feet of general office, with two levels of underground parking. The proposed project will have 252 parking spaces. The project site currently consists of a 1-story, 18,250 square foot commercial building with a surface parking lot. Vehicle access to the proposed project site will be provided via an entrance on Filmore Street. **Figure 1** shows the project site plan.

2 EXISTING TRANSPORTATION NETWORK

This section describes the roadway system and transit service within the project vicinity.

2.1 Existing Street System

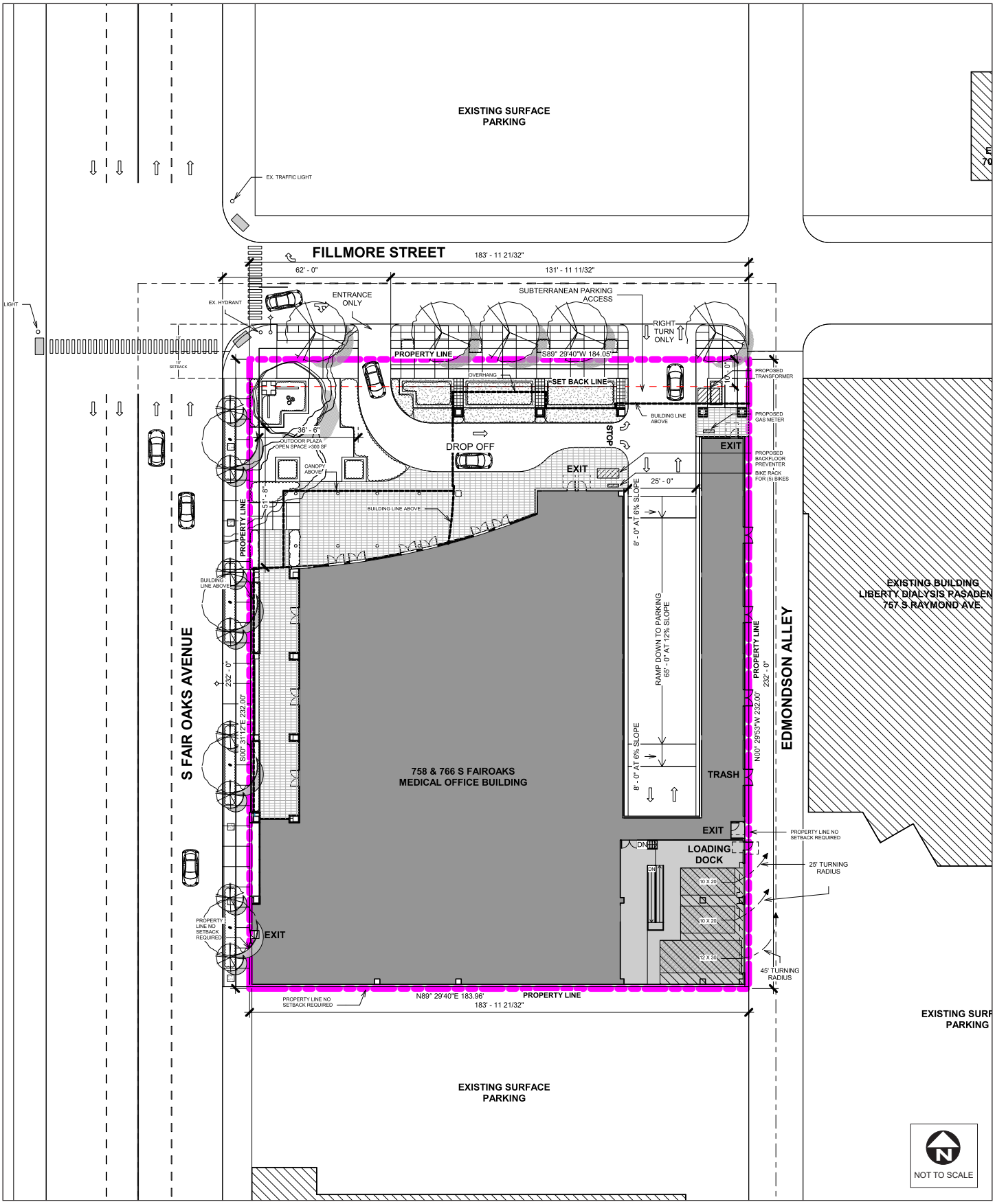
The existing configurations of the transportation network within the study area are described below:

St. John Avenue is a City Connector that is oriented in a north-south direction. The roadway functions as a one-way street consisting of two southbound lanes. The roadway merges into Pasadena Avenue, south of Bellefontaine Street. The posted speed limit is 30 mph.

Pasadena Avenue is a City Connector that is oriented in a north-south direction. The roadway functions as a one-way street consisting of two northbound lanes. The roadway merges with St. John Avenue, south of Bellefontaine Street. The posted speed limit is 30 mph.

Fair Oaks Avenue is a City Connector that is oriented in a north-south direction consisting of two lanes in each direction. On-Street parking is provided adjacent to the project site and on some segments within the study area. The roadway has a posted speed limit of 35 mph.

Raymond Avenue is a City Connector that is oriented in a north-south direction consisting of two lanes in each direction. On-street parking is provided on both sides of the roadway. Raymond Avenue has a posted speed limit of 35 mph.



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City of Pasadena
Huntington Hospital Medical Building
Transportation Impact Analysis

Figure 1
Project Site Plan

Arroyo Parkway is a City Connector that is oriented in a north-south direction consisting of two lanes in each direction. Arroyo Parkway has a posted speed limit of 35 mph.

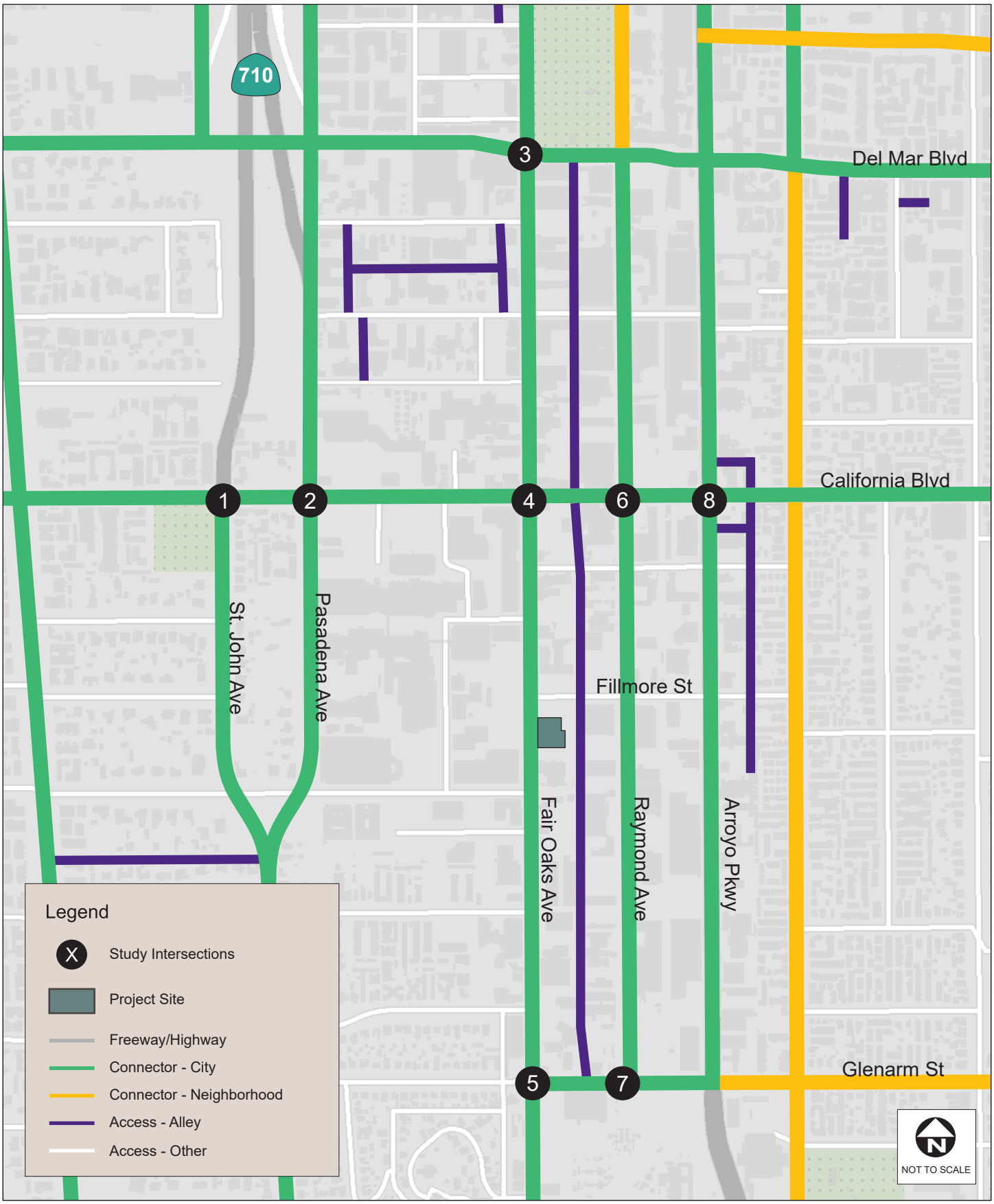
Del Mar Avenue is a City Connector that is oriented in an east-west direction consisting of two lanes in each direction. On-street parking is provided on both sides of the roadway west of Fair Oaks Avenue and westward. The roadway has a posted speed limit of 30 mph.

California Boulevard is a City Connector that is oriented in an east-west direction consisting of one lane in each direction west of Orange Grove Boulevard, two lanes in each direction between Orange Grove Boulevard and Lake Avenue, and one lane in each direction east of Lake Avenue. The posted speed limit is 30 mph.

Filmore Street is an Access Road that is oriented in an east-west direction consisting of one lane in each direction. On-street parking is provided on the south side of the street.

Glenarm Street is an Access Road that is oriented in an east-west direction between Pasadena Avenue and Fair Oaks Avenue, and a City Connector between Fair Oaks Avenue and Arroyo Parkway.

Figure 2 shows the existing street network and classifications in the study area.



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City of Pasadena
Huntington Hospital Medical Building
Transportation Impact Analysis

Figure 2
Roadway Classification

2.2 Existing Transit Service

LA Metro and Pasadena Transit are the main transit service providers in the study area. The locations of the bus stops and rail station are summarized in **Table 1**.

Table 1: Existing Transit Service

Location	LA Metro Route	Pasadena Transit Route
Fair Oaks Avenue / Del Mar Boulevard: Northeast corner	260 267	None
Fair Oaks Avenue / Del Mar Boulevard: Southwest corner	260	20 51
Fair Oaks Avenue / California Boulevard: Northeast corner	260	20
Fair Oaks Avenue / California Boulevard: Southwest corner	260	20 51
Fair Oaks Avenue / Glenarm Street: Northeast corner	260	20
Fair Oaks Avenue / Glenarm Street: Southeast corner	None	20
Raymond Avenue / California Boulevard: Northeast corner	None	51 52
Raymond Avenue / Fillmore Street: Northeast corner	Gold Line	51 52
Raymond Avenue / Glenarm Street: Northeast corner	None	51 52
Arroyo Parkway / California Boulevard: Southeast and Southwest corners	None	20

3 TRANSPORTATION ANALYSIS METHODOLOGY

This section discusses the methodologies and thresholds used in the transportation analysis. There are several performances measures that are analyzed for this study. These performance measures assess the quality of walking, biking, and vehicular activity in the City:

- Street Segment Analysis
- Intersection Level of Service
- Pedestrian Environmental Quality Index (PEQI)
- Bicycle Environmental Quality Index (BEQI)

After the performance measures are calculated, the values are compared to the City of Pasadena Outside CEQA Metrics Cap to determine if the project is below "communitywide significance". **Table 2** shows the thresholds for the analyses used in the study.

Table 2: City of Pasadena Outside CEQA Metrics Cap

Metric	Description	Impact Threshold
Street Segment Analysis	The street segment analysis assesses traffic intrusion on local streets in residential neighborhoods.	Increases of 10 – 15% above existing on streets with more than 1,500 ADT would trigger conditions of approval to reduce project vehicular trips.
Intersection Level of Service	Level of Service (LOS) as defined by the Transportation Research Board's *Highway Capacity Manual (HCM) 2010*	A decrease beyond LOS D Citywide or LOS E within Transit Oriented Districts (TODs) would trigger conditions of approval to reduce project vehicular trips.
PEQI	Pedestrian Environmental Quality Index	Below average conditions
BEQI	Bicycle Environmental Quality Index	Below average conditions

3.1 Intersection Level of Service Criteria

The quality of traffic operations is characterized using the concept of level of service (LOS). Level of service is defined by a range of grades from A (best) to F (worst). At intersections, LOS "A" represents relatively free flow operating conditions with little or no delay. LOS "F" is characterized by extremely unstable flow conditions, severe congestion and delays with traffic volumes at or near the intersection's design capacity. This typically results in long vehicular queues extending from all approaches of an intersection.

Per the City's guidelines, LOS analysis is performed using the Highway Capacity Manual (HCM) methodology, which uses vehicular delay criteria to determine LOS. **Table 3** presents a brief description of each level of service letter grade.

Table 3: Intersection Level of Service Definitions –HCM Methodology

Level Of Service	Description	HCM Average Delay (sec) - Signalized Intersections	HCM Average Delay (sec) - Unsignalized Intersections
A	Excellent operation. All approaches to the intersection appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation.	≤ 10	≤ 10
B	Very good operation. Many drivers begin to feel somewhat restricted within platoons of vehicles. This represents stable flow. An approach to an intersection may occasionally be fully utilized and traffic queues start to form.	>10-20	>10-15
C	Good operation. Occasionally drivers may have to wait more than 60 seconds, and back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted.	>20-35	>15-25
D	Fair operation. Cars are sometimes required to wait more than 60 seconds during short peaks. There are no long-standing traffic queues.	>35-55	>25-35
E	Poor operation. Some long-standing vehicular queues develop on critical approaches to intersections. Delays may be up to several minutes.	>55-80	>35-50
F	Forced flow. Represents jammed conditions. Backups form locations downstream or on the cross street may restrict or prevent movement of vehicles out of the intersection approach lanes; therefore, volumes carried are not predictable. Potential for stop and go type traffic flow.	>80	>50

3.2 Intersection Thresholds of Significance/Caps

The City of Pasadena has established the following thresholds/caps for intersection LOS, as shown in **Table 4**.

Table 4: Intersection Level of Service Caps

Study Intersections	Existing Plus Project LOS Cap
Citywide	D
Transit Oriented District (TOD)	E

Note that the project is located within the City's Transit Oriented District.

3.3 Pedestrian and Bicycle Environmental Quality Index Discussion

The Pedestrian Environmental Quality Index (PEQI) and Bicycle Environmental Quality Index (BEQI) analyses are used to summarize the street and intersection environmental conditions that affect travel within the City. The PEQI and BEQI conditions are classified into five categories:

- Intersection Safety
- Traffic
- Street Design
- Land Use
- Perceived Safety

Data is collected through a field visit at the segments adjacent to the project site. The scoring system represents the extent of how the environmental factors support walking, biking, and safety on the street segment and intersection design. The analyses produce a score for street segments and intersections on a scale ranging between 0 – 100. **Table 5** shows the score ranges.

Table 5: PEQI and BEQI Scores and Description

Score	Description
81 – 100	Highest quality, many important pedestrian/bicycle conditions present
61 – 80	High quality, some important pedestrian/bicycle conditions present
41 – 60	Average quality, pedestrian/bicycle conditions present but room for improvement
21 – 40	Low quality, minimal pedestrian/bicycle conditions
20 and below	Poor quality, pedestrian/bicycle conditions absent

In regards to improving the bicycle and pedestrian environmental quality, the City can build more bike lanes and high quality bicycle infrastructure to improve traffic flow and reduce the chance of collisions between vehicles and bicycles. By utilizing the BEQI, the City can provide a safe bicycle environment and help prioritize improvements during neighborhood planning through the land use plans and environmental assessments.

Additionally, the City can provide designated space on roadways for pedestrians, encourage pedestrian visibility, reduce vehicle volume and speed, and various land use changes to allow pedestrians to feel safe. These land use changes include more green space/parks, retail and dining destinations, and other public gathering spaces.

3.4 Street Segment Analysis

The project site is served by a City Connector (Fair Oaks Avenue) and also by an access road (Fillmore Street). Therefore, a street segment analysis was not conducted since the purpose of street segment analysis is to analyze access and neighborhood connector street types within a residential context.

4 TRANSPORTATION ANALYSIS

This section includes the analysis of the project's traffic impacts on the circulation network, including project trip generation estimates.

4.1 Study Intersections

The proposed study area for analysis includes the following eight (8) intersections in the vicinity of the project site:

1. St. John Avenue/California Boulevard;
2. Pasadena Avenue/California Boulevard;
3. Fair Oaks Avenue/Del Mar Boulevard;
4. Fair Oaks Avenue/California Boulevard;
5. Fair Oaks Avenue/Glenarm Street;
6. Raymond Avenue/California Boulevard;
7. Raymond Avenue/Glenarm Street; and
8. Arroyo Parkway/California Boulevard.

The project site location and proposed study intersections are shown in **Figure 3**.

4.2 Study Periods

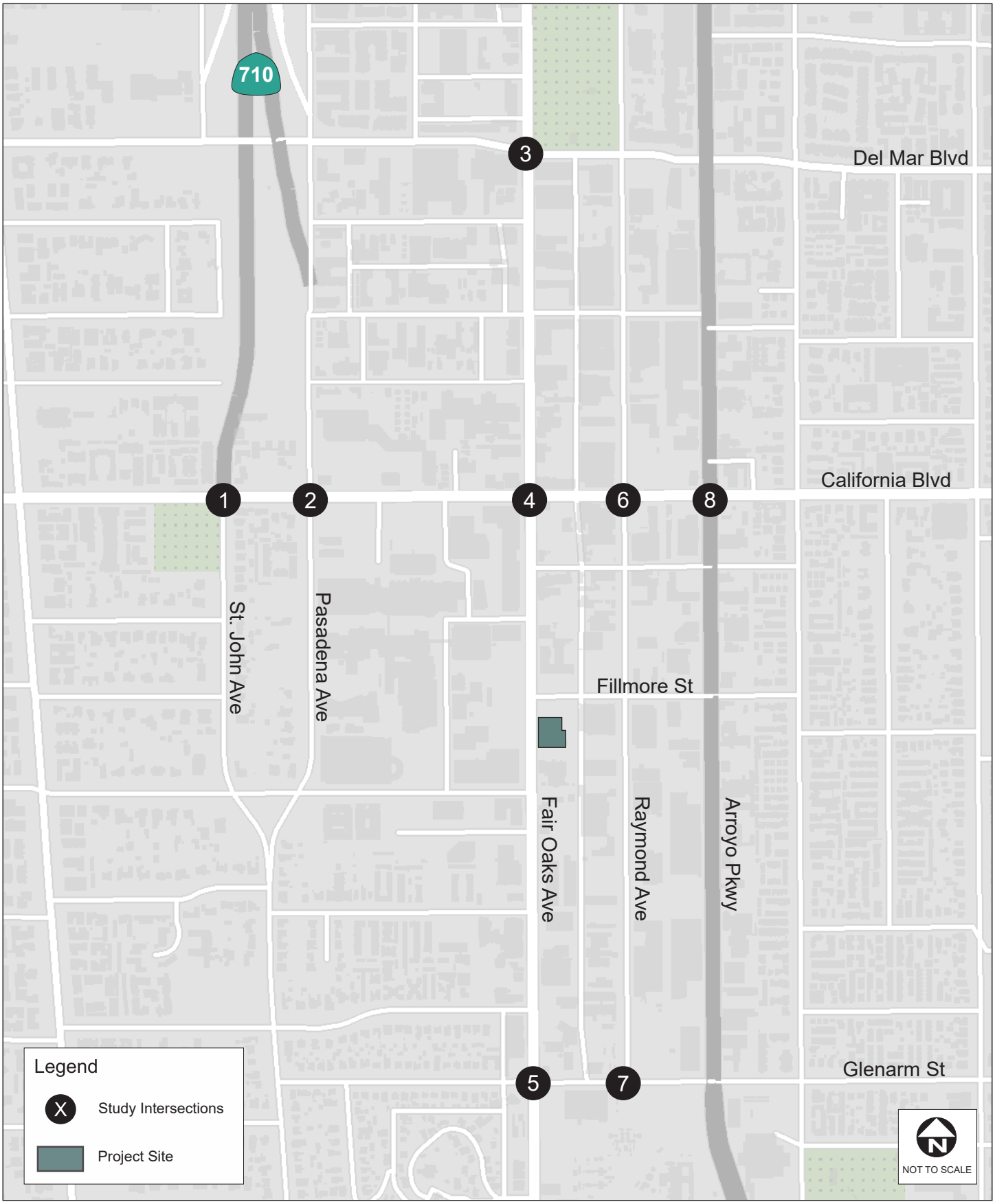
Traffic operations were evaluated for each of the following scenarios during the weekday morning (7:00 – 9:00 a.m.) and evening (4:00 – 6:00 p.m.) peak periods during typical weekday conditions (during the school year):

- Existing Conditions; and
- Existing Plus Project Conditions.

4.3 Existing Traffic Volumes

Existing traffic counts at the study intersections were obtained from the *SR-710 Northern Stub Repurposing Feasibility Traffic Operations Analysis* (Iteris, January 2021), at seven of the eight intersections. The counts were collected in 2019. At the Raymond Avenue/Glenarm Street intersection, traffic counts from the year 2019 were provided by the City and were used for the study. The traffic counts were increased by 1% to account for traffic growth, resulting in a 2020-equivalent volume set to represent existing conditions.

All counts were conducted during the morning peak period (7:00 – 9:00 a.m.) and evening peak period (4:00 – 6:00 p.m.). The traffic impact analysis is based on the highest single hour of traffic during each time period at each location. Detailed vehicle turning movement data is included in **Appendix A. Figure 4** shows the existing peak hour volumes at the study intersections.



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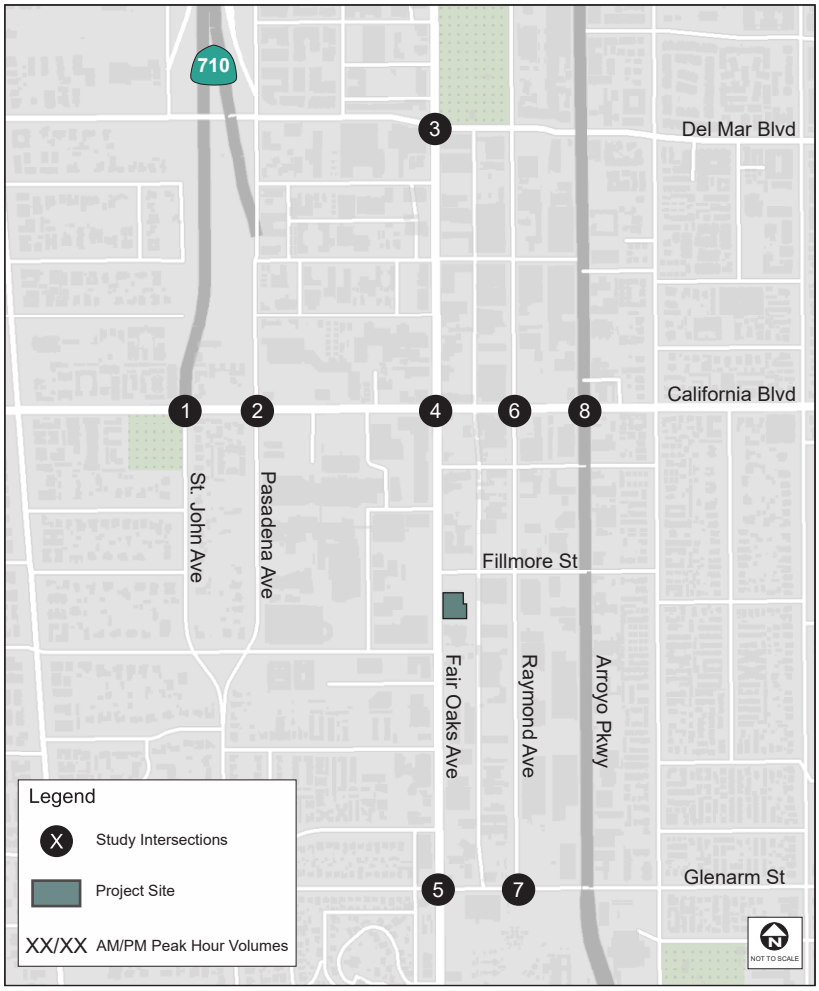
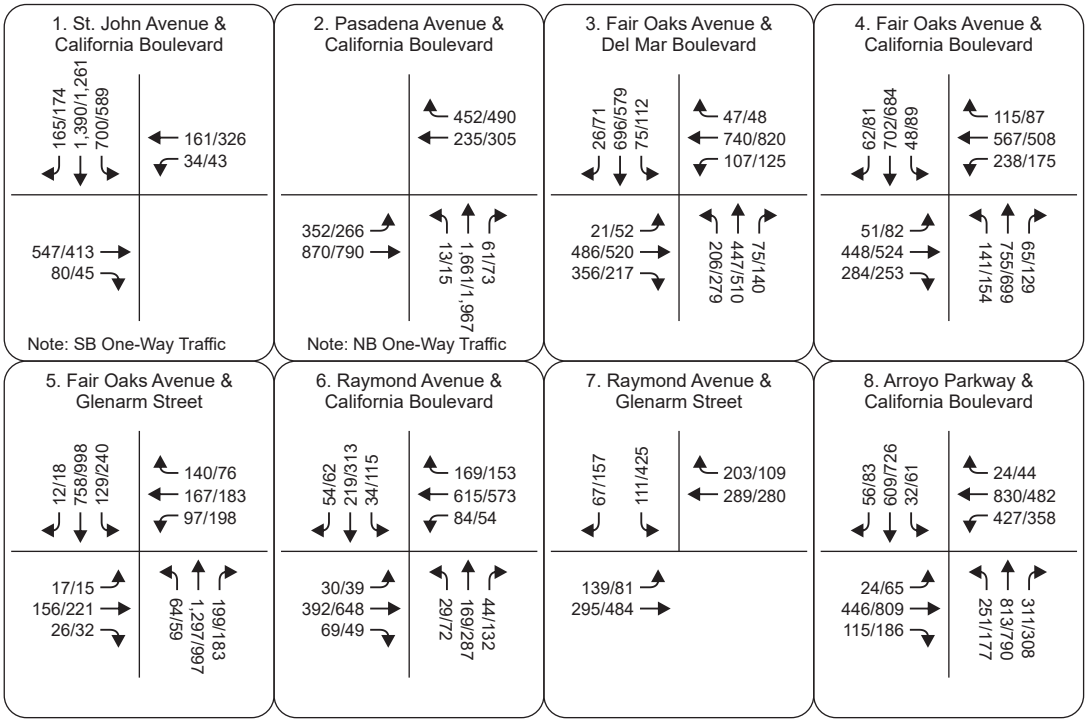
Huntington Hospital Medical Building
Transportation Impact Analysis

Figure 3
Study Area





City of Pasadena
Huntington Hospital Medical Building
Transportation Impact Analysis

Figure 4
Existing Peak Hour Intersection Volumes

4.4 Proposed Project Traffic

This section describes the methodology used to determine project trip generation and the distribution of project traffic within the study area. The first step in analyzing traffic conditions with the project is to estimate the number of new trips expected to be generated by the proposed project. The proposed project consists of a 4-story building consisting of 80,285 square feet of medical office and 20,000 square feet of general office, with two levels of underground parking. The project site currently consists of a 1-story, 18,250 square feet commercial building with a surface parking lot.

4.4.1 Project Trip Generation

The trip generation analysis was completed in a two-step process. First, the number of trips generated by the proposed development was calculated by multiplying the trip generation rate for medical buildings by the proposed size of the building. The result of this calculation is shown in **Table 6**. Trip generation rates for the proposed project were calculated based on the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition*.

Table 6: Proposed Project Trip Generation

Land Use (ITE Code)	Size	Units	Trip Generation Rates							Trip Generation						
			AM Peak Hour			PM Peak Hour			Daily	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total		In	Out	Total	In	Out	Total	
Proposed Project																
Medical-Dental Office Building (720)	80.285	tsf	78%	22%	2.78	28%	72%	3.46	34.80	174	49	223	78	200	278	2,794
Office Building (710)	20.000	tsf	86%	14%	1.16	16%	84%	1.15	9.74	20	3	23	4	19	23	195
Transit Credit (10%)										*-19*	*-5*	*-25*	*-8*	*-22*	*-30*	*-299*
Existing Site to be Removed																
Variety Store (814)	18.250	tsf	57%	43%	3.18	52%	48%	6.84	63.47	-33	-25	-58	-65	-60	-125	-1,158
PROJECT NET TOTAL										**142**	**22**	**163**	**9**	**137**	**146**	**1,532**

As shown in **Table 6**, the proposed project is forecast to generate 163 net new a.m. peak hour trips, 146 net new p.m. peak hour trips, and 1,532 net new daily trips.

4.4.2 Project Trip Distribution and Assignment

Trip distribution assumptions are used to determine the origin and destination of new vehicle trips associated with the project. Project trip distribution is based on the land use and the circulation network in the vicinity of the project. The general project trip distribution is shown in **Figure 5**.

The new trips generated by the project, as shown in **Table 6**, were then assigned to the surrounding roadway system based on the distribution pattern shown in **Figure 5** to estimate the project-related peak-hour traffic at each of the study intersections. **Figure 6** illustrates the proposed project trip assignment onto the roadway network during the a.m. and p.m. peak hours.

4.5 Intersection Level of Service Analysis

This section includes the LOS analysis of the study intersections in existing and existing plus project conditions. As mentioned, the project is located within the City's Transit Oriented District, thus the LOS cap for intersections (i.e., maximum acceptable LOS) is LOS E. **Figure 7** shows the existing intersection lane configurations.

4.5.1 Existing Conditions

A level of service analysis was conducted to evaluate existing intersection operations during the a.m. and p.m. peak hours at the study intersections. **Table 7** summarizes the existing LOS at the study intersections. LOS calculation sheets are provided in **Appendix B**.

Table 7: Existing Intersection Peak Hour Level of Service

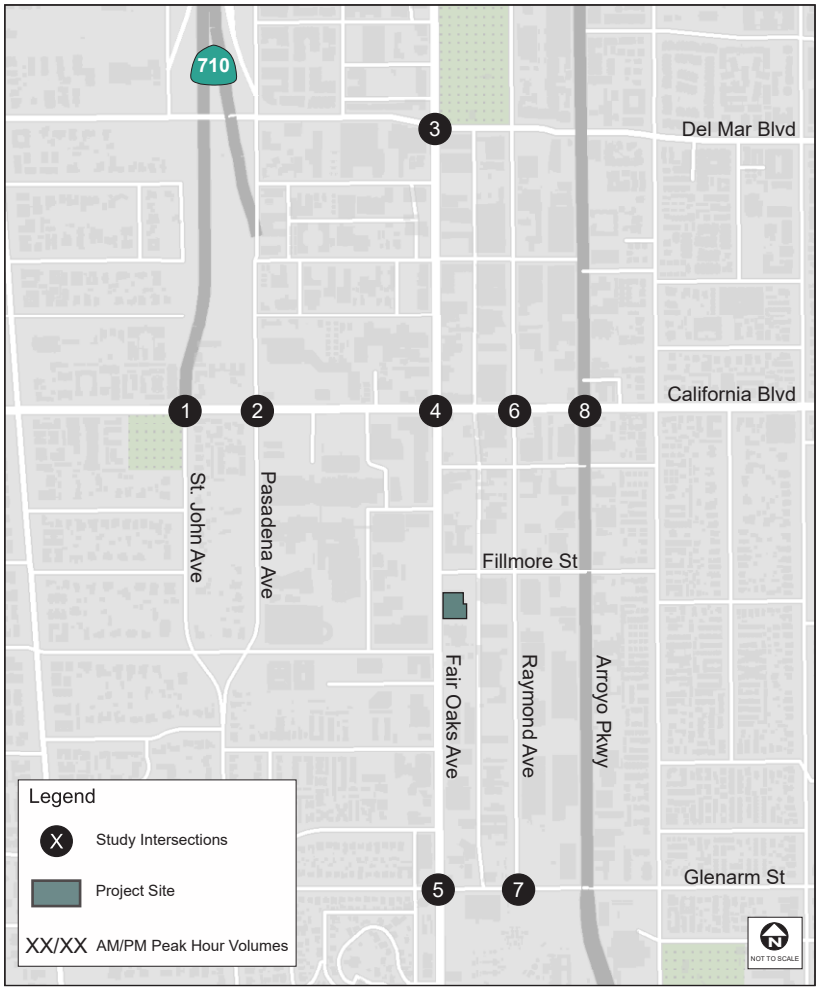
Intersection		Control Type	AM Peak Hour		PM Peak Hour	
			Delay (s)	LOS	Delay (s)	LOS
1	St. John Ave/California Blvd	signalized	18.4	B	16.4	B
2	Pasadena Ave/California Blvd	signalized	56.4	E	57.0	E
3	Fair Oaks Ave/Del Mar Blvd	signalized	32.9	C	31.5	C
4	Fair Oaks Ave/California Blvd	signalized	29.1	C	29.0	C
5	Fair Oaks Ave/Glenarm St	signalized	28.2	C	23.6	C
6	Raymond Ave/California Blvd	signalized	18.0	B	23.1	C
7	Raymond Ave/Glenarm St	signalized	11.3	B	7.0	A
8	Arroyo Pkwy/California Blvd	signalized	39.6	D	40.4	D

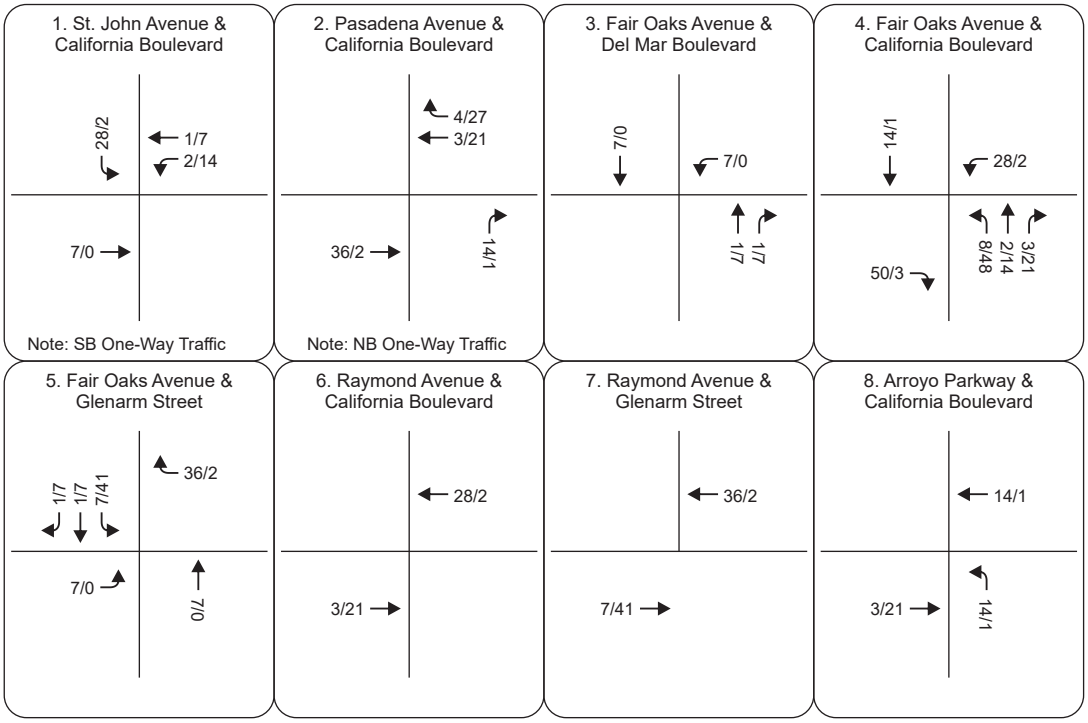
Notes:
s = seconds, LOS = Level of Service.

As shown in **Table 7**, all study intersections are currently operating at acceptable levels of service (LOS E or better) during the a.m. and p.m. peak hour.

City of Pasadena
Huntington Hospital Medical Building
Transportation Impact Analysis

Figure 5
Project Trip Distribution





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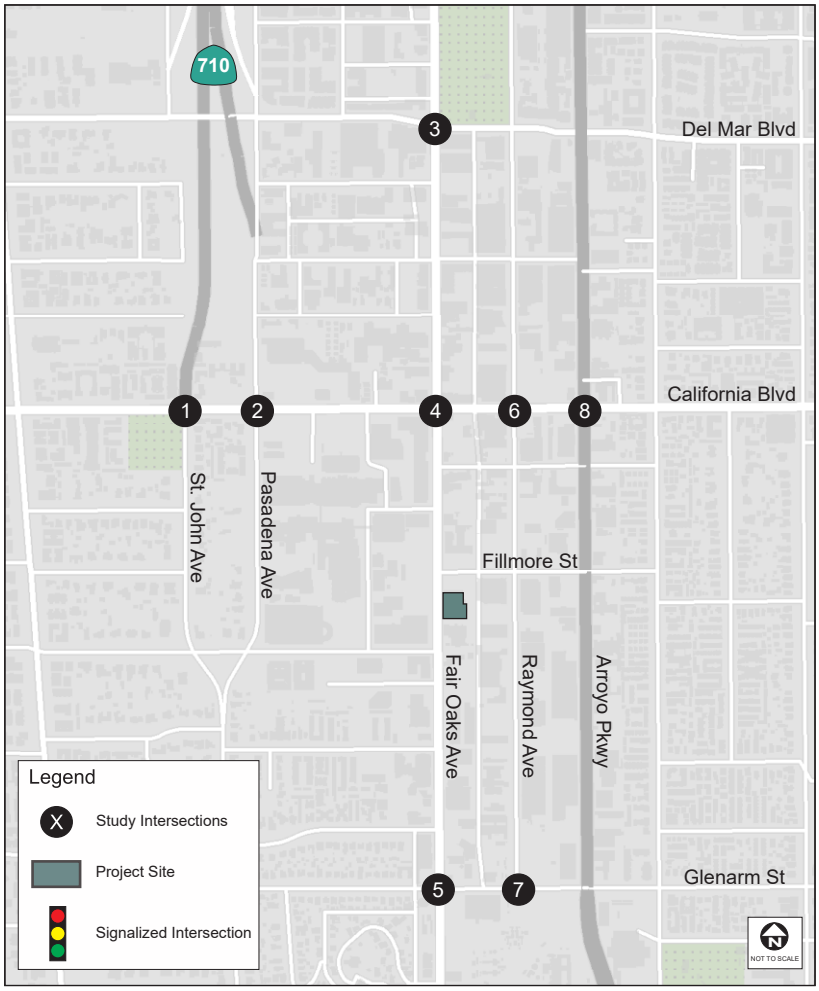
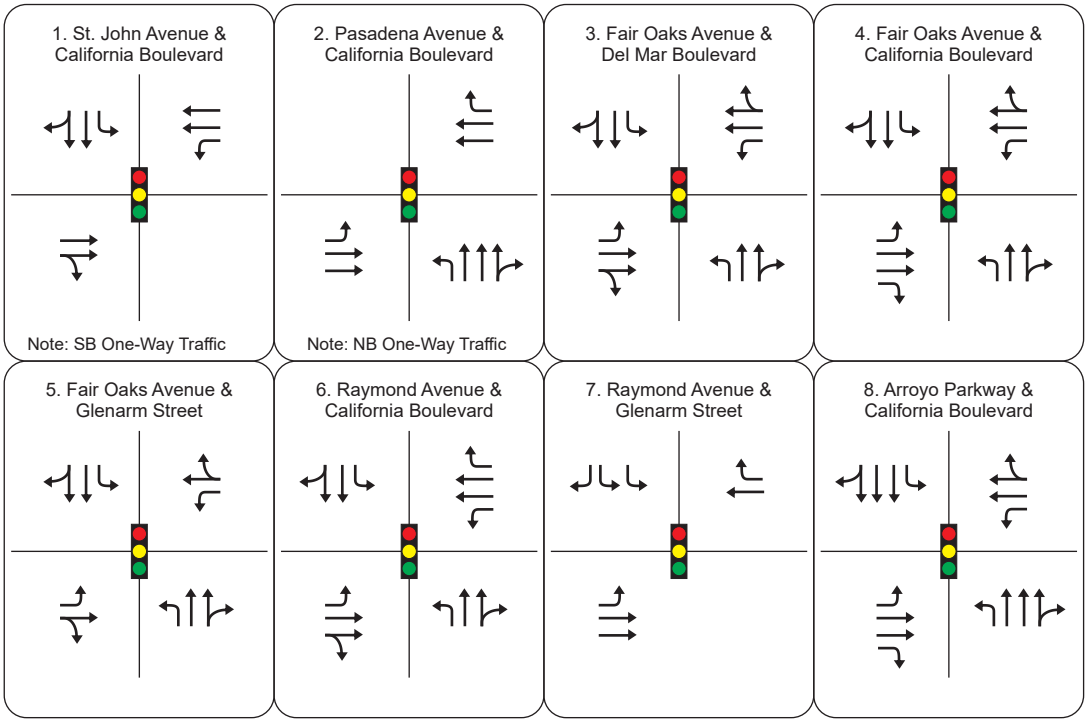
Huntington Hospital Medical Building
Transportation Impact Analysis

Figure 6
Project Trip Assignment





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City of Pasadena
Huntington Hospital Medical Building
Transportation Impact Analysis

Figure 7
Existing Intersection Configurations

4.5.2 Existing Plus Project Conditions

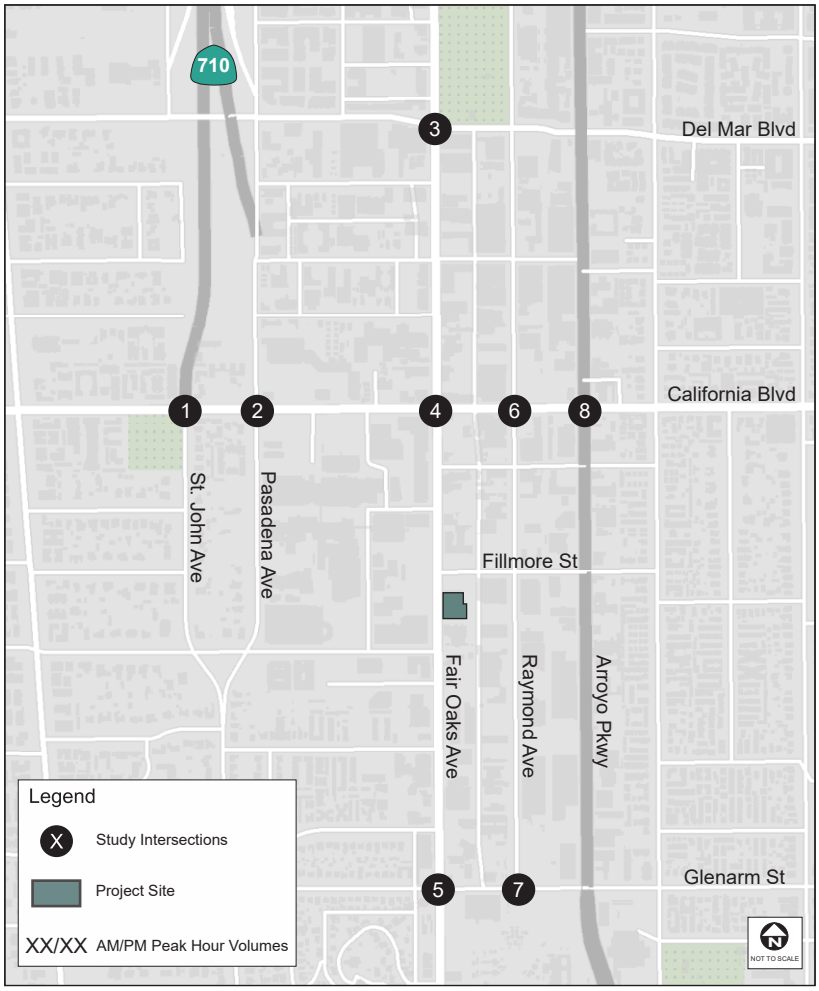
Existing plus project conditions were developed by adding trips forecast to be generated by the proposed project to existing volumes. Existing plus project traffic volumes are illustrated in **Figure 8**. Existing plus project levels of service at the study intersections are summarized in **Table 8**. Level of service calculation worksheets are included in **Appendix B**.

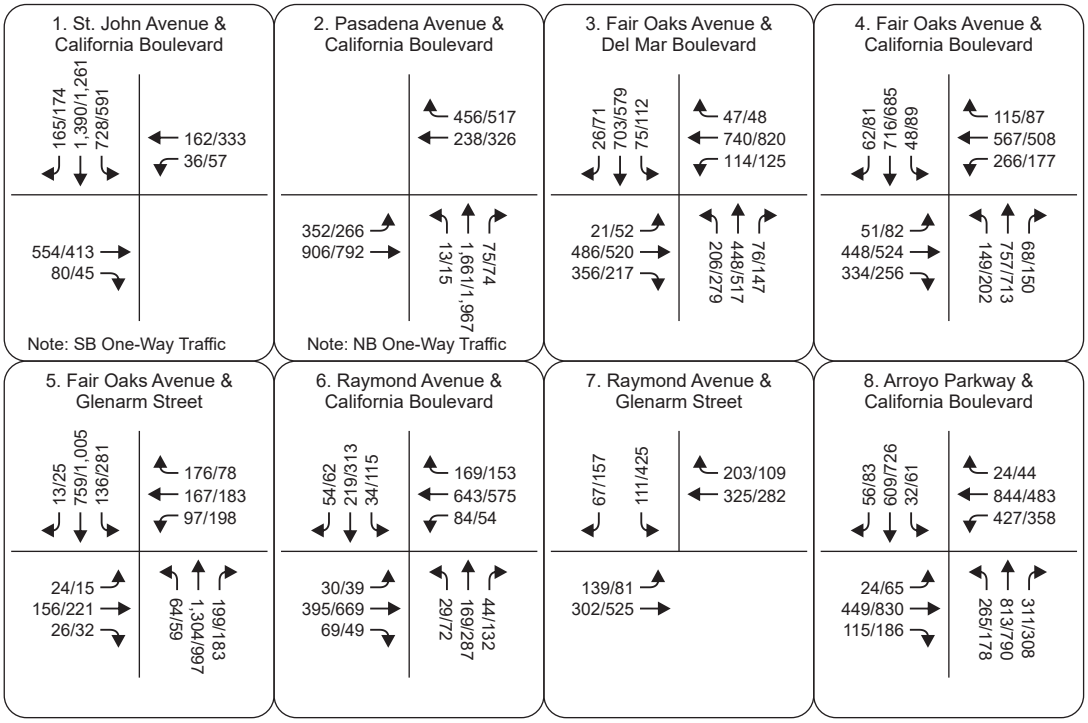
Table 8: Existing Plus Project Intersection Peak Hour Level of Service

Intersection		Existing Conditions				Existing Plus Project Conditions				Exceeds LOS Cap?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		
		Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	
1	St. John Ave/California Blvd	18.4	B	16.4	B	18.6	B	16.5	B	No
2	Pasadena Ave/California Blvd	56.4	E	57.0	E	57.7	E	60.7	E	No
3	Fair Oaks Ave/Del Mar Blvd	32.9	C	31.5	C	33.2	C	31.5	C	No
4	Fair Oaks Ave/California Blvd	29.1	C	29.0	C	31.7	C	29.8	C	No
5	Fair Oaks Ave/Glenarm St	28.2	C	23.6	C	31.6	C	25.2	C	No
6	Raymond Ave/California Blvd	18.0	B	23.1	C	18.0	B	23.2	C	No
7	Raymond Ave/Glenarm St	11.3	B	7.0	A	11.0	B	7.0	A	No
8	Arroyo Pkwy/California Blvd	39.6	D	40.4	D	40.4	D	41.2	D	No

Notes:
s = seconds, LOS = Level of Service.

Since the project is located within the City's Transit Oriented District, the LOS threshold cap is "LOS E". As shown in **Table 8**, with the project traffic, LOS at the study intersections are not forecast to exceed the LOS cap.





City of Pasadena
Huntington Hospital Medical Building
Transportation Impact Analysis

Figure 8
Existing Plus Project
Peak Hour Intersection Volumes

4.6 Pedestrian and Bicycle Environmental Quality Index Analysis

Iteris staff performed an observational field survey to document the current pedestrian and bicycle quality conditions adjacent to the project site. The survey limits were:

- Fair Oaks Avenue between Filmore Street and Bellefontaine Street; and
- Filmore Street between Fair Oaks Avenue and Raymond Avenue.

The PEQI and BEQI scores are summarized in **Table 9**. Detailed calculation sheets are provided in **Appendix C**.

Table 9: PEQI/BEQI Summary

Segment	PEQI Score	BEQI Score
Fair Oaks Ave between Filmore St & Bellefontaine St		
West side	61 - High	24 - Low
East side	61 - High	25 - Low
Filmore St between Fair Oaks Ave & Raymond Ave		
North side	68 - High	50 - Average
South side	72 - High	47 - Average

5 CONCLUSIONS

Iteris prepared an outside CEQA transportation impact analysis for the proposed Huntington Hospital Collection Site Medical Building project, located at 758 & 766 South Fair Oaks Avenue in the City of Pasadena. The proposed project consists of a 4-story building consisting of 80,285 square feet of medical office and 20,000 square feet of general office, with two levels of underground parking. The proposed project will have 252 parking spaces. The project site currently consists of a 1-story, 18,250 square foot commercial building with a surface parking lot.

The following describe the results of the Outside CEQA analysis:

- The proposed project is forecast to generate 163 net new a.m. peak hour trips, 146 net new p.m. peak hour trips, and 1,532 net new daily trips.
- None of the eight intersections in the study area are forecast to exceed the adopted LOS cap.
- The calculated PEQI score shows that the existing pedestrian conditions are high quality.
- The calculated BEQI score shows that the existing bicycle conditions are average for Fillmore Street and below average for Fair Oaks Avenue.
- The project site is served by a City Connector (Fair Oaks Avenue) and also by an access road (Fillmore Street). Therefore, a street segment analysis was not conducted since the purpose of street segment analysis is to analyze access and neighborhood connector street types within a residential context.

Huntington Medical Building Transportation Impact Analysis Outside CEQA Evaluation

Technical Appendix

Submitted to:

11341 | Prepared by **Iteris, Inc.**

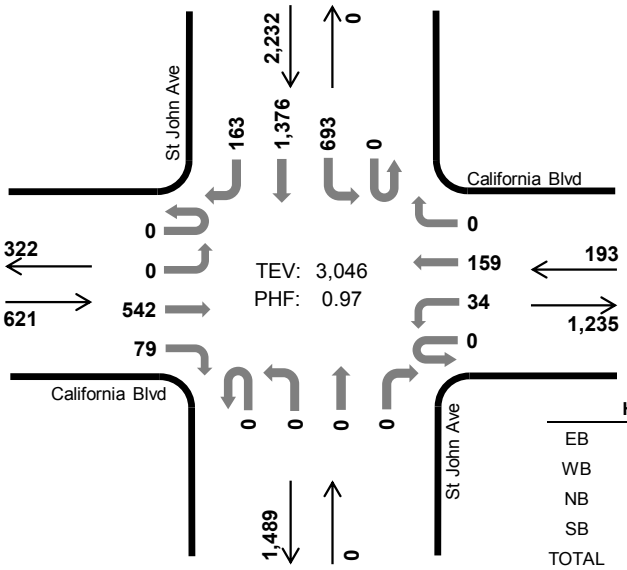
Innovating Through Informatics™

APPENDIX A – EXISTING TRAFFIC COUNTS

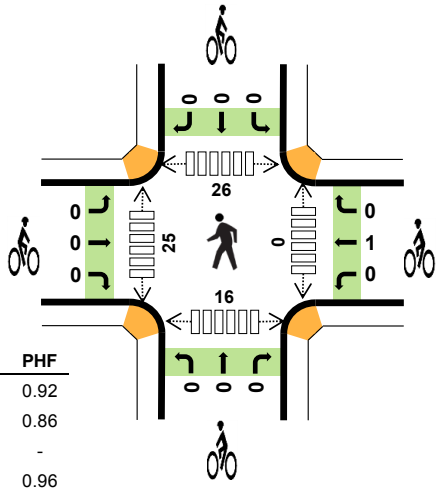
St John Ave
California Blvd

Date: 12-12-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM

Peak Hour



	HV %:	PHF
EB	0.6%	0.92
WB	1.6%	0.86
NB	-	-
SB	0.5%	0.96
TOTAL	0.6%	0.97



Two-Hour Count Summaries

Interval Start		California Blvd Eastbound				California Blvd Westbound				St John Ave Northbound				St John Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	68	5	0	3	23	0	0	0	0	0	0	139	364	93	695	0
7:15 AM		0	0	79	15	0	7	24	0	0	0	0	0	0	140	413	64	742	0
7:30 AM		**0**	**0**	**129**	**30**	**0**	**10**	**36**	**0**	**0**	**0**	**0**	**0**	**0**	**152**	**372**	**58**	**787**	0
7:45 AM		**0**	**0**	**118**	**19**	**0**	**6**	**44**	**0**	**0**	**0**	**0**	**0**	**0**	**188**	**339**	**30**	**744**	2,968
8:00 AM		**0**	**0**	**154**	**14**	**0**	**11**	**45**	**0**	**0**	**0**	**0**	**0**	**0**	**177**	**330**	**41**	**772**	3,045
8:15 AM		**0**	**0**	**141**	**16**	**0**	**7**	**34**	**0**	**0**	**0**	**0**	**0**	**0**	**176**	**335**	**34**	**743**	**3,046**
8:30 AM		0	0	134	13	0	4	58	0	0	0	0	0	0	175	311	33	728	2,987
8:45 AM		0	0	130	14	0	8	21	0	0	0	0	0	0	194	316	60	743	2,986
Count Total		0	0	953	126	0	56	285	0	0	0	0	0	0	1,341	2,780	413	5,954	0
Peak Hour	**All**	**0**	**0**	**542**	**79**	**0**	**34**	**159**	**0**	**0**	**0**	**0**	**0**	**0**	**693**	**1,376**	**163**	**3,046**	**0**
	HV	**0**	**0**	**4**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**4**	**4**	**19**	**0**
	HV%	**-**	**-**	**1%**	**0%**	**-**	**3%**	**1%**	**-**	**-**	**-**	**-**	**-**	**-**	**1%**	**0%**	**2%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	2	1	0	8	*11*	1	0	0	0	*1*	0	0	0	0	*0*
7:15 AM	1	0	0	4	*5*	0	0	0	0	*0*	0	2	1	2	*5*
7:30 AM	**2**	**0**	**0**	**4**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**5**	**8**	**4**	*17*
7:45 AM	**0**	**0**	**0**	**3**	***3***	**0**	**1**	**0**	**0**	***1***	**0**	**3**	**5**	**6**	*14*
8:00 AM	**0**	**2**	**0**	**2**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**8**	**7**	**4**	*19*
8:15 AM	**2**	**1**	**0**	**3**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**9**	**6**	**2**	***17***
8:30 AM	2	2	0	4	*8*	0	0	0	0	*0*	0	3	3	4	*10*
8:45 AM	2	0	0	4	*6*	0	0	0	0	*0*	0	7	10	3	*20*
Count Total	11	6	0	32	*49*	1	1	0	0	*2*	0	37	40	25	*102*
Peak Hour	**4**	**3**	**0**	**12**	***19***	**0**	**1**	**0**	**0**	***1***	**0**	**25**	**26**	**16**	***67***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	California Blvd				California Blvd				St John Ave				St John Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	2	0	0	0	1	0	0	0	0	0	0	4	4	0	11	0
7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	3	0	5	0
7:30 AM	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**0**	**6**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**3**	25
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**4**	18
8:15 AM	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**6**	**19**
8:30 AM	0	0	2	0	0	0	2	0	0	0	0	0	0	2	1	1	8	21
8:45 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	1	3	0	6	24
Count Total	0	0	10	1	0	1	5	0	0	0	0	0	0	12	15	5	49	0
Peak Hour	**0**	**0**	**4**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**4**	**4**	**19**	**0**

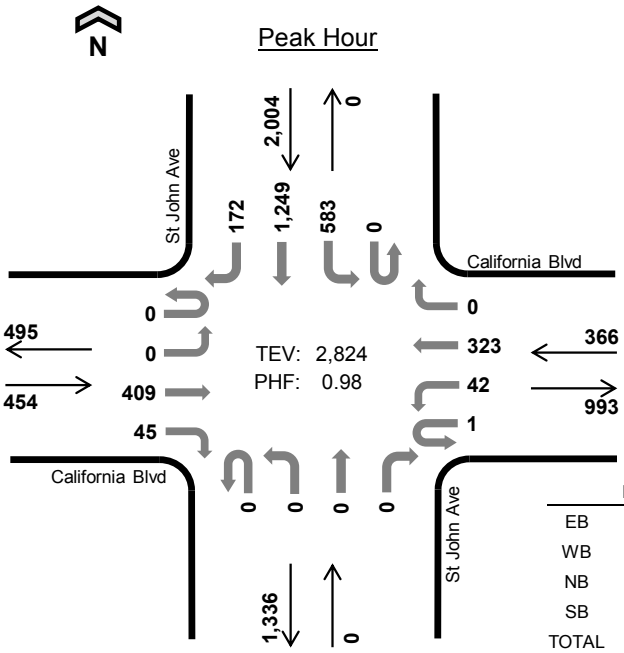
Two-Hour Count Summaries - Bikes

Interval Start	California Blvd			California Blvd			St John Ave			St John Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	2
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	1	0	0	1	0	0	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

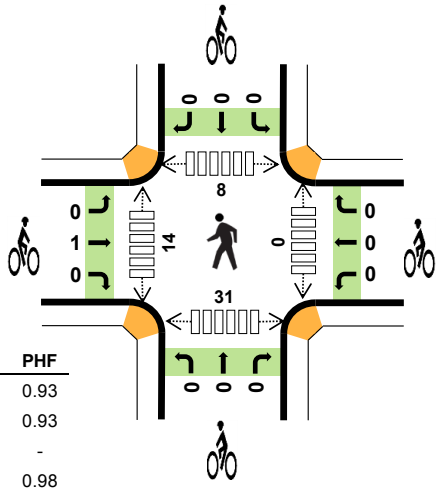
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

St John Ave
California Blvd

Date: 12-12-2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM



	HV %:	PHF
EB	0.2%	0.93
WB	0.8%	0.93
NB	-	-
SB	0.3%	0.98
TOTAL	0.4%	0.98



Two-Hour Count Summaries

Interval Start		California Blvd Eastbound				California Blvd Westbound				St John Ave Northbound				St John Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		**0**	**0**	**86**	**11**	**1**	**12**	**85**	**0**	**0**	**0**	**0**	**0**	**0**	**139**	**336**	**27**	**697**	0
4:15 PM		**0**	**0**	**107**	**9**	**0**	**8**	**86**	**0**	**0**	**0**	**0**	**0**	**0**	**157**	**318**	**38**	**723**	0
4:30 PM		**0**	**0**	**110**	**9**	**0**	**7**	**82**	**0**	**0**	**0**	**0**	**0**	**0**	**145**	**300**	**44**	**697**	0
4:45 PM		**0**	**0**	**106**	**16**	**0**	**15**	**70**	**0**	**0**	**0**	**0**	**0**	**0**	**142**	**295**	**63**	**707**	**2,824**
5:00 PM		0	0	97	7	0	9	68	0	0	0	0	0	0	129	292	42	644	2,771
5:15 PM		0	0	107	7	0	5	81	0	0	0	0	0	0	129	348	34	711	2,759
5:30 PM		0	0	112	9	0	13	56	0	0	0	0	0	0	149	332	33	704	2,766
5:45 PM		0	0	93	18	0	15	70	0	0	0	0	0	0	152	300	51	699	2,758
Count Total		0	0	818	86	1	84	598	0	0	0	0	0	0	1,142	2,521	332	5,582	0
Peak Hour	**All**	**0**	**0**	**409**	**45**	**1**	**42**	**323**	**0**	**0**	**0**	**0**	**0**	**0**	**583**	**1,249**	**172**	**2,824**	**0**
	HV	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**4**	**0**	**10**	**0**
	HV%	**-**	**-**	**0%**	**0%**	**0%**	**0%**	**1%**	**-**	**-**	**-**	**-**	**-**	**-**	**0%**	**0%**	**0%**	**0%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	**0**	**3**	**0**	**2**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**0**	**9**	*11*
4:15 PM	**0**	**0**	**0**	**3**	***3***	**1**	**0**	**0**	**0**	***1***	**0**	**3**	**0**	**7**	*10*
4:30 PM	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**1**	**13**	*16*
4:45 PM	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**7**	**7**	**2**	***16***
5:00 PM	0	1	0	0	*1*	0	1	0	0	*1*	0	7	4	2	*13*
5:15 PM	1	1	0	2	*4*	0	0	0	0	*0*	0	2	1	4	*7*
5:30 PM	1	0	0	1	*2*	0	1	0	0	*1*	0	0	2	3	*5*
5:45 PM	1	1	0	0	*2*	0	0	0	0	*0*	0	2	1	0	*3*
Count Total	4	6	0	9	*19*	1	2	0	0	*3*	0	25	16	40	*81*
Peak Hour	**1**	**3**	**0**	**6**	***10***	**1**	**0**	**0**	**0**	***1***	**0**	**14**	**8**	**31**	***53***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	California Blvd				California Blvd				St John Ave				St John Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**5**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**3**	0
4:30 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**10**
5:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	6
5:15 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2	0	4	7
5:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2	8
5:45 PM	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2	9
Count Total	0	0	3	1	0	1	5	0	0	0	0	0	0	2	7	0	19	0
Peak Hour	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**4**	**0**	**10**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	California Blvd			California Blvd			St John Ave			St John Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	0	1	0	0	2	0	0	0	0	0	0	0	3	0
Peak Hour	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Peak Hour Data for Intersection

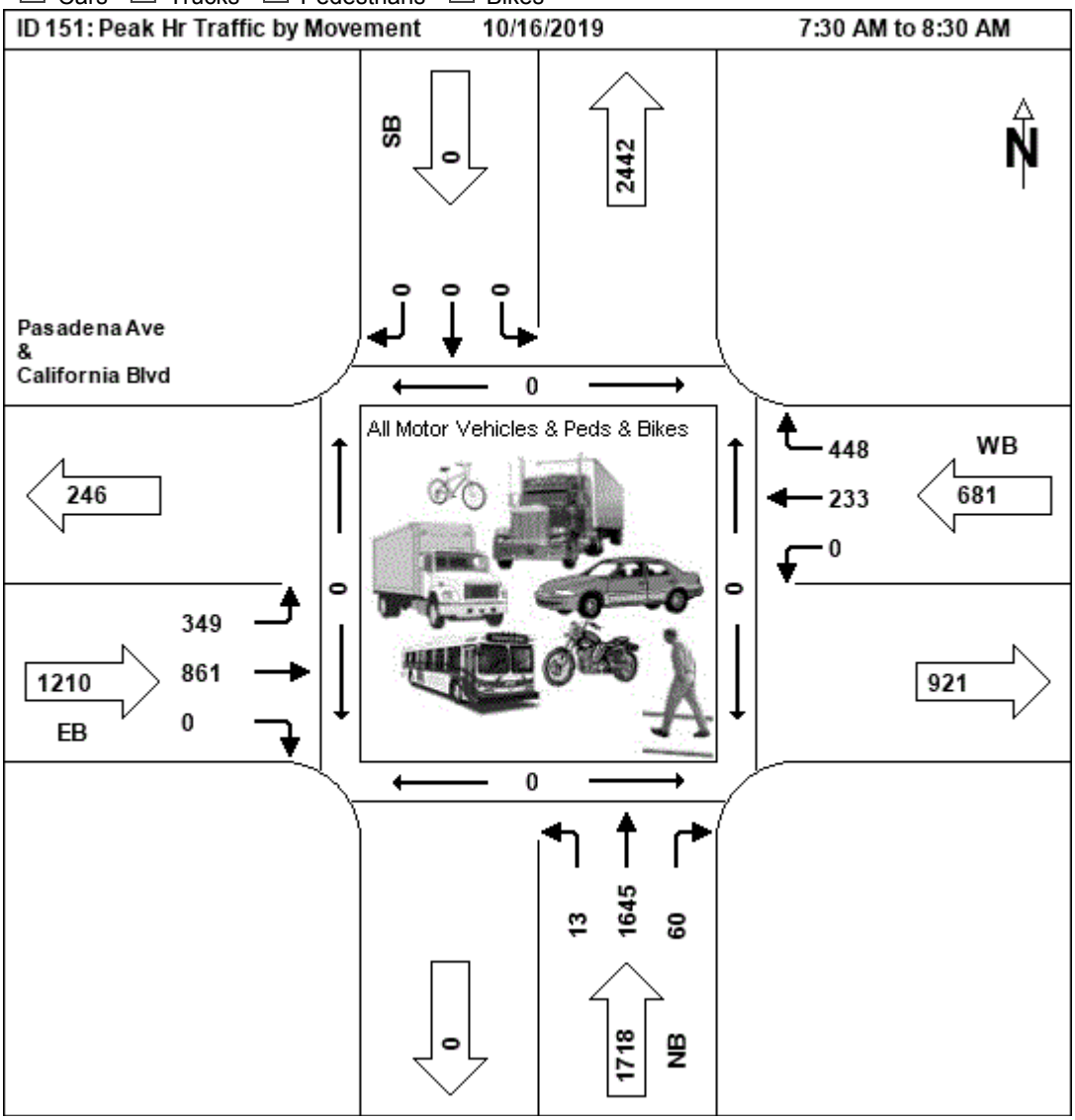
Int ID: 151
Community: Pasadena
Road 1: Pasadena Ave
Road 2: California Blvd
Corridor: NA
Road 3:
Road 4:

|<< < > >>| 1-5 of 5

AM Peak Hour
10/16/2019

	NB					EB					WB					
Start Time	Left	Thru	Right	Ped	App Total	Left	Thru	Right	Ped	App Total	Left	Thru	Right	Ped	App Total	Int Total
7:30 AM	4	460	17	0	481	76	220	0	0	296	0	68	124	0	192	969
7:45 AM	2	421	11	0	434	81	255	0	0	336	0	55	130	0	185	955
8:00 AM	4	372	16	0	392	95	202	0	0	297	0	54	112	0	166	855
8:15 AM	3	392	16	0	411	97	184	0	0	281	0	56	82	0	138	830
Total	13	1645	60	0	1718	349	861	0	0	1210	0	233	448	0	681	3609
PHF	0.81	0.89	0.88		0.89	0.90	0.84			0.90		0.86	0.86		0.89	
HV %	0	0	0			0	0					0	0			

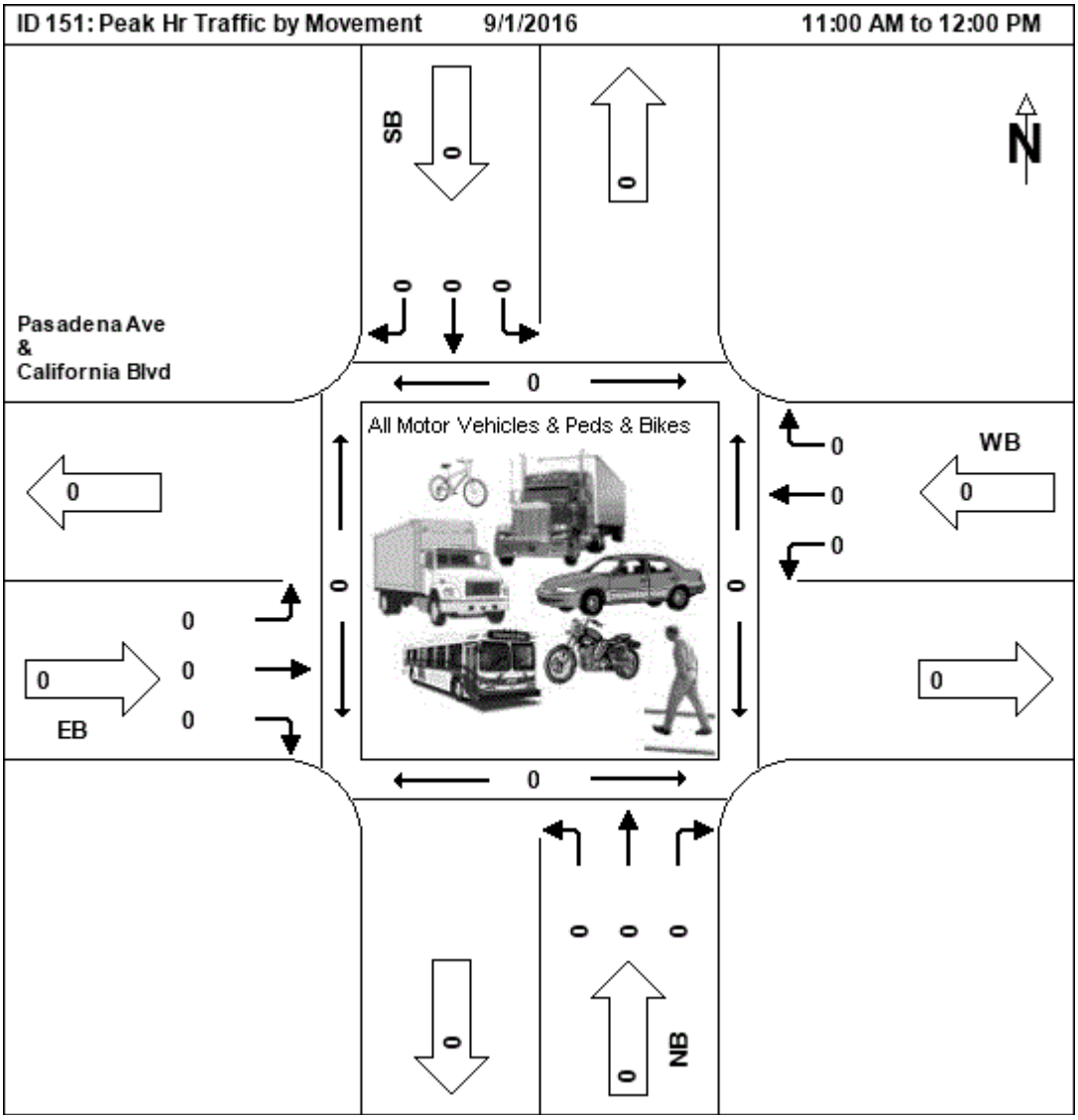
☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes



Midday Peak Hour
09/01/2016

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF																					
HV %																					

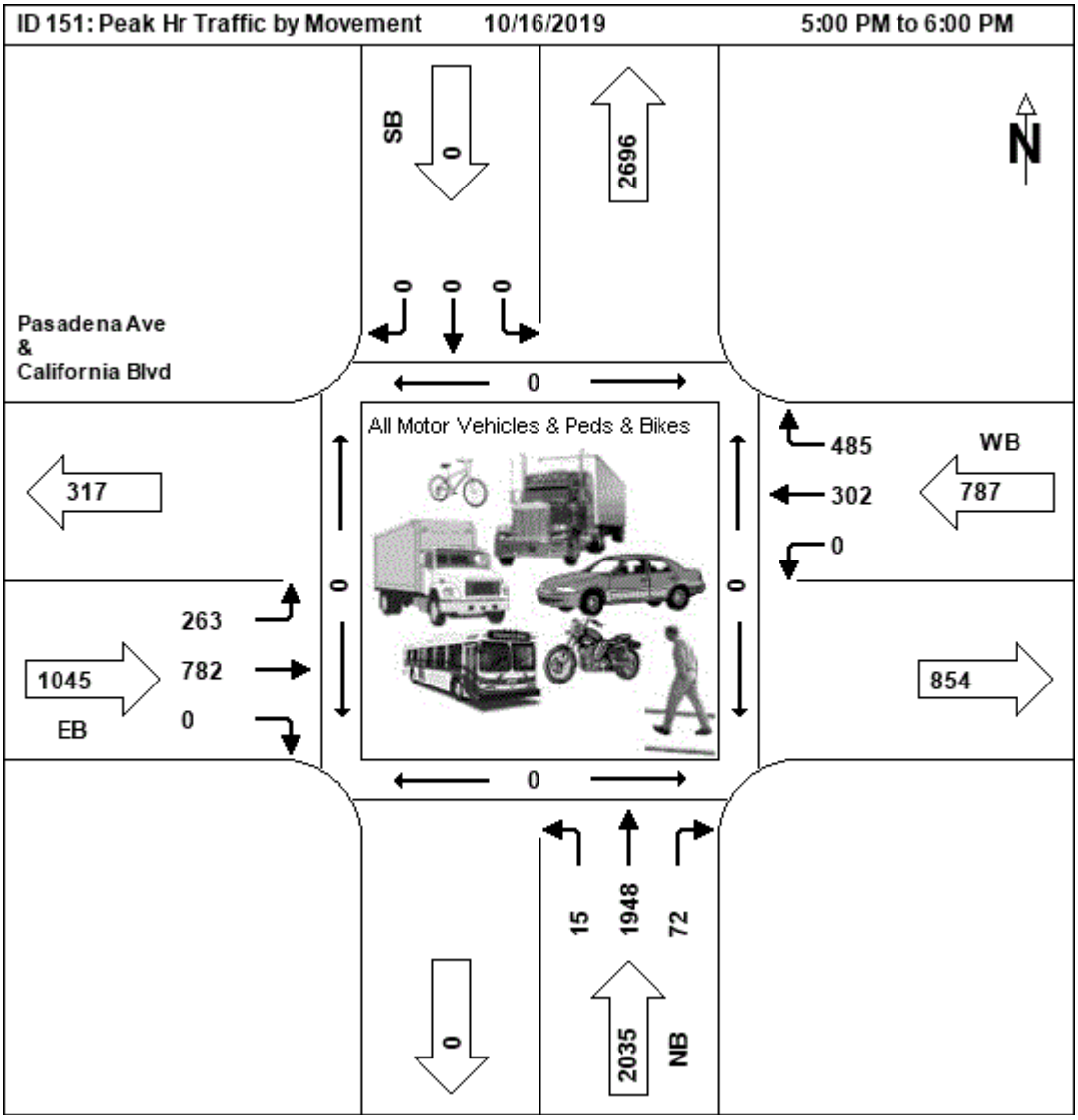
☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes



PM Peak Hour
10/16/2019

Start Time	NB Left	NB Thru	NB Right	NB Ped	App Total	EB Left	EB Thru	EB Right	EB Ped	App Total	WB Left	WB Thru	WB Right	WB Ped	App Total	Int Total
5:00 PM	3	495	21	0	519	70	202	0	0	272	0	75	130	0	205	996
5:15 PM	5	486	14	0	505	59	180	0	0	239	0	82	125	0	207	951
5:30 PM	3	481	16	0	500	71	198	0	0	269	0	68	117	0	185	954
5:45 PM	4	486	21	0	511	63	202	0	0	265	0	77	113	0	190	966
Total	15	1948	72	0	2035	263	782	0	0	1045	0	302	485	0	787	3867
PHF	0.75	0.98	0.86		0.98	0.93	0.97			0.96		0.92	0.93		0.95	
HV %	0	0	0			0	0					0	0			

☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes



Peak Hour Data for Intersection

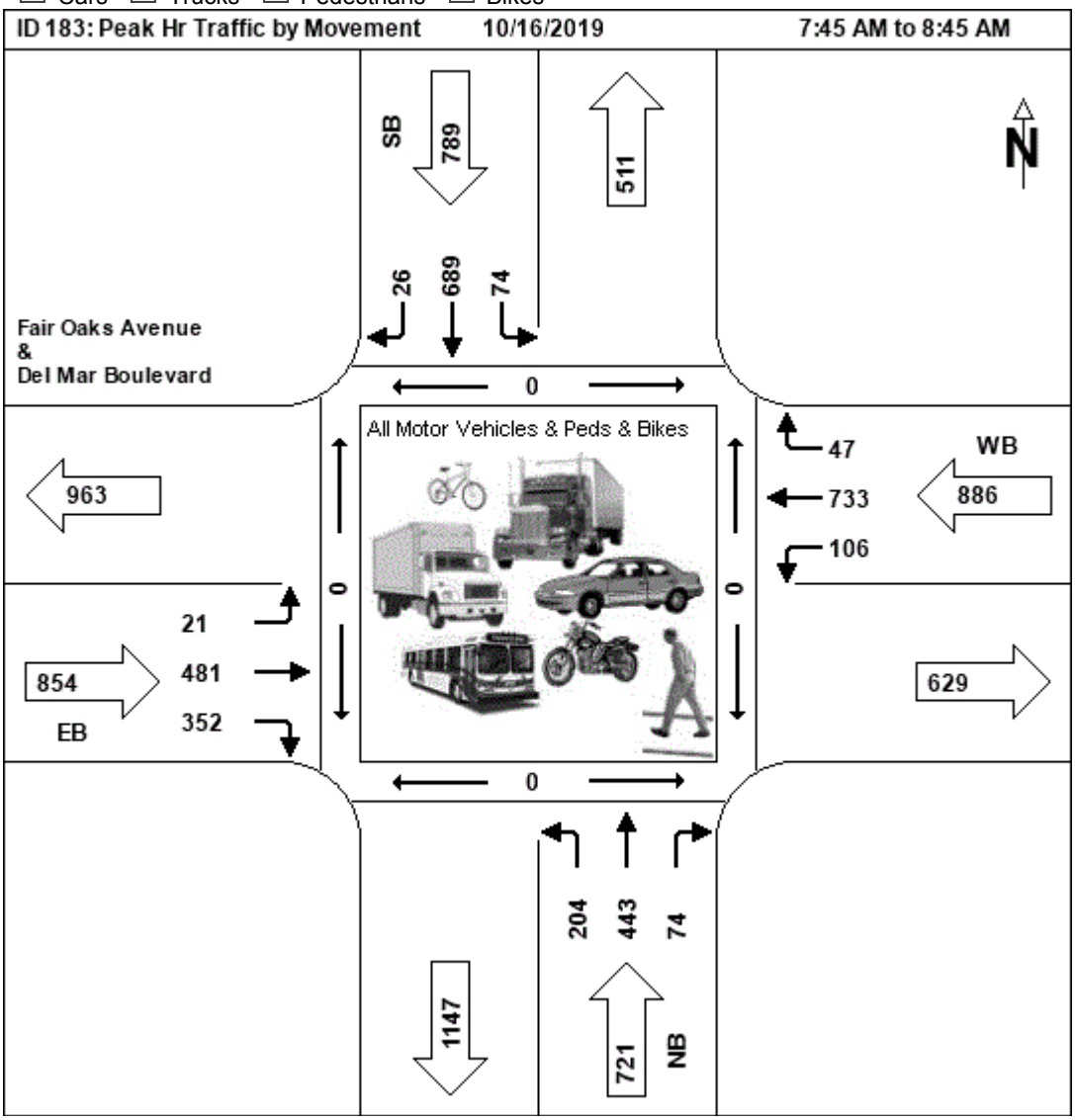
Int ID: 183
Community: Pasadena
Road 1: Fair Oaks Avenue
Road 2: Del Mar Boulevard
Corridor:
Road 3:
Road 4:

|<< < > >>| 1-4 of 4

AM Peak Hour
10/16/2019

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
7:45 AM	53	112	15	0	180	4	131	80	0	215	21	172	9	0	202	30	226	13	0	269	866
8:00 AM	49	101	24	0	174	5	115	84	0	204	14	182	6	0	202	24	145	16	0	185	765
8:15 AM	54	116	22	0	192	3	118	94	0	215	20	169	8	0	197	26	182	10	0	218	822
8:30 AM	48	114	13	0	175	9	117	94	0	220	19	166	3	0	188	26	180	8	0	214	797
Total	204	443	74	0	721	21	481	352	0	854	74	689	26	0	789	106	733	47	0	886	3250
PHF	0.94	0.95	0.77		0.94	0.58	0.92	0.94		0.97	0.88	0.95	0.72		0.98	0.88	0.81	0.73		0.82	
HV %	0	0	0			0	0	0			0	0	0			0	0	0			

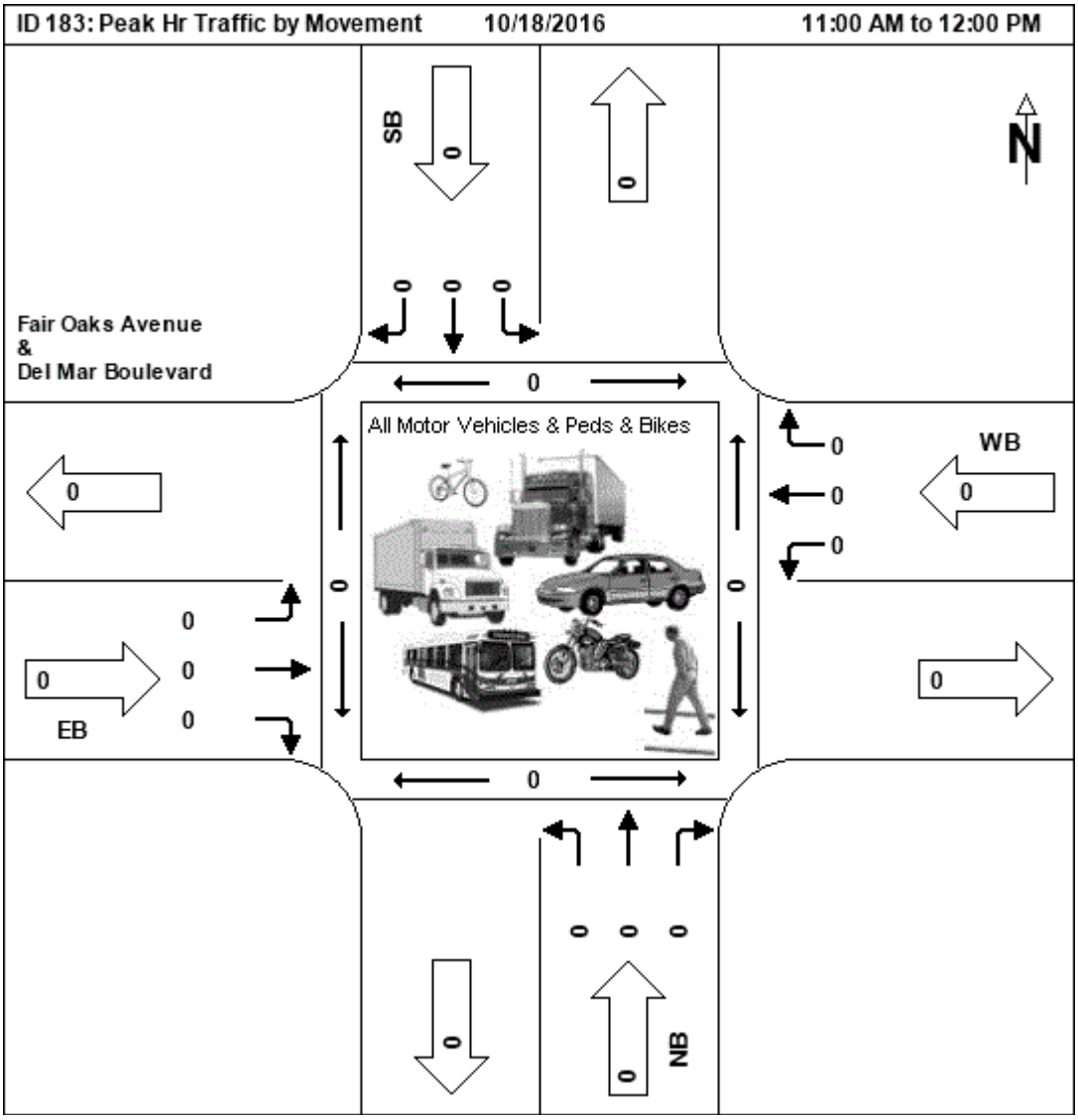
☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes



Midday Peak Hour
10/18/2016

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF																					
HV %																					

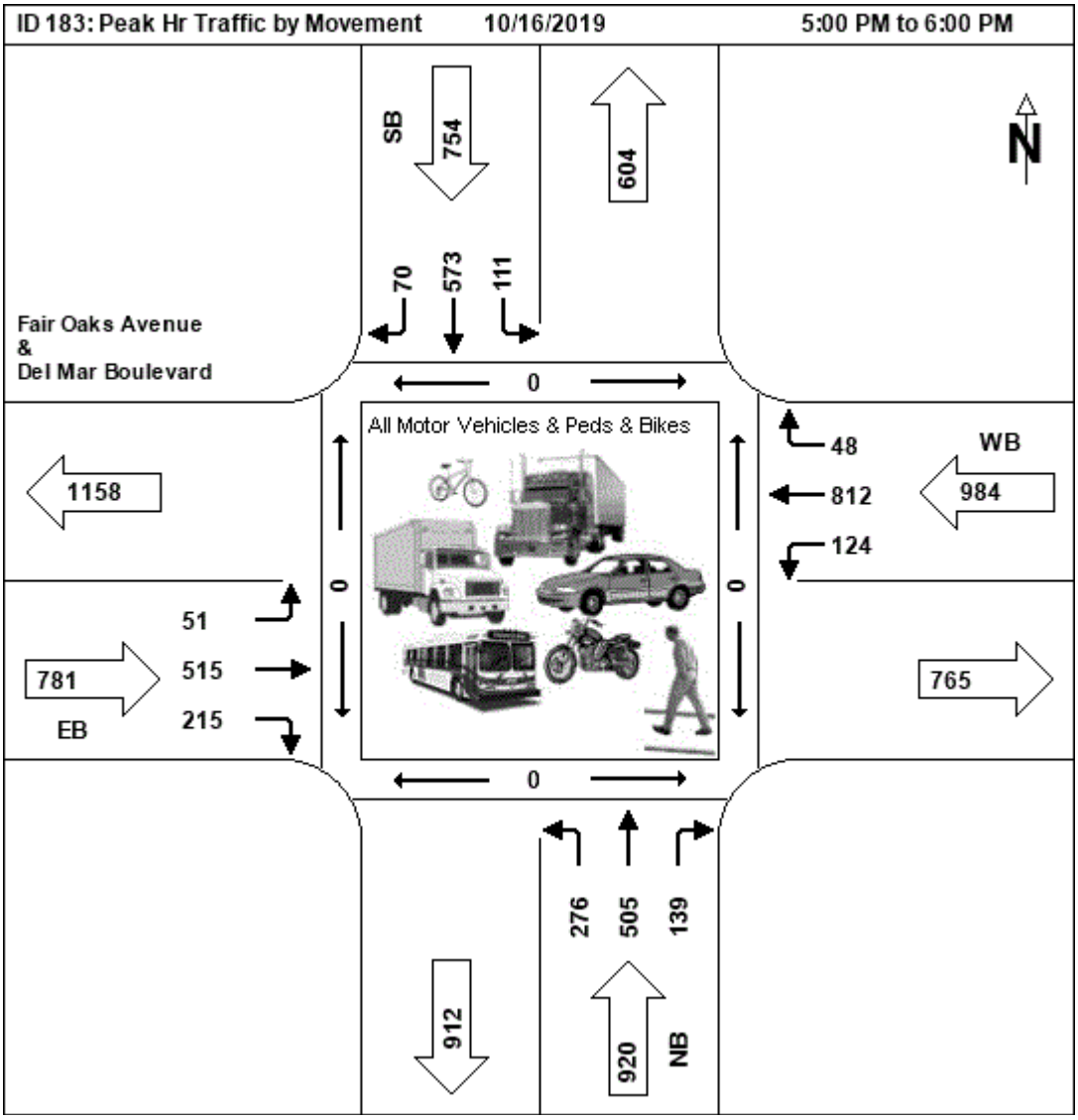
☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes



PM Peak Hour
10/16/2019

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
5:00 PM	55	96	37	0	188	12	121	51	0	184	25	155	18	0	198	29	233	9	0	271	841
5:15 PM	74	134	30	0	238	16	148	62	0	226	30	156	20	0	206	33	191	12	0	236	906
5:30 PM	69	132	31	0	232	15	132	60	0	207	28	131	15	0	174	31	194	18	0	243	856
5:45 PM	78	143	41	0	262	8	114	42	0	164	28	131	17	0	176	31	194	9	0	234	836
Total	276	505	139	0	920	51	515	215	0	781	111	573	70	0	754	124	812	48	0	984	3439
PHF	0.88	0.88	0.85		0.88	0.80	0.87	0.87		0.86	0.93	0.92	0.88		0.92	0.94	0.87	0.67		0.91	
HV %	0	0	0			0	0	0			0	0	0			0	0	0			

☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes



Peak Hour Data for Intersection

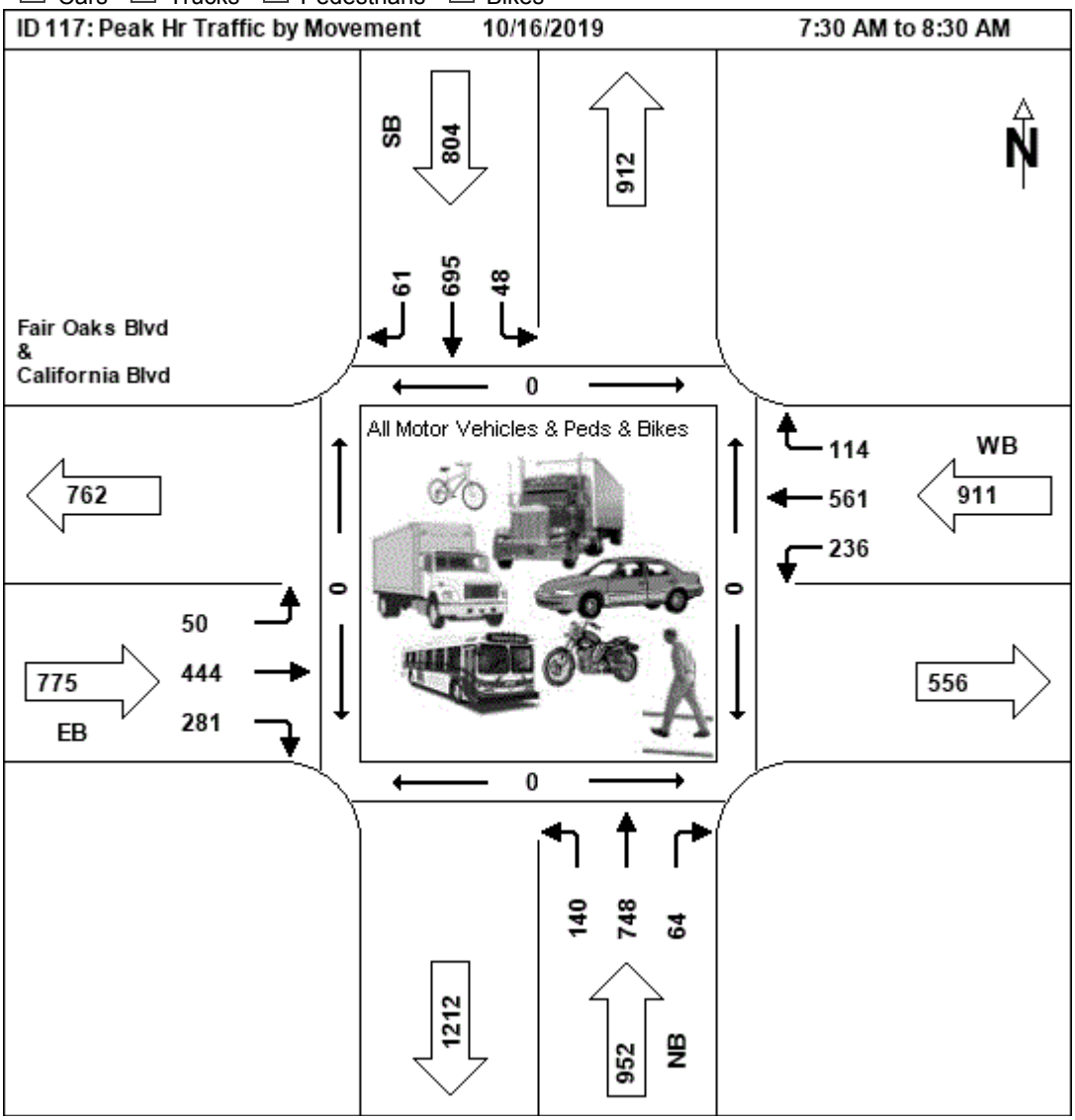
Int ID: 117
Community: Pasadena
Road 1: Fair Oaks Blvd
Road 2: California Blvd
Corridor: NA
Road 3:
Road 4:

|<< < > >>| 1-5 of 5

AM Peak Hour
10/16/2019

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
7:30 AM	43	196	13	0	252	15	114	78	0	207	6	164	11	0	181	46	151	31	0	228	868
7:45 AM	34	184	13	0	231	18	119	76	0	213	11	172	19	0	202	59	150	26	0	235	881
8:00 AM	35	174	19	0	228	9	115	61	0	185	17	166	12	0	195	64	141	29	0	234	842
8:15 AM	28	194	19	0	241	8	96	66	0	170	14	193	19	0	226	67	119	28	0	214	851
Total	140	748	64	0	952	50	444	281	0	775	48	695	61	0	804	236	561	114	0	911	3442
PHF	0.81	0.95	0.84		0.94	0.69	0.93	0.90		0.91	0.71	0.90	0.80		0.89	0.88	0.93	0.92		0.97	
HV %	0	0	0			0	0	0			0	0	0			0	0	0			

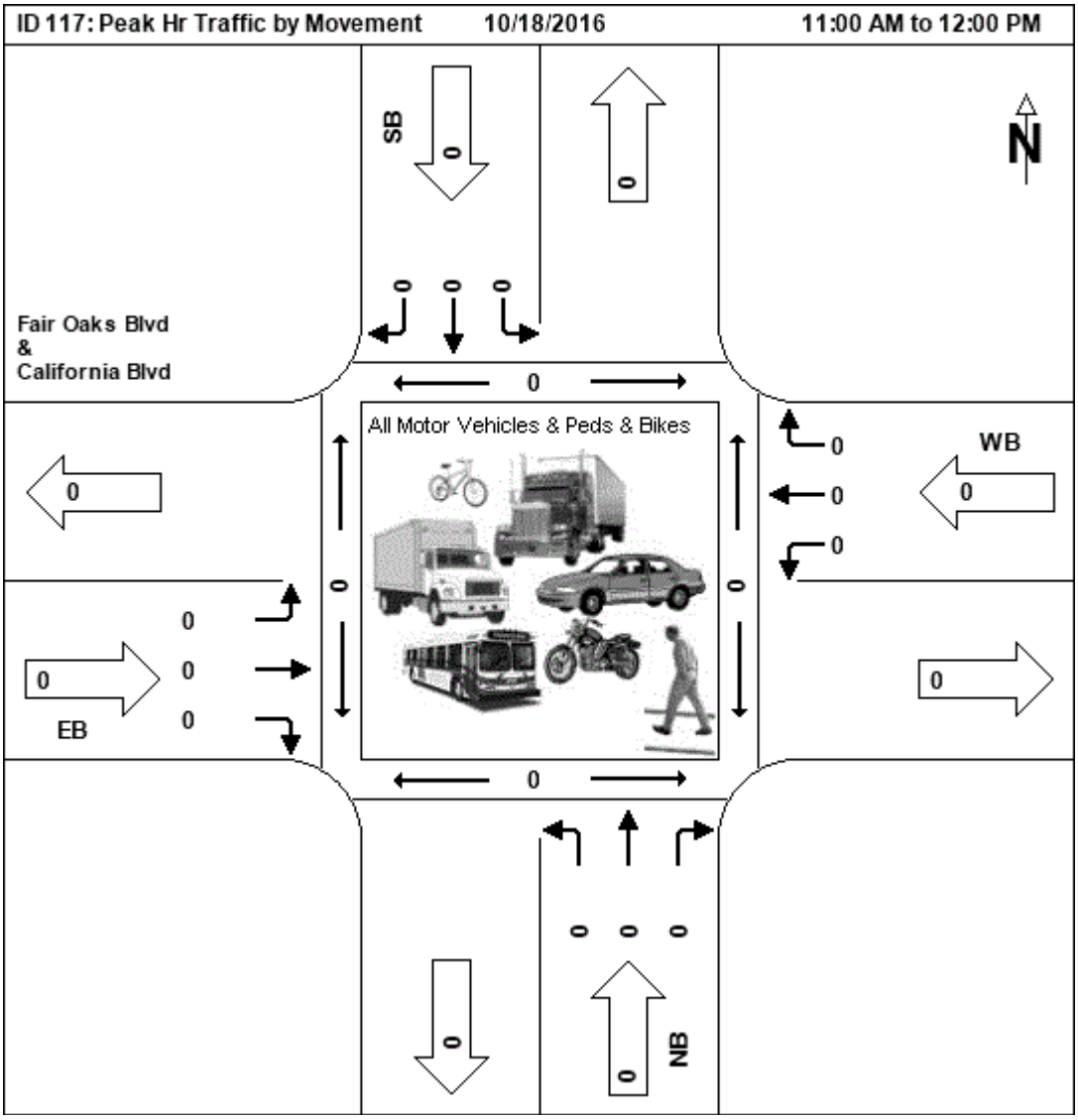
☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes



Midday Peak Hour
10/18/2016

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF																					
HV %																					

☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes

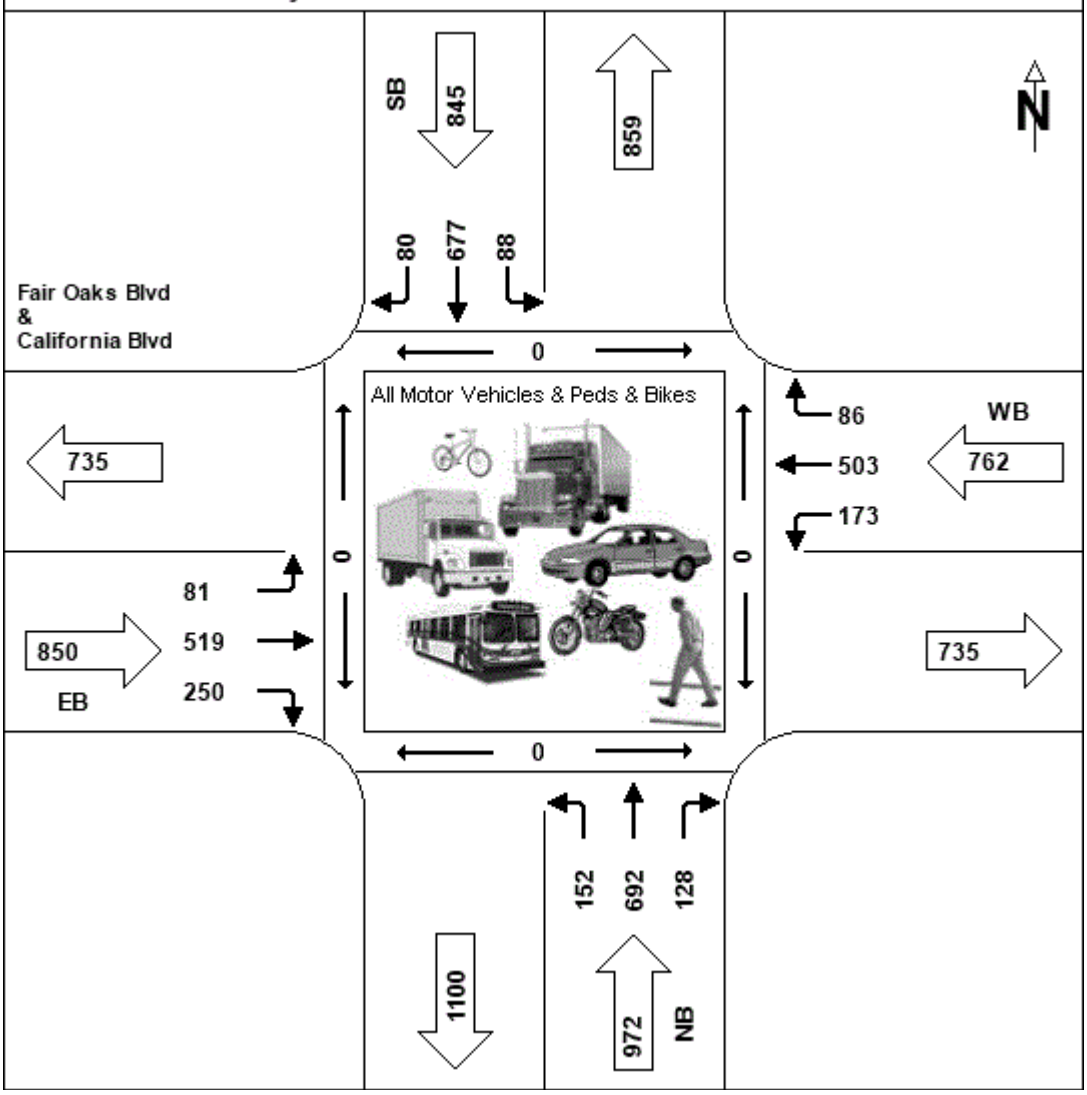


PM Peak Hour
10/16/2019

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
3:00 PM	40	174	23	0	237	17	128	59	0	204	17	172	20	0	209	44	107	15	0	166	816
3:15 PM	43	182	30	0	255	16	118	42	0	176	29	174	13	0	216	44	139	19	0	202	849
3:30 PM	28	183	36	0	247	22	132	76	0	230	22	189	24	0	235	40	133	18	0	191	903
3:45 PM	41	153	39	0	233	26	141	73	0	240	20	142	23	0	185	45	124	34	0	203	861
Total	152	692	128	0	972	81	519	250	0	850	88	677	80	0	845	173	503	86	0	762	3429
PHF	0.88	0.95	0.82		0.95	0.78	0.92	0.82		0.89	0.76	0.90	0.83		0.90	0.96	0.90	0.63		0.94	
HV %	0	0	0			0	0	0			0	0	0			0	0	0			

☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes

ID 117: Peak Hr Traffic by Movement 10/16/2019 3:00 PM to 4:00 PM



Peak Hour Data for Intersection

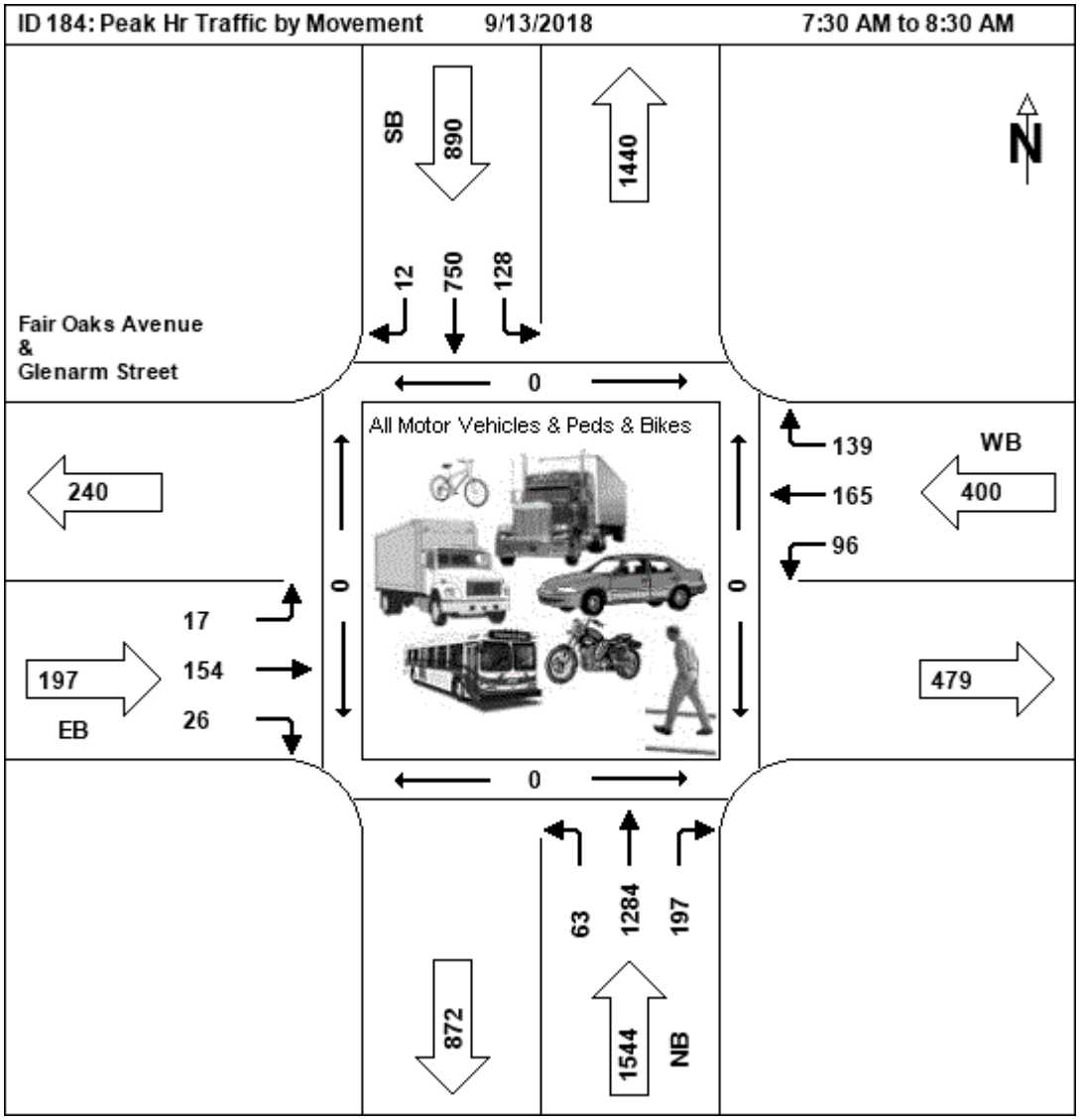
Int ID: 184
Community: Pasadena
Road 1: Fair Oaks Avenue
Road 2: Glenarm Street
Corridor:
Road 3:
Road 4:

|<< < > >>| 1-5 of 5

AM Peak Hour
09/13/2018

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
7:30 AM	19	298	35	0	352	4	47	7	0	58	40	206	2	0	248	31	56	22	0	109	767
7:45 AM	18	344	61	0	423	4	38	5	0	47	39	229	6	0	274	26	41	35	0	102	846
8:00 AM	12	321	49	0	382	5	36	3	0	44	29	153	2	0	184	21	31	36	0	88	698
8:15 AM	14	321	52	0	387	4	33	11	0	48	20	162	2	0	184	18	37	46	0	101	720
Total	63	1284	197	0	1544	17	154	26	0	197	128	750	12	0	890	96	165	139	0	400	3031
PHF	0.83	0.93	0.81		0.91	0.85	0.82	0.59		0.85	0.80	0.82	0.50		0.81	0.77	0.74	0.76		0.92	
HV %	0	0	0			0	0	0			0	0	0			0	0	0			

☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes

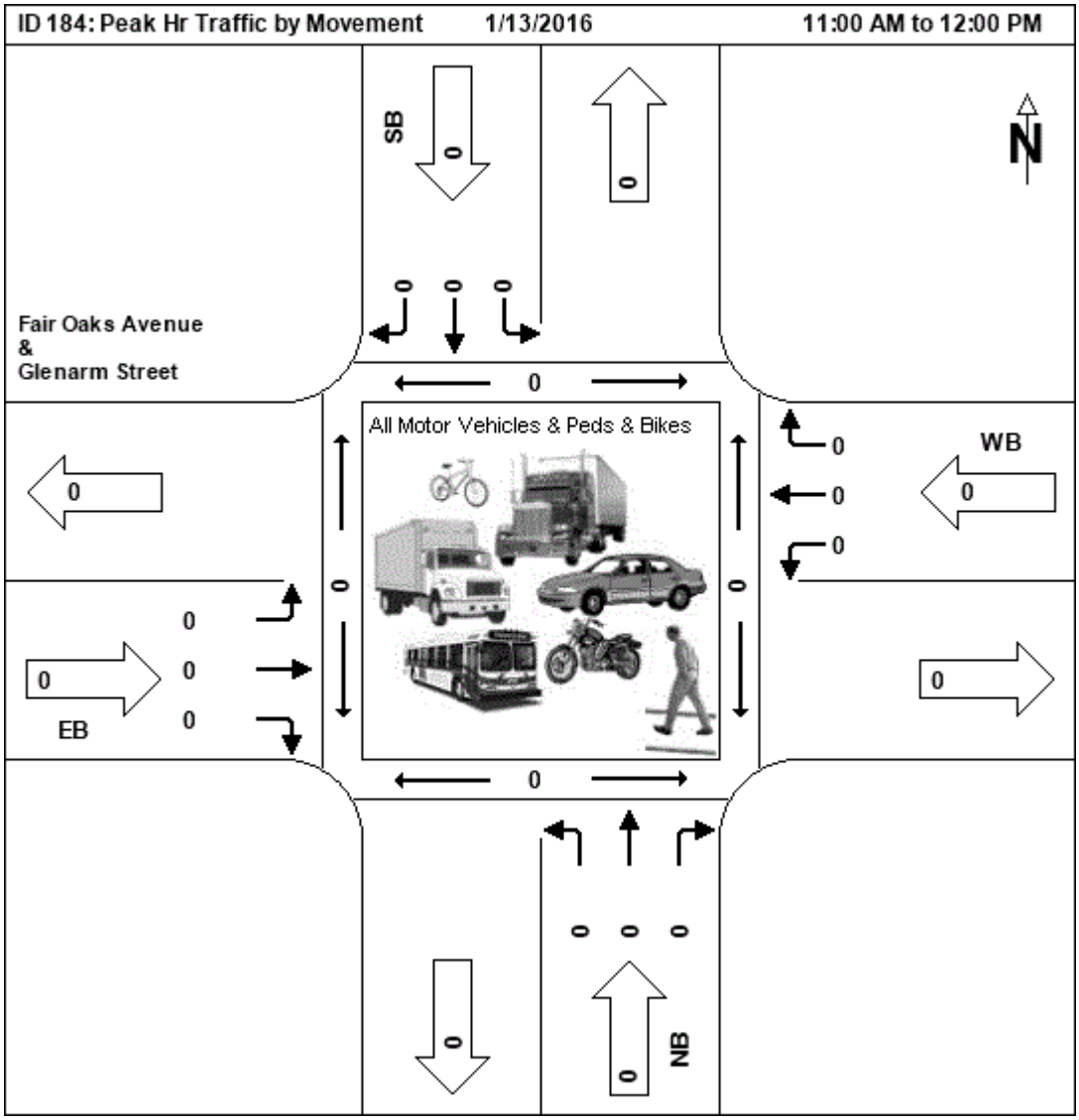


Midday Peak Hour
01/13/2016

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF																					
HV %																					

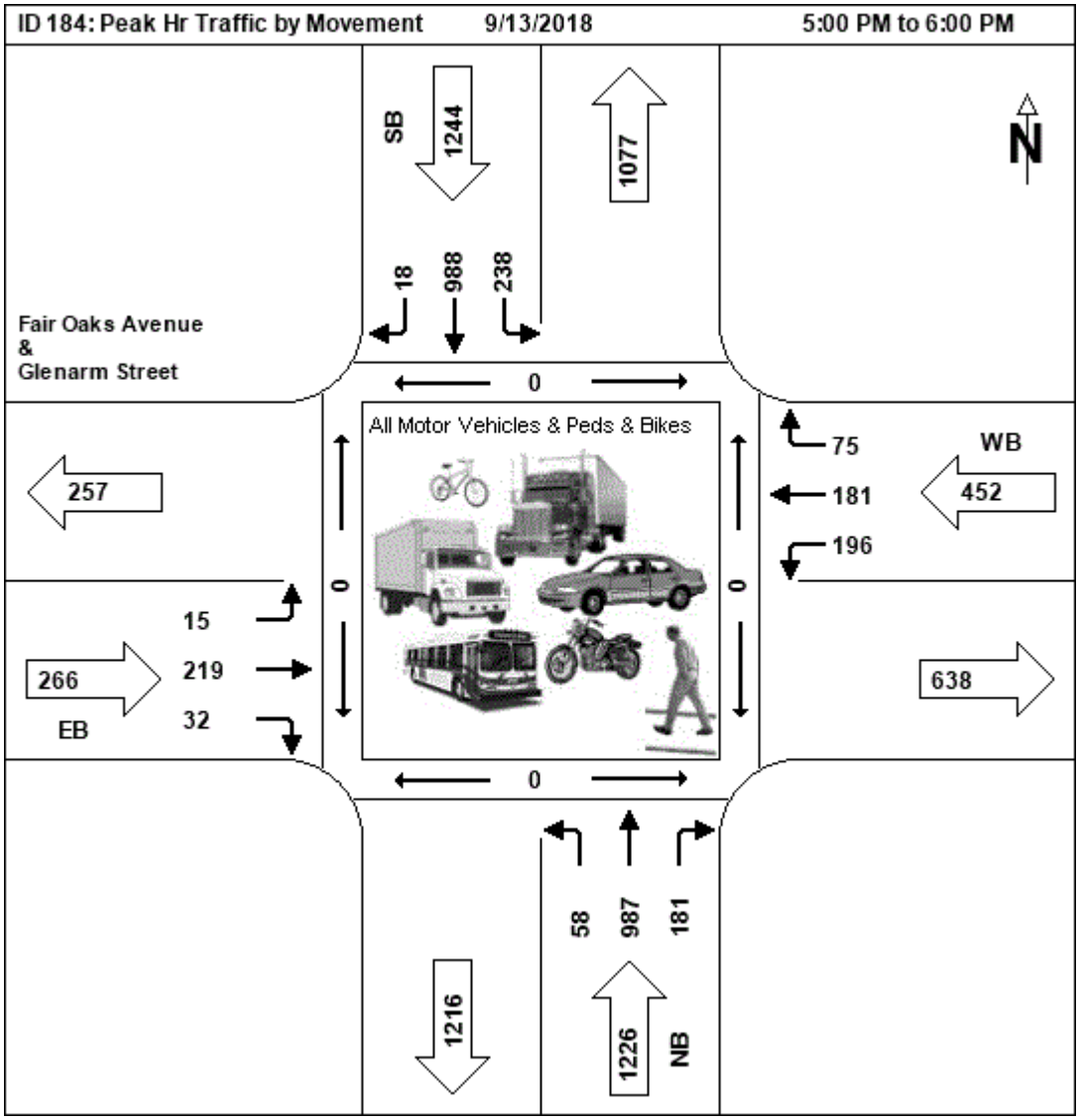
☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes



PM Peak Hour
09/13/2018

Start Time	NB Left	NB Thru	NB Right	NB Ped	App Total	EB Left	EB Thru	EB Right	EB Ped	App Total	SB Left	SB Thru	SB Right	SB Ped	App Total	WB Left	WB Thru	WB Right	WB Ped	App Total	Int Total
5:00 PM	20	242	43	0	305	3	46	7	0	56	56	275	4	0	335	37	41	17	0	95	791
5:15 PM	10	234	41	0	285	3	61	6	0	70	72	245	7	0	324	53	54	12	0	119	798
5:30 PM	15	243	57	0	315	6	46	10	0	62	60	231	6	0	297	52	41	27	0	120	794
5:45 PM	13	268	40	0	321	3	66	9	0	78	50	237	1	0	288	54	45	19	0	118	805
Total	58	987	181	0	1226	15	219	32	0	266	238	988	18	0	1244	196	181	75	0	452	3188
PHF	0.73	0.92	0.79		0.95	0.63	0.83	0.80		0.85	0.83	0.90	0.64		0.93	0.91	0.84	0.69		0.94	
HV %	0	0	0			0	0	0			0	0	0			0	0	0			

☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes


ID 184: Peak Hr Traffic by Movement
9/13/2018
5:00 PM to 6:00 PM
SB
1244
1077
N
18
988
238
Fair Oaks Avenue
&
Glenarm Street
0
All Motor Vehicles & Peds & Bikes
75
WB
257
181
452
196
0
0
15
266
219
638
EB
32
0
58
987
181
1216
1226
NB

Peak Hour Data for Intersection

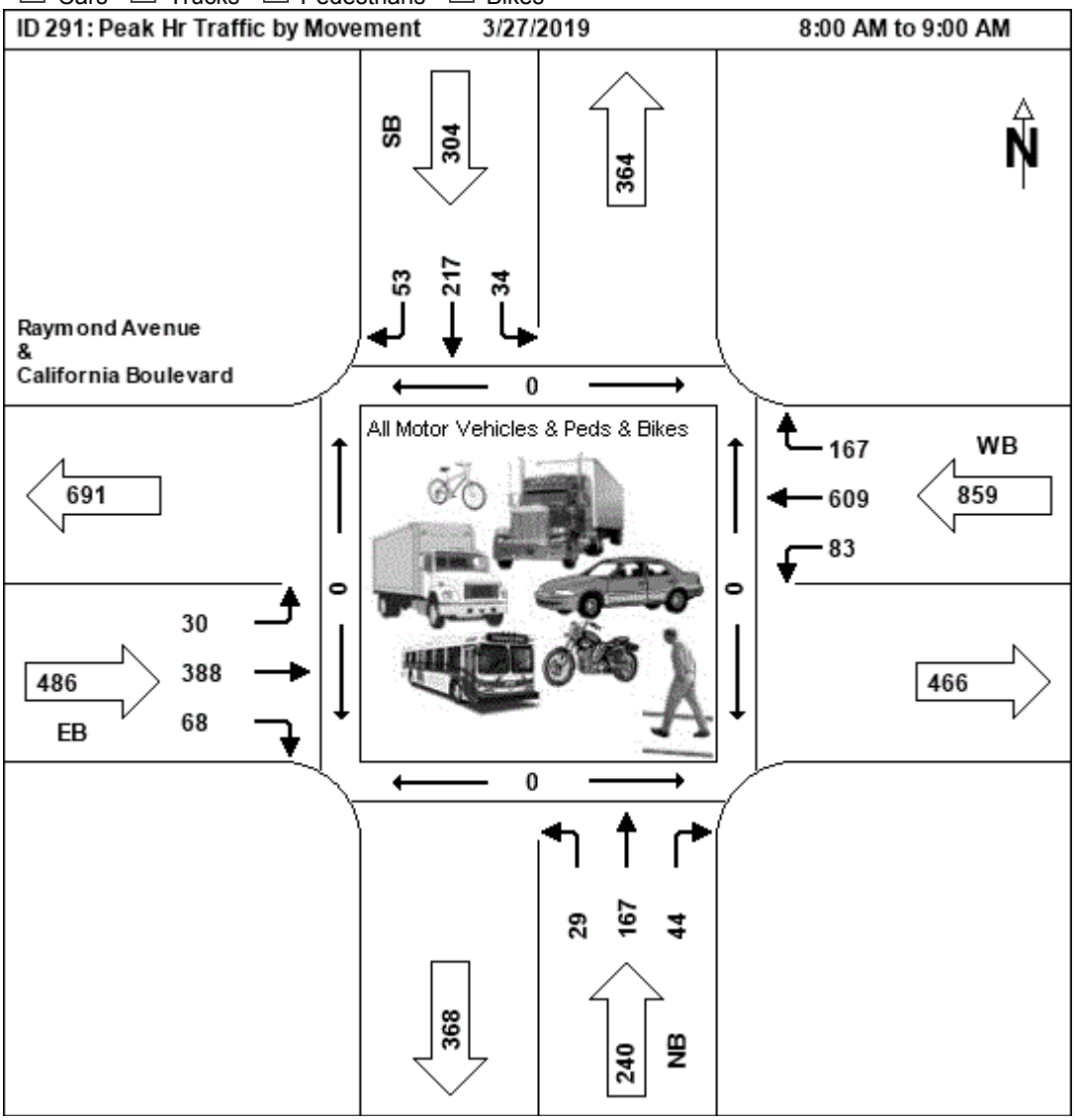
Int ID: 291
Community: Pasadena
Road 1: Raymond Avenue
Road 2: California Boulevard
Corridor:
Road 3:
Road 4:

|<< < > >>| 1-2 of 2

AM Peak Hour
03/27/2019

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
8:00 AM	8	42	9	0	59	4	98	17	0	119	9	54	18	0	81	29	167	34	0	230	489
8:15 AM	6	46	14	0	66	4	93	13	0	110	7	47	9	0	63	14	162	44	0	220	459
8:30 AM	2	32	7	0	41	11	104	22	0	137	7	48	15	0	70	17	147	45	0	209	457
8:45 AM	13	47	14	0	74	11	93	16	0	120	11	68	11	0	90	23	133	44	0	200	484
Total	29	167	44	0	240	30	388	68	0	486	34	217	53	0	304	83	609	167	0	859	1889
PHF	0.56	0.89	0.79		0.81	0.68	0.93	0.77		0.89	0.77	0.80	0.74		0.84	0.72	0.91	0.93		0.93	
HV %	0	0	0			0	0	0			0	0	0			0	0	0			

☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes

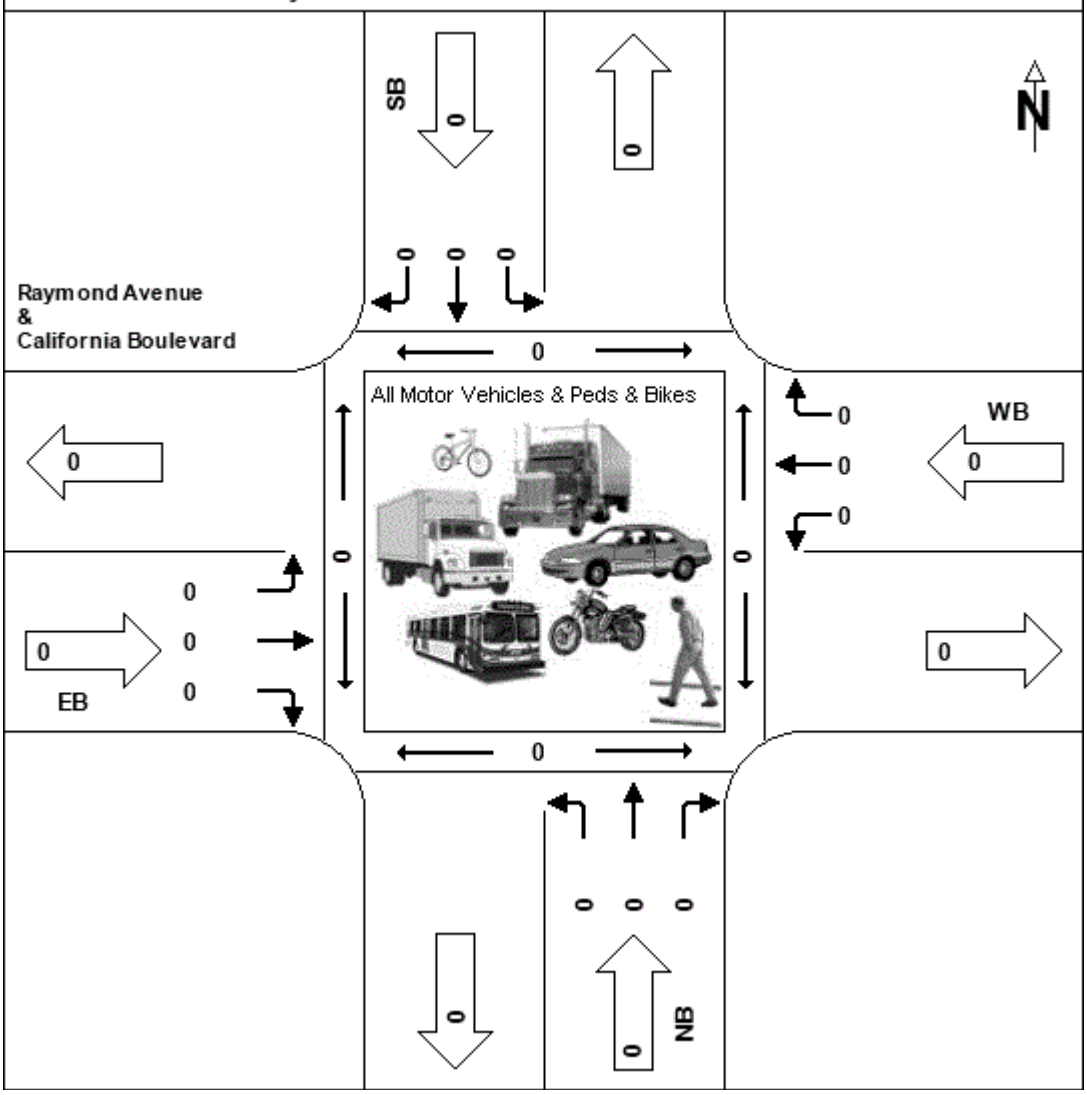


Midday Peak Hour
10/18/2016

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF																					
HV %																					

☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes

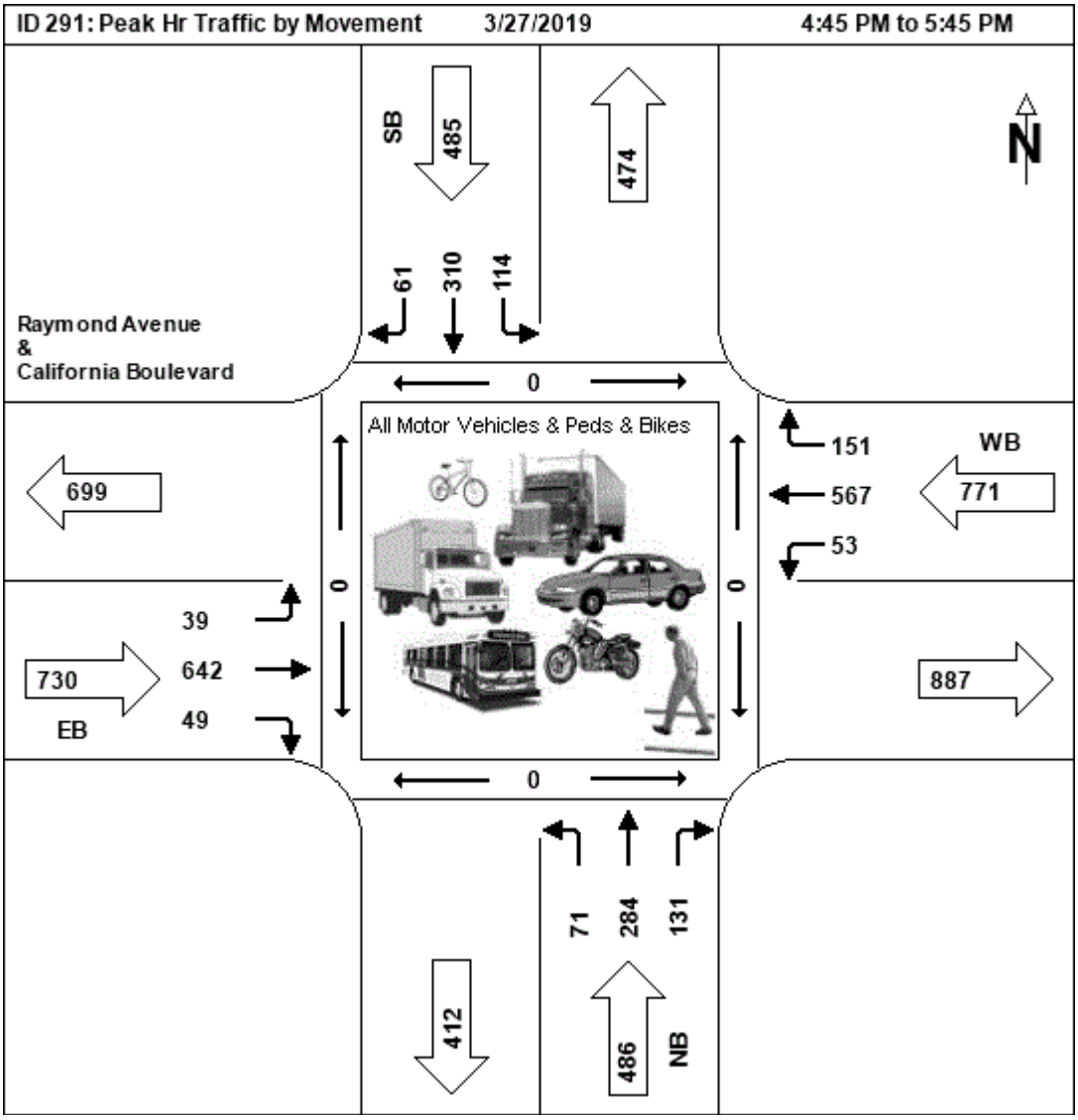
ID 291: Peak Hr Traffic by Movement **10/18/2016** **11:00 AM to 12:00 PM**



PM Peak Hour
03/27/2019

Start Time	NB Left	NB Thru	NB Right	NB Ped	NB App Total	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
4:45 PM	19	69	31	0	119	10	147	20	0	177	29	76	12	0	117	12	140	42	0	194	607
5:00 PM	23	85	27	0	135	14	157	13	0	184	25	80	19	0	124	9	135	50	0	194	637
5:15 PM	11	74	44	0	129	5	153	8	0	166	32	76	16	0	124	20	124	34	0	178	597
5:30 PM	18	56	29	0	103	10	185	8	0	203	28	78	14	0	120	12	168	25	0	205	631
Total	71	284	131	0	486	39	642	49	0	730	114	310	61	0	485	53	567	151	0	771	2472
PHF	0.77	0.84	0.74		0.90	0.70	0.87	0.61		0.90	0.89	0.97	0.80		0.98	0.66	0.84	0.76		0.94	
HV %	0	0	0			0	0	0			0	0	0			0	0	0			

☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes



Peak Hour Data for Intersection

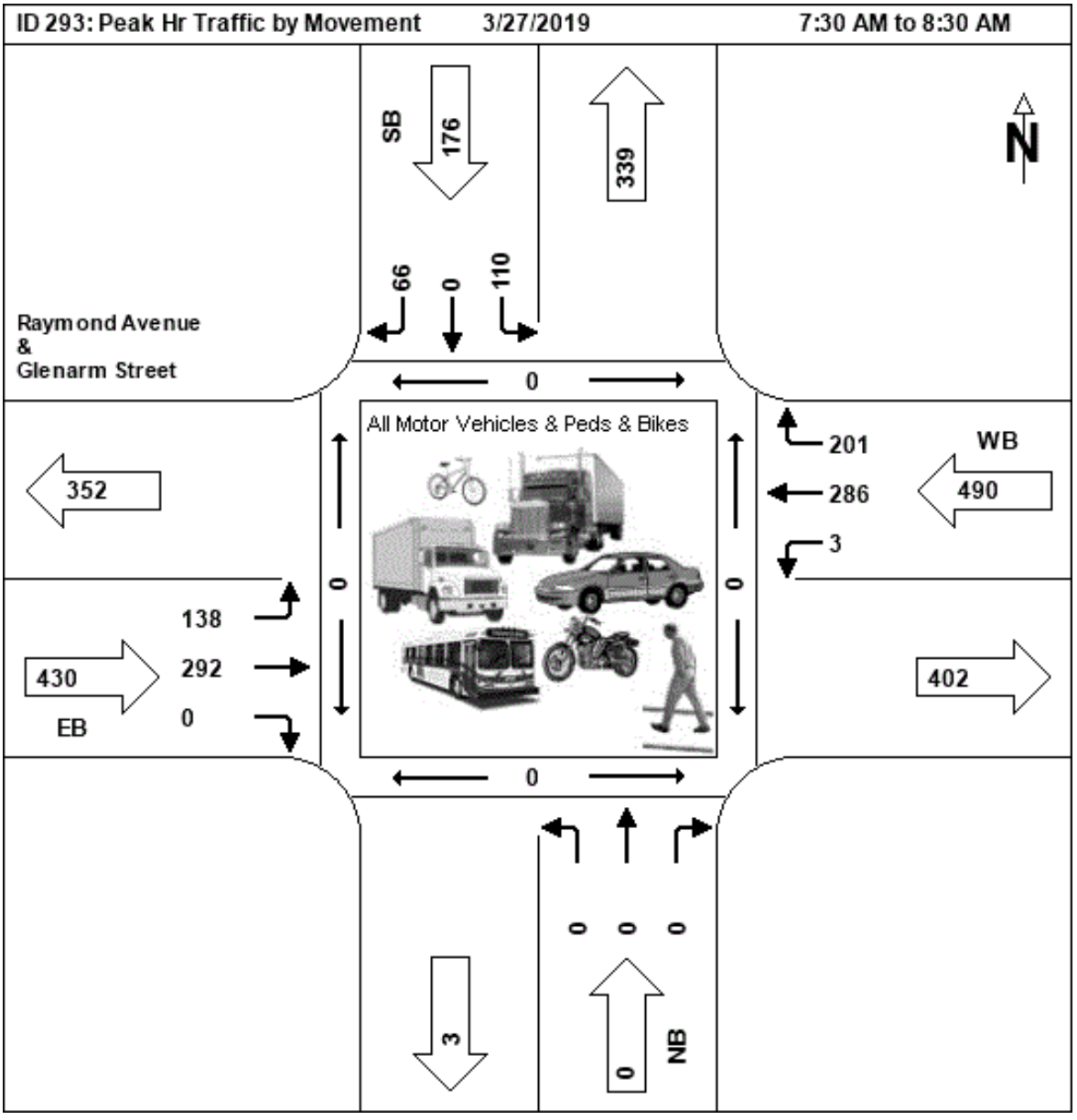
Int ID:	293		
Community:	Pasadena	**Corridor:**	
Road 1:	Raymond Avenue	**Road 3:**	
Road 2:	Glenarm Street	**Road 4:**	

|<< < > >>| 1-3 of 3

AM Peak Hour
03/27/2019

Start Time	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
7:30 AM	30	81	0	0	111	25	0	17	0	42	2	53	42	0	97	250
7:45 AM	34	84	0	0	118	31	0	16	0	47	0	92	61	0	153	318
8:00 AM	30	69	0	0	99	36	0	17	0	53	1	73	57	0	131	283
8:15 AM	44	58	0	0	102	18	0	16	0	34	0	68	41	0	109	245
Total	138	292	0	0	430	110	0	66	0	176	3	286	201	0	490	1096
PHF	0.78	0.87			0.91	0.76		0.97		0.83	0.38	0.78	0.82		0.80	
HV %	0	0				0		0			0	0	0			

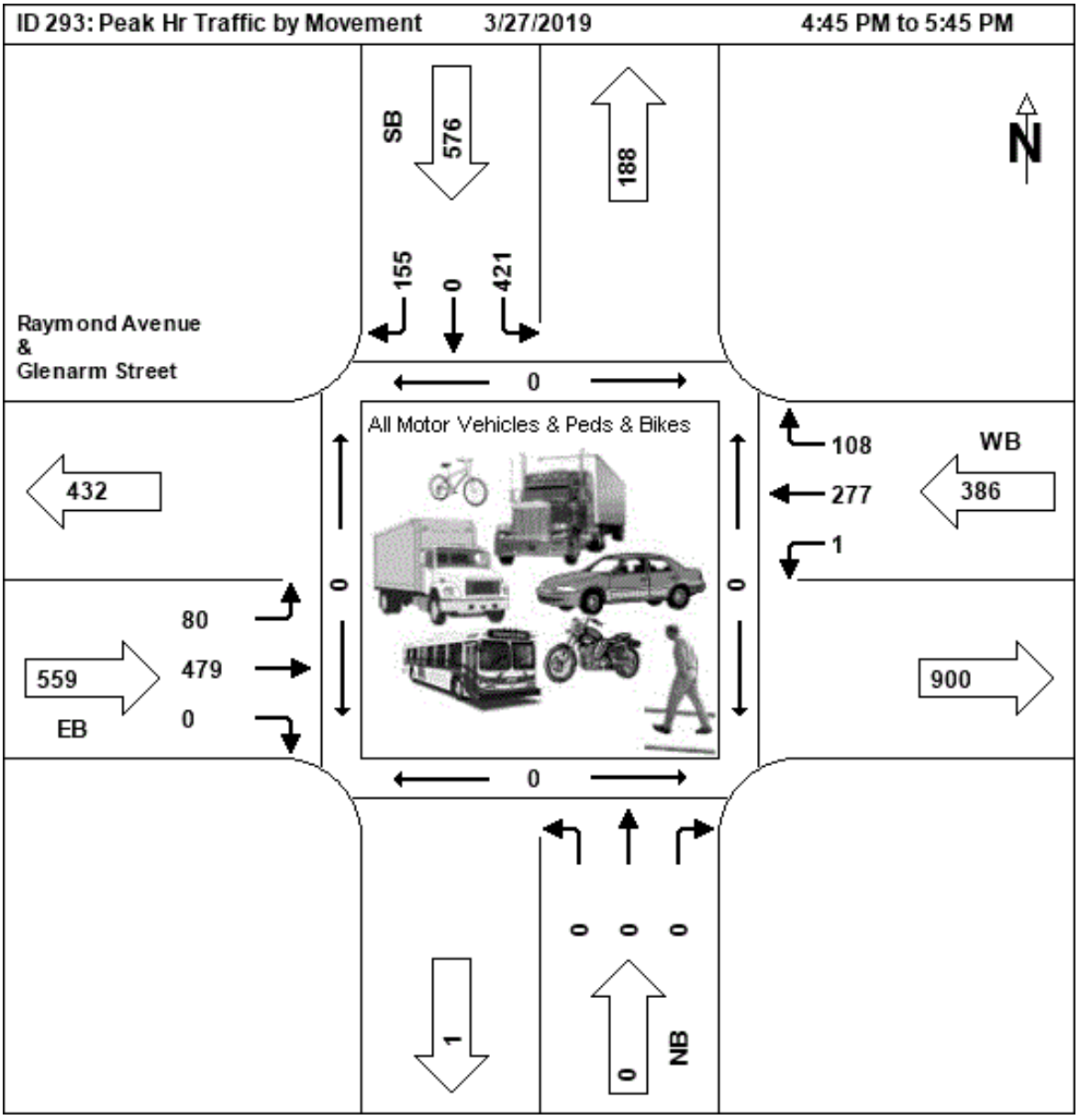
☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes



PM Peak Hour
03/27/2019

Start Time	EB Left	EB Thru	EB Right	EB Ped	EB App Total	SB Left	SB Thru	SB Right	SB Ped	SB App Total	WB Left	WB Thru	WB Right	WB Ped	WB App Total	Int Total
4:45 PM	20	109	0	0	129	91	0	45	0	136	0	71	34	0	105	370
5:00 PM	22	113	0	0	135	109	0	47	0	156	0	56	29	0	85	376
5:15 PM	22	126	0	0	148	111	0	25	0	136	1	80	27	0	108	392
5:30 PM	16	131	0	0	147	110	0	38	0	148	0	70	18	0	88	383
Total	80	479	0	0	559	421	0	155	0	576	1	277	108	0	386	1521
PHF	0.91	0.91			0.94	0.95		0.82		0.92	0.25	0.87	0.79		0.89	
HV %	0	0				0		0			0	0	0			

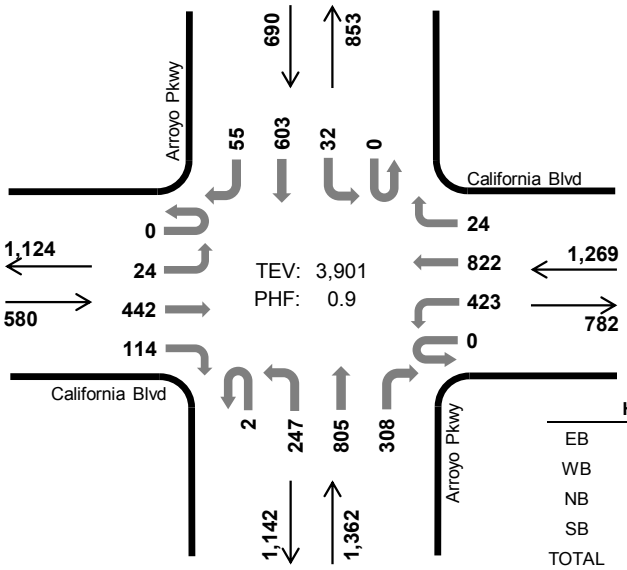
☑ Cars ☑ Trucks ☑ Pedestrians ☑ Bikes



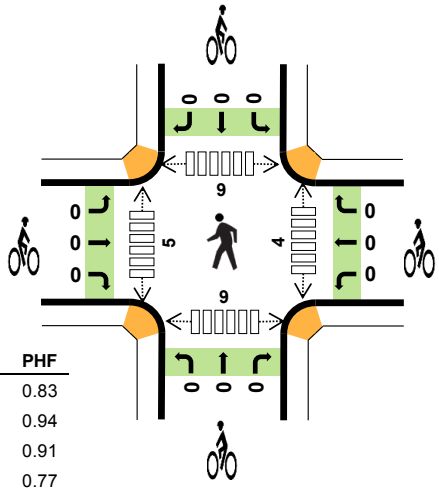
Arroyo Pkwy
California Blvd

Date: 12-10-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM

Peak Hour



	HV %:	PHF
EB	0.7%	0.83
WB	0.9%	0.94
NB	0.7%	0.91
SB	1.4%	0.77
TOTAL	0.9%	0.90



Two-Hour Count Summaries

Interval Start		California Blvd Eastbound				California Blvd Westbound				Arroyo Pkwy Northbound				Arroyo Pkwy Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	9	40	19	0	120	111	2	0	26	102	45	0	3	109	10	596	0
7:15 AM		0	3	64	20	0	129	160	7	0	32	116	39	0	3	128	8	709	0
7:30 AM		**0**	**4**	**101**	**25**	**0**	**99**	**166**	**6**	**2**	**79**	**180**	**76**	**0**	**8**	**124**	**9**	**879**	0
7:45 AM		**0**	**5**	**78**	**34**	**0**	**110**	**219**	**5**	**0**	**57**	**183**	**54**	**0**	**8**	**148**	**18**	**919**	3,103
8:00 AM		**0**	**8**	**134**	**32**	**0**	**115**	**217**	**7**	**0**	**57**	**219**	**82**	**0**	**6**	**133**	**12**	**1,022**	3,529
8:15 AM		**0**	**7**	**129**	**23**	**0**	**99**	**220**	**6**	**0**	**54**	**223**	**96**	**0**	**10**	**198**	**16**	**1,081**	**3,901**
8:30 AM		0	8	85	35	0	104	171	5	0	49	160	72	0	4	113	11	817	3,839
8:45 AM		2	8	89	26	0	95	180	4	0	41	200	75	0	9	108	14	851	3,771
Count Total		2	52	720	214	0	871	1,444	42	2	395	1,383	539	0	51	1,061	98	6,874	0
Peak Hour	**All**	**0**	**24**	**442**	**114**	**0**	**423**	**822**	**24**	**2**	**247**	**805**	**308**	**0**	**32**	**603**	**55**	**3,901**	**0**
	HV	**0**	**0**	**2**	**2**	**0**	**4**	**8**	**0**	**0**	**1**	**4**	**5**	**0**	**3**	**4**	**3**	**36**	**0**
	HV%	**-**	**0%**	**0%**	**2%**	**-**	**1%**	**1%**	**0%**	**0%**	**0%**	**0%**	**2%**	**-**	**9%**	**1%**	**5%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	5	2	1	3	*11*	0	0	0	0	*0*	2	2	1	1	*6*
7:15 AM	2	1	4	0	*7*	0	0	0	0	*0*	2	0	5	3	*10*
7:30 AM	**1**	**3**	**3**	**4**	***11***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**3**	**2**	*6*
7:45 AM	**0**	**2**	**3**	**3**	***8***	**0**	**0**	**0**	**0**	***0***	**1**	**1**	**2**	**1**	*5*
8:00 AM	**2**	**3**	**3**	**1**	***9***	**0**	**0**	**0**	**0**	***0***	**0**	**2**	**1**	**3**	*6*
8:15 AM	**1**	**4**	**1**	**2**	***8***	**0**	**0**	**0**	**0**	***0***	**2**	**2**	**3**	**3**	***10***
8:30 AM	2	1	2	2	*7*	0	1	0	0	*1*	1	0	4	3	*8*
8:45 AM	0	1	1	3	*5*	0	0	1	0	*1*	3	6	3	6	*18*
Count Total	13	17	18	18	*66*	0	1	1	0	*2*	12	13	22	22	*69*
Peak Hour	**4**	**12**	**10**	**10**	***36***	**0**	**0**	**0**	**0**	***0***	**4**	**5**	**9**	**9**	***27***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	California Blvd				California Blvd				Arroyo Pkwy				Arroyo Pkwy				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	3	1	1	0	1	1	0	0	1	0	0	0	0	0	3	11	0
7:15 AM	0	1	1	0	0	1	0	0	0	0	4	0	0	0	0	0	7	0
7:30 AM	**0**	**0**	**1**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**3**	**0**	**2**	**0**	**2**	**11**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**2**	**1**	**8**	37
8:00 AM	**0**	**0**	**0**	**2**	**0**	**2**	**1**	**0**	**0**	**0**	**2**	**1**	**0**	**0**	**1**	**0**	**9**	35
8:15 AM	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**0**	**8**	**36**
8:30 AM	0	0	1	1	0	1	0	0	0	0	0	2	0	0	1	1	7	32
8:45 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	1	2	0	5	29
Count Total	0	4	5	4	0	7	9	1	0	2	8	8	0	4	7	7	66	0
Peak Hour	**0**	**0**	**2**	**2**	**0**	**4**	**8**	**0**	**0**	**1**	**4**	**5**	**0**	**3**	**4**	**3**	**36**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	California Blvd			California Blvd			Arroyo Pkwy			Arroyo Pkwy			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1	1
8:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	1	2
Count Total	0	0	0	0	1	0	0	0	1	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

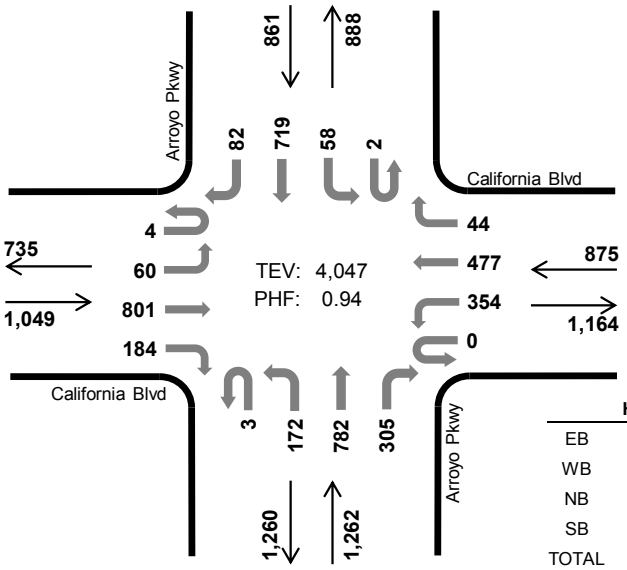
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

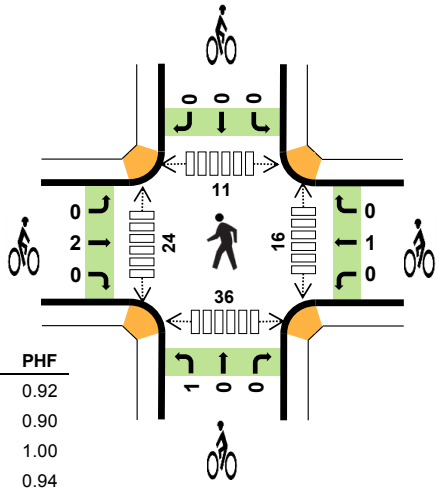
Arroyo Pkwy
California Blvd

Date: 12-10-2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM

N

Peak Hour





	HV %:	PHF
EB	0.3%	0.92
WB	0.8%	0.90
NB	0.6%	1.00
SB	0.3%	0.94
TOTAL	0.5%	0.94

Two-Hour Count Summaries

Interval Start		California Blvd Eastbound				California Blvd Westbound				Arroyo Pkwy Northbound				Arroyo Pkwy Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	16	180	40	0	94	100	11	0	36	204	79	0	8	174	29	971	0
4:15 PM		0	6	163	44	0	102	123	14	1	33	145	64	2	14	161	24	896	0
4:30 PM		**0**	**13**	**197**	**43**	**0**	**82**	**125**	**5**	**2**	**46**	**184**	**85**	**1**	**13**	**150**	**22**	**968**	0
4:45 PM		**0**	**17**	**197**	**41**	**0**	**88**	**86**	**8**	**0**	**34**	**209**	**71**	**1**	**10**	**195**	**23**	**980**	3,815
5:00 PM		**3**	**10**	**216**	**55**	**0**	**93**	**134**	**17**	**1**	**55**	**187**	**73**	**0**	**13**	**198**	**19**	**1,074**	3,918
5:15 PM		**1**	**20**	**191**	**45**	**0**	**91**	**132**	**14**	**0**	**37**	**202**	**76**	**0**	**22**	**176**	**18**	**1,025**	**4,047**
5:30 PM		0	26	178	46	0	92	102	15	0	39	178	63	1	22	172	21	955	4,034
5:45 PM		0	18	185	32	0	79	120	13	1	53	182	82	0	20	177	27	989	4,043
Count Total		4	126	1,507	346	0	721	922	97	5	333	1,491	593	5	122	1,403	183	7,858	0
Peak Hour	**All**	**4**	**60**	**801**	**184**	**0**	**354**	**477**	**44**	**3**	**172**	**782**	**305**	**2**	**58**	**719**	**82**	**4,047**	**0**
	HV	**0**	**0**	**3**	**0**	**0**	**4**	**3**	**0**	**0**	**2**	**2**	**3**	**0**	**1**	**1**	**1**	**20**	**0**
	HV%	**0%**	**0%**	**0%**	**0%**	**-**	**1%**	**1%**	**0%**	**0%**	**1%**	**0%**	**1%**	**0%**	**2%**	**0%**	**1%**	**0%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	4	3	3	2	*12*	0	0	0	0	*0*	8	4	11	3	*26*
4:15 PM	1	2	1	0	*4*	0	0	0	0	*0*	5	2	5	4	*16*
4:30 PM	**0**	**3**	**2**	**0**	***5***	**1**	**0**	**0**	**0**	***1***	**7**	**4**	**2**	**8**	*21*
4:45 PM	**3**	**2**	**2**	**1**	***8***	**0**	**0**	**1**	**0**	***1***	**5**	**8**	**3**	**12**	*28*
5:00 PM	**0**	**0**	**2**	**2**	***4***	**1**	**1**	**0**	**0**	***2***	**2**	**4**	**3**	**8**	*17*
5:15 PM	**0**	**2**	**1**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**2**	**8**	**3**	**8**	***21***
5:30 PM	0	2	0	0	*2*	0	0	0	0	*0*	2	11	5	4	*22*
5:45 PM	1	1	1	2	*5*	0	0	0	0	*0*	1	5	0	2	*8*
Count Total	9	15	12	7	*43*	2	1	1	0	*4*	32	46	32	49	*159*
Peak Hour	**3**	**7**	**7**	**3**	***20***	**2**	**1**	**1**	**0**	***4***	**16**	**24**	**11**	**36**	***87***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	California Blvd				California Blvd				Arroyo Pkwy				Arroyo Pkwy				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	3	1	0	1	1	1	0	0	2	1	0	0	1	1	12	0
4:15 PM	0	0	0	1	0	1	1	0	0	1	0	0	0	0	0	0	4	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**5**	0
4:45 PM	**0**	**0**	**3**	**0**	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**0**	**8**	29
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**1**	**1**	**4**	21
5:15 PM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**20**
5:30 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2	17
5:45 PM	0	0	0	1	0	0	1	0	0	0	0	1	0	0	1	1	5	14
Count Total	0	0	6	3	0	7	7	1	0	3	4	5	0	1	3	3	43	0
Peak Hour	**0**	**0**	**3**	**0**	**0**	**4**	**3**	**0**	**0**	**2**	**2**	**3**	**0**	**1**	**1**	**1**	**20**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	California Blvd			California Blvd			Arroyo Pkwy			Arroyo Pkwy			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	2
5:00 PM	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	4
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	0	2	0	0	1	0	1	0	0	0	0	0	4	0
Peak Hour	**0**	**2**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**4**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

APPENDIX B – LOS CALCULATION SHEETS

Existing Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	547	80	34	161	0	0	0	0	700	1390	165
Future Volume (vph)	0	547	80	34	161	0	0	0	0	700	1390	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9		4.9	4.9					5.8	5.8	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	
Frt		0.98		1.00	1.00					1.00	0.98	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3472		1770	3539					1770	3483	
Flt Permitted		1.00		0.22	1.00					0.95	1.00	
Satd. Flow (perm)		3472		416	3539					1770	3483	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	564	82	35	166	0	0	0	0	722	1433	170
RTOR Reduction (vph)	0	13	0	0	0	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	633	0	35	166	0	0	0	0	722	1593	0
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		2			2						4	
Permitted Phases				2						4		
Actuated Green, G (s)		22.7		22.7	22.7					54.2	54.2	
Effective Green, g (s)		22.7		22.7	22.7					54.2	54.2	
Actuated g/C Ratio		0.26		0.26	0.26					0.62	0.62	
Clearance Time (s)		4.9		4.9	4.9					5.8	5.8	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		899		107	917					1095	2155	
v/s Ratio Prot		c0.18			0.05						c0.46	
v/s Ratio Perm				0.08						0.41		
v/c Ratio		0.70		0.33	0.18					0.66	0.74	
Uniform Delay, d1		29.4		26.3	25.2					10.8	11.7	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		2.5		1.8	0.1					3.1	2.3	
Delay (s)		31.9		28.1	25.3					13.9	14.1	
Level of Service		C		C	C					B	B	
Approach Delay (s)		31.9			25.8			0.0			14.0	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	87.6	Sum of lost time (s)	10.7
Intersection Capacity Utilization	123.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	352	870	0	0	235	452	13	1661	61	0	0	0
Future Volume (veh/h)	352	870	0	0	235	452	13	1661	61	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	378	935	0	0	253	486	14	1786	66			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	384	1895	0	0	936	417	629	1786	66			
Arrive On Green	0.22	0.53	0.00	0.00	0.26	0.26	0.35	0.35	0.35			
Sat Flow, veh/h	1781	3647	0	0	3647	1585	1781	5054	187			
Grp Volume(v), veh/h	378	935	0	0	253	486	14	1202	650			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1585	1781	1702	1837			
Q Serve(g_s), s	19.0	15.0	0.0	0.0	5.1	23.7	0.5	31.8	31.8			
Cycle Q Clear(g_c), s	19.0	15.0	0.0	0.0	5.1	23.7	0.5	31.8	31.8			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.10			
Lane Grp Cap(c), veh/h	384	1895	0	0	936	417	629	1203	649			
V/C Ratio(X)	0.98	0.49	0.00	0.00	0.27	1.16	0.02	1.00	1.00			
Avail Cap(c_a), veh/h	384	1895	0	0	936	417	629	1203	649			
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	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	35.1	13.3	0.0	0.0	26.3	33.1	19.0	29.1	29.1			
Incr Delay (d2), s/veh	42.2	0.9	0.0	0.0	0.2	97.2	0.1	25.9	35.6			
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	12.5	5.8	0.0	0.0	2.1	20.1	0.2	16.7	19.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.4	14.2	0.0	0.0	26.4	130.4	19.0	55.0	64.7			
LnGrp LOS	E	B	A	A	C	F	B	D	F			
Approach Vol, veh/h		1313			739			1866				
Approach Delay, s/veh		32.4			94.8			58.1				
Approach LOS		C			F			E				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		52.9			24.3	28.6		37.1				
Change Period (Y+Rc), s		4.9			4.9	4.9		5.3				
Max Green Setting (Gmax), s		48.0			19.4	23.7		31.8				
Max Q Clear Time (g_c+I1), s		17.0			21.0	25.7		33.8				
Green Ext Time (p_c), s		7.9			0.0	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	56.4
HCM 6th LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	486	356	107	740	47	206	447	75	75	696	26
Future Volume (veh/h)	21	486	356	107	740	47	206	447	75	75	696	26
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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	517	379	114	787	50	219	476	80	80	740	28
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	222	573	420	220	1166	74	346	1012	169	386	1047	40
Arrive On Green	0.02	0.29	0.29	0.06	0.34	0.34	0.10	0.33	0.33	0.07	0.30	0.30
Sat Flow, veh/h	1781	1956	1433	1781	3393	216	1781	3046	509	1781	3491	132
Grp Volume(v), veh/h	22	470	426	114	412	425	219	277	279	80	377	391
Grp Sat Flow(s),veh/h/ln	1781	1777	1612	1781	1777	1832	1781	1777	1779	1781	1777	1847
Q Serve(g_s), s	0.7	21.7	21.7	3.7	16.9	16.9	7.1	10.5	10.6	2.5	16.1	16.1
Cycle Q Clear(g_c), s	0.7	21.7	21.7	3.7	16.9	16.9	7.1	10.5	10.6	2.5	16.1	16.1
Prop In Lane	1.00		0.89	1.00		0.12	1.00		0.29	1.00		0.07
Lane Grp Cap(c), veh/h	222	520	472	220	611	629	346	590	591	386	533	554
V/C Ratio(X)	0.10	0.90	0.90	0.52	0.67	0.68	0.63	0.47	0.47	0.21	0.71	0.71
Avail Cap(c_a), veh/h	290	541	491	296	647	667	346	590	591	408	533	554
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.1	29.0	29.0	21.8	23.9	23.9	19.5	22.5	22.6	18.2	26.5	26.5
Incr Delay (d2), s/veh	0.2	18.0	19.5	1.9	2.6	2.5	3.7	2.7	2.7	0.3	7.7	7.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	11.5	10.6	1.6	7.2	7.5	3.2	4.7	4.7	1.0	7.7	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.3	47.0	48.5	23.7	26.5	26.5	23.3	25.2	25.3	18.4	34.2	34.0
LnGrp LOS	C	D	D	C	C	C	C	C	C	B	C	C
Approach Vol, veh/h		918			951			775			848	
Approach Delay, s/veh		47.1			26.2			24.7			32.6	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	33.7	10.6	29.9	14.0	30.9	6.2	34.2
Change Period (Y+Rc), s	5.3	5.3	* 5.2	4.9	* 5.2	5.3	* 4.2	* 4.9
Max Green Setting (Gmax), s	7.0	27.3	* 9	26.0	* 8.8	25.6	* 5.3	* 31
Max Q Clear Time (g_c+I1), s	4.5	12.6	5.7	23.7	9.1	18.1	2.7	18.9
Green Ext Time (p_c), s	0.0	3.0	0.1	1.3	0.0	2.9	0.0	4.3

Intersection Summary	
HCM 6th Ctrl Delay	32.9
HCM 6th LOS	C

Notes

* HCM 6th 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												
Traffic Volume (veh/h)	51	448	284	238	567	115	141	755	65	48	702	62
Future Volume (veh/h)	51	448	284	238	567	115	141	755	65	48	702	62
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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	457	290	243	579	117	144	770	66	49	716	63
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	282	787	351	383	871	175	328	1165	100	289	1088	96
Arrive On Green	0.06	0.22	0.22	0.12	0.30	0.30	0.08	0.35	0.35	0.06	0.33	0.33
Sat Flow, veh/h	1781	3554	1585	1781	2947	594	1781	3312	284	1781	3304	291
Grp Volume(v), veh/h	52	457	290	243	349	347	144	413	423	49	385	394
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1763	1781	1777	1819	1781	1777	1818
Q Serve(g_s), s	1.8	9.7	14.7	8.4	14.5	14.5	4.4	16.5	16.5	1.5	15.6	15.6
Cycle Q Clear(g_c), s	1.8	9.7	14.7	8.4	14.5	14.5	4.4	16.5	16.5	1.5	15.6	15.6
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.16	1.00		0.16
Lane Grp Cap(c), veh/h	282	787	351	383	525	521	328	625	640	289	585	598
V/C Ratio(X)	0.18	0.58	0.83	0.63	0.66	0.67	0.44	0.66	0.66	0.17	0.66	0.66
Avail Cap(c_a), veh/h	326	933	416	411	591	587	350	625	640	336	585	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.9	29.3	31.2	20.6	26.0	26.0	17.8	23.0	23.1	17.7	24.2	24.2
Incr Delay (d2), s/veh	0.3	0.7	11.2	2.9	2.4	2.5	0.9	5.4	5.3	0.3	5.7	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	4.1	6.5	3.6	6.2	6.2	1.8	7.5	7.7	0.6	7.2	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.2	29.9	42.4	23.5	28.3	28.5	18.7	28.5	28.4	18.0	29.9	29.8
LnGrp LOS	C	C	D	C	C	C	B	C	C	B	C	C
Approach Vol, veh/h		799			939			980			828	
Approach Delay, s/veh		34.0			27.1			27.0			29.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	34.9	15.7	23.5	12.0	33.0	9.4	29.8
Change Period (Y+Rc), s	5.3	5.3	* 5.2	4.9	* 5.2	5.3	4.5	* 4.9
Max Green Setting (Gmax), s	7.0	28.4	* 12	22.1	* 7.8	27.7	7.0	* 28
Max Q Clear Time (g_c+I1), s	3.5	18.5	10.4	16.7	6.4	17.6	3.8	16.5
Green Ext Time (p_c), s	0.0	3.8	0.1	2.0	0.0	3.5	0.0	3.4

Intersection Summary	
HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

Notes

* HCM 6th 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												
Traffic Volume (veh/h)	17	156	26	97	167	140	64	1297	199	129	758	12
Future Volume (veh/h)	17	156	26	97	167	140	64	1297	199	129	758	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	19	173	29	108	186	156	71	1441	221	143	842	13
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	125	362	61	242	218	183	412	1584	240	241	2322	36
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.51	0.51	0.51	0.08	0.65	0.65
Sat Flow, veh/h	1039	1561	262	1180	940	788	646	3094	468	1781	3582	55
Grp Volume(v), veh/h	19	0	202	108	0	342	71	819	843	143	418	437
Grp Sat Flow(s),veh/h/ln	1039	0	1823	1180	0	1728	646	1777	1786	1781	1777	1860
Q Serve(g_s), s	1.6	0.0	8.5	7.7	0.0	16.8	5.3	37.0	38.6	3.0	9.6	9.6
Cycle Q Clear(g_c), s	18.4	0.0	8.5	16.2	0.0	16.8	5.3	37.0	38.6	3.0	9.6	9.6
Prop In Lane	1.00		0.14	1.00		0.46	1.00		0.26	1.00		0.03
Lane Grp Cap(c), veh/h	125	0	423	242	0	401	412	909	914	241	1152	1206
V/C Ratio(X)	0.15	0.00	0.48	0.45	0.00	0.85	0.17	0.90	0.92	0.59	0.36	0.36
Avail Cap(c_a), veh/h	143	0	453	262	0	429	412	909	914	247	1152	1206
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.3	0.0	29.4	36.4	0.0	32.6	11.9	19.6	20.0	19.4	7.2	7.2
Incr Delay (d2), s/veh	0.6	0.0	0.8	1.3	0.0	14.5	0.9	13.8	16.0	3.7	0.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	3.7	2.3	0.0	8.4	0.8	17.4	18.6	1.7	3.4	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.9	0.0	30.2	37.6	0.0	47.1	12.8	33.4	36.0	23.0	8.0	8.0
LnGrp LOS	D	A	C	D	A	D	B	C	D	C	A	A
Approach Vol, veh/h		221			450			1733			998	
Approach Delay, s/veh		31.2			44.8			33.8			10.2	
Approach LOS		C			D			C			B	

Timer - Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	12.1	50.6		25.8		62.7		25.8
Change Period (Y+Rc), s	5.3	5.3		5.3		5.3		5.3
Max Green Setting (Gmax), s	7.1	45.0		22.0		57.4		22.0
Max Q Clear Time (g_c+I1), s	5.0	40.6		20.4		11.6		18.8
Green Ext Time (p_c), s	0.1	3.7		0.2		6.5		0.8

Intersection Summary		
HCM 6th Ctrl Delay		28.2
HCM 6th LOS		C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	392	69	84	615	169	29	169	44	34	219	54
Future Volume (veh/h)	30	392	69	84	615	169	29	169	44	34	219	54
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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	31	404	71	87	634	174	30	174	45	35	226	56
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	421	1304	227	564	1662	741	234	336	85	261	354	86
Arrive On Green	0.05	0.43	0.43	0.08	0.47	0.47	0.04	0.12	0.12	0.05	0.12	0.12
Sat Flow, veh/h	1781	3025	527	1781	3554	1585	1781	2811	708	1781	2835	688
Grp Volume(v), veh/h	31	236	239	87	634	174	30	108	111	35	140	142
Grp Sat Flow(s),veh/h/ln	1781	1777	1775	1781	1777	1585	1781	1777	1743	1781	1777	1747
Q Serve(g_s), s	0.6	6.1	6.2	1.7	8.1	4.6	1.0	4.0	4.2	1.2	5.2	5.4
Cycle Q Clear(g_c), s	0.6	6.1	6.2	1.7	8.1	4.6	1.0	4.0	4.2	1.2	5.2	5.4
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.41	1.00		0.39
Lane Grp Cap(c), veh/h	421	766	766	564	1662	741	234	213	209	261	222	218
V/C Ratio(X)	0.07	0.31	0.31	0.15	0.38	0.23	0.13	0.51	0.53	0.13	0.63	0.65
Avail Cap(c_a), veh/h	540	766	766	643	1662	741	354	537	527	372	537	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.0	13.0	13.1	9.0	12.0	11.1	25.0	28.8	28.9	24.7	29.0	29.1
Incr Delay (d2), s/veh	0.1	1.0	1.1	0.1	0.7	0.7	0.2	1.9	2.1	0.2	2.9	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.4	2.5	0.6	3.0	1.6	0.4	1.7	1.8	0.5	2.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.0	14.1	14.1	9.1	12.7	11.9	25.3	30.7	31.0	24.9	32.0	32.4
LnGrp LOS	B	B	B	A	B	B	C	C	C	C	C	C
Approach Vol, veh/h		506			895			249			317	
Approach Delay, s/veh		13.8			12.2			30.2			31.4	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	36.0	8.3	14.6	8.4	38.5	8.6	14.3
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 8.8	30.1	* 7.8	21.1	* 7.8	31.1	* 7.8	21.1
Max Q Clear Time (g_c+I1), s	3.7	8.2	3.0	7.4	2.6	10.1	3.2	6.2
Green Ext Time (p_c), s	0.1	2.9	0.0	1.3	0.0	5.0	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	18.0
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	139	295	289	203	111	67
Future Volume (veh/h)	139	295	289	203	111	67
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	151	321	314	221	121	73
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	356	1263	665	563	1537	705
Arrive On Green	0.36	0.36	0.36	0.36	0.44	0.44
Sat Flow, veh/h	870	3647	1870	1585	3456	1585
Grp Volume(v), veh/h	151	321	314	221	121	73
Grp Sat Flow(s),veh/h/ln	870	1777	1870	1585	1728	1585
Q Serve(g_s), s	7.3	2.9	5.9	4.7	0.9	1.2
Cycle Q Clear(g_c), s	13.2	2.9	5.9	4.7	0.9	1.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	356	1263	665	563	1537	705
V/C Ratio(X)	0.42	0.25	0.47	0.39	0.08	0.10
Avail Cap(c_a), veh/h	395	1421	748	634	1537	705
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.3	10.3	11.2	10.9	7.2	7.3
Incr Delay (d2), s/veh	0.7	0.1	0.5	0.4	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.9	2.1	1.4	0.3	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.0	10.4	11.8	11.3	7.3	7.6
LnGrp LOS	B	B	B	B	A	A
Approach Vol, veh/h		472	535		194	
Approach Delay, s/veh		12.5	11.6		7.4	
Approach LOS		B	B		A	

Timer - Assigned Phs		4		6		8
Phs Duration (G+Y+Rc), s		20.5		24.5		20.5
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		18.0		18.0		18.0
Max Q Clear Time (g_c+I1), s		15.2		3.2		7.9
Green Ext Time (p_c), s		0.8		0.5		2.0

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	446	115	427	830	24	251	813	311	32	609	56
Future Volume (veh/h)	24	446	115	427	830	24	251	813	311	32	609	56
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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	496	128	474	922	27	279	903	346	36	677	62
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	267	1005	448	490	1387	41	318	965	369	188	1080	98
Arrive On Green	0.04	0.28	0.28	0.15	0.39	0.39	0.09	0.27	0.27	0.05	0.23	0.23
Sat Flow, veh/h	1781	3554	1585	1781	3525	103	1781	3635	1389	1781	4763	433
Grp Volume(v), veh/h	27	496	128	474	465	484	279	845	404	36	482	257
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1852	1781	1702	1620	1781	1702	1792
Q Serve(g_s), s	0.9	10.1	5.5	13.3	18.6	18.6	8.0	21.0	21.1	1.3	11.1	11.2
Cycle Q Clear(g_c), s	0.9	10.1	5.5	13.3	18.6	18.6	8.0	21.0	21.1	1.3	11.1	11.2
Prop In Lane	1.00		1.00	1.00		0.06	1.00		0.86	1.00		0.24
Lane Grp Cap(c), veh/h	267	1005	448	490	699	728	318	904	430	188	772	406
V/C Ratio(X)	0.10	0.49	0.29	0.97	0.66	0.66	0.88	0.94	0.94	0.19	0.63	0.63
Avail Cap(c_a), veh/h	353	1005	448	490	699	728	318	904	430	257	904	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.4	25.9	24.2	22.2	21.6	21.6	28.1	31.1	31.1	24.9	30.2	30.2
Incr Delay (d2), s/veh	0.2	1.7	1.6	32.4	4.9	4.8	23.2	17.9	30.4	0.5	1.0	2.1
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	0.4	4.4	2.2	10.9	8.3	8.6	4.0	10.6	11.6	0.6	4.5	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.6	27.6	25.8	54.5	26.5	26.3	51.3	49.0	61.5	25.4	31.2	32.3
LnGrp LOS	C	C	C	D	C	C	D	D	E	C	C	C
Approach Vol, veh/h		651			1423			1528			775	
Approach Delay, s/veh		27.0			35.8			52.7			31.3	
Approach LOS		C			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	30.1	13.0	25.5	8.4	39.7	9.6	28.9
Change Period (Y+Rc), s	* 4.7	5.6	* 5	5.9	4.6	5.6	* 5	5.9
Max Green Setting (Gmax), s	* 13	24.5	* 8	23.0	8.0	29.9	* 8	23.0
Max Q Clear Time (g_c+I1), s	15.3	12.1	10.0	13.2	2.9	20.6	3.3	23.1
Green Ext Time (p_c), s	0.0	3.0	0.0	3.4	0.0	4.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	39.6
HCM 6th LOS	D

Notes

* HCM 6th 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												
Traffic Volume (vph)	0	413	45	43	326	0	0	0	0	589	1261	174
Future Volume (vph)	0	413	45	43	326	0	0	0	0	589	1261	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9		4.9	4.9					5.8	5.8	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	
Frt		0.99		1.00	1.00					1.00	0.98	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3487		1770	3539					1770	3475	
Flt Permitted		1.00		0.36	1.00					0.95	1.00	
Satd. Flow (perm)		3487		677	3539					1770	3475	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	421	46	44	333	0	0	0	0	601	1287	178
RTOR Reduction (vph)	0	10	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	457	0	44	333	0	0	0	0	601	1454	0
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		2			2						4	
Permitted Phases				2						4		
Actuated Green, G (s)		21.5		21.5	21.5					54.2	54.2	
Effective Green, g (s)		21.5		21.5	21.5					54.2	54.2	
Actuated g/C Ratio		0.25		0.25	0.25					0.63	0.63	
Clearance Time (s)		4.9		4.9	4.9					5.8	5.8	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		867		168	880					1110	2179	
v/s Ratio Prot		c0.13			0.09						c0.42	
v/s Ratio Perm				0.07						0.34		
v/c Ratio		0.53		0.26	0.38					0.54	0.67	
Uniform Delay, d1		28.1		26.1	26.9					9.1	10.3	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		0.6		0.8	0.3					1.9	1.6	
Delay (s)		28.6		26.9	27.2					11.0	12.0	
Level of Service		C		C	C					B	B	
Approach Delay (s)		28.6			27.2			0.0			11.7	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	86.4	Sum of lost time (s)	10.7
Intersection Capacity Utilization	97.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	266	790	0	0	305	490	15	1967	73	0	0	0
Future Volume (veh/h)	266	790	0	0	305	490	15	1967	73	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	274	814	0	0	314	505	15	2028	75			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	287	1741	0	0	975	435	707	2005	74			
Arrive On Green	0.16	0.49	0.00	0.00	0.27	0.27	0.40	0.40	0.40			
Sat Flow, veh/h	1781	3647	0	0	3647	1585	1781	5054	186			
Grp Volume(v), veh/h	274	814	0	0	314	505	15	1364	739			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1585	1781	1702	1837			
Q Serve(g_s), s	13.7	13.6	0.0	0.0	6.3	24.7	0.5	35.7	35.7			
Cycle Q Clear(g_c), s	13.7	13.6	0.0	0.0	6.3	24.7	0.5	35.7	35.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.10			
Lane Grp Cap(c), veh/h	287	1741	0	0	975	435	707	1350	729			
V/C Ratio(X)	0.95	0.47	0.00	0.00	0.32	1.16	0.02	1.01	1.01			
Avail Cap(c_a), veh/h	287	1741	0	0	975	435	707	1350	729			
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	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	37.4	15.2	0.0	0.0	26.0	32.6	16.5	27.1	27.2			
Incr Delay (d2), s/veh	42.7	0.9	0.0	0.0	0.2	95.1	0.1	27.1	36.8			
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	9.3	5.4	0.0	0.0	2.7	20.6	0.2	18.7	22.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.1	16.1	0.0	0.0	26.2	127.8	16.6	54.2	64.0			
LnGrp LOS	F	B	A	A	C	F	B	F	F			
Approach Vol, veh/h		1088			819			2118				
Approach Delay, s/veh		32.2			88.8			57.4				
Approach LOS		C			F			E				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		49.0			19.4	29.6		41.0				
Change Period (Y+Rc), s		4.9			4.9	4.9		5.3				
Max Green Setting (Gmax), s		44.1			14.5	24.7		35.7				
Max Q Clear Time (g_c+I1), s		15.6			15.7	26.7		37.7				
Green Ext Time (p_c), s		6.4			0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			57.0									
HCM 6th LOS			E									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	520	217	125	820	48	279	510	140	112	579	71
Future Volume (veh/h)	52	520	217	125	820	48	279	510	140	112	579	71
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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	547	228	132	863	51	294	537	147	118	609	75
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	209	653	272	256	1055	62	386	918	250	355	962	118
Arrive On Green	0.04	0.27	0.27	0.07	0.31	0.31	0.11	0.33	0.33	0.08	0.30	0.30
Sat Flow, veh/h	1781	2447	1017	1781	3409	201	1781	2760	752	1781	3185	392
Grp Volume(v), veh/h	55	397	378	132	450	464	294	345	339	118	339	345
Grp Sat Flow(s),veh/h/ln	1781	1777	1687	1781	1777	1834	1781	1777	1735	1781	1777	1800
Q Serve(g_s), s	1.8	17.6	17.7	4.4	19.5	19.5	9.2	13.4	13.5	3.7	13.7	13.8
Cycle Q Clear(g_c), s	1.8	17.6	17.7	4.4	19.5	19.5	9.2	13.4	13.5	3.7	13.7	13.8
Prop In Lane	1.00		0.60	1.00		0.11	1.00		0.43	1.00		0.22
Lane Grp Cap(c), veh/h	209	474	450	256	550	568	386	591	577	355	537	544
V/C Ratio(X)	0.26	0.84	0.84	0.52	0.82	0.82	0.76	0.58	0.59	0.33	0.63	0.63
Avail Cap(c_a), veh/h	248	554	526	317	660	682	386	591	577	399	537	544
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.2	28.9	28.9	21.7	26.6	26.6	19.8	23.0	23.1	18.0	25.1	25.1
Incr Delay (d2), s/veh	0.7	9.5	10.3	1.6	6.8	6.6	8.6	4.2	4.3	0.5	5.6	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	8.5	8.2	1.9	8.9	9.2	4.7	6.1	6.0	1.5	6.4	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.8	38.4	39.1	23.3	33.4	33.2	28.4	27.2	27.4	18.5	30.7	30.7
LnGrp LOS	C	D	D	C	C	C	C	C	C	B	C	C
Approach Vol, veh/h		830			1046			978			802	
Approach Delay, s/veh		37.7			32.1			27.6			28.9	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.8	33.1	11.3	27.2	14.4	30.5	7.8	30.7
Change Period (Y+Rc), s	5.3	5.3	* 5.2	4.9	* 5.2	5.3	* 4.2	* 4.9
Max Green Setting (Gmax), s	8.6	25.7	* 9	26.0	* 9.2	25.2	* 5.4	* 31
Max Q Clear Time (g_c+I1), s	5.7	15.5	6.4	19.7	11.2	15.8	3.8	21.5
Green Ext Time (p_c), s	0.1	3.1	0.1	2.6	0.0	2.9	0.0	4.0

Intersection Summary	
HCM 6th Ctrl Delay	31.5
HCM 6th LOS	C

Notes

* HCM 6th 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												
Traffic Volume (veh/h)	82	524	253	175	508	87	154	699	129	89	684	81
Future Volume (veh/h)	82	524	253	175	508	87	154	699	129	89	684	81
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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	86	552	266	184	535	92	162	736	136	94	720	85
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	287	760	339	314	764	131	346	1087	201	317	1142	135
Arrive On Green	0.07	0.21	0.21	0.10	0.25	0.25	0.08	0.36	0.36	0.07	0.36	0.36
Sat Flow, veh/h	1781	3554	1585	1781	3034	520	1781	2994	553	1781	3201	378
Grp Volume(v), veh/h	86	552	266	184	313	314	162	437	435	94	399	406
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1777	1781	1777	1771	1781	1777	1802
Q Serve(g_s), s	3.0	12.1	13.3	6.6	13.4	13.5	4.7	17.4	17.4	2.7	15.6	15.6
Cycle Q Clear(g_c), s	3.0	12.1	13.3	6.6	13.4	13.5	4.7	17.4	17.4	2.7	15.6	15.6
Prop In Lane	1.00		1.00	1.00		0.29	1.00		0.31	1.00		0.21
Lane Grp Cap(c), veh/h	287	760	339	314	447	447	346	645	643	317	634	643
V/C Ratio(X)	0.30	0.73	0.79	0.59	0.70	0.70	0.47	0.68	0.68	0.30	0.63	0.63
Avail Cap(c_a), veh/h	310	938	418	341	549	549	409	645	643	333	634	643
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	30.7	31.1	23.1	28.4	28.5	16.5	22.5	22.5	16.3	22.4	22.4
Incr Delay (d2), s/veh	0.6	2.2	7.7	2.2	3.0	3.1	1.0	5.6	5.7	0.5	4.7	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	5.3	5.6	2.9	5.9	5.9	1.9	7.9	7.9	1.1	7.1	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.7	32.9	38.8	25.3	31.4	31.6	17.4	28.2	28.2	16.8	27.1	27.0
LnGrp LOS	C	C	D	C	C	C	B	C	C	B	C	C
Approach Vol, veh/h		904			811			1034			899	
Approach Delay, s/veh		33.7			30.1			26.5			26.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	35.7	13.7	22.8	12.0	35.2	10.6	26.0
Change Period (Y+Rc), s	5.3	5.3	* 5.2	4.9	* 5.2	5.3	4.5	* 4.9
Max Green Setting (Gmax), s	7.0	30.4	* 9.8	22.1	* 9.8	27.7	7.1	* 26
Max Q Clear Time (g_c+I1), s	4.7	19.4	8.6	15.3	6.7	17.6	5.0	15.5
Green Ext Time (p_c), s	0.0	4.2	0.1	2.6	0.1	3.7	0.0	2.8

Intersection Summary	
HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C

Notes

* HCM 6th 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												
Traffic Volume (veh/h)	15	221	32	198	183	76	59	997	183	240	998	18
Future Volume (veh/h)	15	221	32	198	183	76	59	997	183	240	998	18
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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	223	32	200	185	77	60	1007	185	242	1008	18
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	267	464	67	277	364	151	317	1315	241	321	2115	38
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.44	0.44	0.44	0.09	0.59	0.59
Sat Flow, veh/h	1117	1600	230	1125	1254	522	550	2998	550	1781	3572	64
Grp Volume(v), veh/h	15	0	255	200	0	262	60	596	596	242	501	525
Grp Sat Flow(s),veh/h/ln	1117	0	1829	1125	0	1776	550	1777	1771	1781	1777	1859
Q Serve(g_s), s	1.0	0.0	10.4	15.7	0.0	11.1	6.3	25.5	25.6	6.3	14.4	14.4
Cycle Q Clear(g_c), s	12.1	0.0	10.4	26.1	0.0	11.1	6.9	25.5	25.6	6.3	14.4	14.4
Prop In Lane	1.00		0.13	1.00		0.29	1.00		0.31	1.00		0.03
Lane Grp Cap(c), veh/h	267	0	530	277	0	515	317	779	777	321	1052	1101
V/C Ratio(X)	0.06	0.00	0.48	0.72	0.00	0.51	0.19	0.77	0.77	0.75	0.48	0.48
Avail Cap(c_a), veh/h	267	0	530	277	0	515	317	779	777	398	1052	1101
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.6	0.0	26.4	37.3	0.0	26.6	16.3	21.4	21.4	17.8	10.4	10.4
Incr Delay (d2), s/veh	0.1	0.0	0.7	8.9	0.0	0.8	1.3	7.1	7.1	6.3	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	4.5	5.0	0.0	4.7	0.9	11.5	11.6	2.9	5.5	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.7	0.0	27.0	46.2	0.0	27.4	17.6	28.4	28.5	24.0	12.0	11.9
LnGrp LOS	C	A	C	D	A	C	B	C	C	C	B	B
Approach Vol, veh/h		270			462			1252			1268	
Approach Delay, s/veh		27.3			35.6			27.9			14.2	
Approach LOS		C			D			C			B	

Timer - Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	13.8	44.8		31.4		58.6		31.4
Change Period (Y+Rc), s	5.3	5.3		5.3		5.3		5.3
Max Green Setting (Gmax), s	12.4	35.6		26.1		53.3		26.1
Max Q Clear Time (g_c+I1), s	8.3	27.6		14.1		16.4		28.1
Green Ext Time (p_c), s	0.3	4.9		1.2		8.2		0.0

Intersection Summary			
HCM 6th Ctrl Delay			23.6
HCM 6th LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	648	49	54	573	153	72	287	132	115	313	62
Future Volume (veh/h)	39	648	49	54	573	153	72	287	132	115	313	62
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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	668	51	56	591	158	74	296	136	119	323	64
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	389	1311	100	383	1432	639	304	410	184	292	543	106
Arrive On Green	0.05	0.39	0.39	0.06	0.40	0.40	0.07	0.17	0.17	0.08	0.18	0.18
Sat Flow, veh/h	1781	3346	255	1781	3554	1585	1781	2385	1070	1781	2963	580
Grp Volume(v), veh/h	40	354	365	56	591	158	74	219	213	119	192	195
Grp Sat Flow(s),veh/h/ln	1781	1777	1824	1781	1777	1585	1781	1777	1678	1781	1777	1766
Q Serve(g_s), s	1.0	11.6	11.7	1.4	9.2	5.1	2.5	8.9	9.3	4.1	7.6	7.8
Cycle Q Clear(g_c), s	1.0	11.6	11.7	1.4	9.2	5.1	2.5	8.9	9.3	4.1	7.6	7.8
Prop In Lane	1.00		0.14	1.00		1.00	1.00		0.64	1.00		0.33
Lane Grp Cap(c), veh/h	389	696	715	383	1432	639	304	305	288	292	326	324
V/C Ratio(X)	0.10	0.51	0.51	0.15	0.41	0.25	0.24	0.72	0.74	0.41	0.59	0.60
Avail Cap(c_a), veh/h	458	696	715	450	1432	639	356	511	483	324	511	508
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.6	17.8	17.8	12.7	16.4	15.2	23.2	30.0	30.2	23.4	28.7	28.8
Incr Delay (d2), s/veh	0.1	2.7	2.6	0.2	0.9	0.9	0.4	3.1	3.7	0.9	1.7	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	5.0	5.1	0.5	3.7	1.9	1.1	4.0	3.9	1.7	3.3	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	20.4	20.4	12.9	17.3	16.1	23.6	33.2	33.9	24.4	30.4	30.6
LnGrp LOS	B	C	C	B	B	B	C	C	C	C	C	C
Approach Vol, veh/h		759			805			506			506	
Approach Delay, s/veh		20.0			16.8			32.1			29.1	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	36.0	10.8	20.0	9.2	36.9	11.6	19.1
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 7.8	30.1	* 7.8	22.1	* 7	30.9	* 7.8	22.1
Max Q Clear Time (g_c+I1), s	3.4	13.7	4.5	9.8	3.0	11.2	6.1	11.3
Green Ext Time (p_c), s	0.0	4.1	0.0	1.8	0.0	4.5	0.0	1.9

Intersection Summary	
HCM 6th Ctrl Delay	23.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	81	484	280	109	425	157
Future Volume (veh/h)	81	484	280	109	425	157
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	88	526	304	118	462	171
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	535	1370	721	611	922	423
Arrive On Green	0.39	0.39	0.39	0.39	0.27	0.27
Sat Flow, veh/h	965	3647	1870	1585	3456	1585
Grp Volume(v), veh/h	88	526	304	118	462	171
Grp Sat Flow(s),veh/h/ln	965	1777	1870	1585	1728	1585
Q Serve(g_s), s	1.9	2.8	3.1	1.3	2.9	2.3
Cycle Q Clear(g_c), s	5.0	2.8	3.1	1.3	2.9	2.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	535	1370	721	611	922	423
V/C Ratio(X)	0.16	0.38	0.42	0.19	0.50	0.40
Avail Cap(c_a), veh/h	834	2471	1301	1102	2403	1102
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.7	5.7	5.8	5.3	8.0	7.8
Incr Delay (d2), s/veh	0.1	0.2	0.4	0.2	0.4	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.5	0.6	0.2	0.7	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.8	5.9	6.2	5.4	8.5	8.4
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h		614	422		633	
Approach Delay, s/veh		6.2	6.0		8.4	
Approach LOS		A	A		A	

Timer - Assigned Phs		4		6		8
Phs Duration (G+Y+Rc), s		14.5		11.4		14.5
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		18.0		18.0		18.0
Max Q Clear Time (g_c+I1), s		7.0		4.9		5.1
Green Ext Time (p_c), s		3.0		2.0		1.8

Intersection Summary	
HCM 6th Ctrl Delay	7.0
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	809	186	358	482	44	177	790	308	61	726	83
Future Volume (veh/h)	65	809	186	358	482	44	177	790	308	61	726	83
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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	69	861	198	381	513	47	188	840	328	65	772	88
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	413	985	439	374	1169	107	300	941	366	227	1125	127
Arrive On Green	0.07	0.28	0.28	0.15	0.35	0.35	0.09	0.26	0.26	0.07	0.24	0.24
Sat Flow, veh/h	1781	3554	1585	1781	3292	301	1781	3617	1405	1781	4653	527
Grp Volume(v), veh/h	69	861	198	381	276	284	188	790	378	65	564	296
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1816	1781	1702	1617	1781	1702	1775
Q Serve(g_s), s	2.3	20.4	9.1	13.3	10.5	10.6	7.0	19.8	19.9	2.3	13.3	13.4
Cycle Q Clear(g_c), s	2.3	20.4	9.1	13.3	10.5	10.6	7.0	19.8	19.9	2.3	13.3	13.4
Prop In Lane	1.00		1.00	1.00		0.17	1.00		0.87	1.00		0.30
Lane Grp Cap(c), veh/h	413	985	439	374	631	645	300	886	421	227	823	429
V/C Ratio(X)	0.17	0.87	0.45	1.02	0.44	0.44	0.63	0.89	0.90	0.29	0.68	0.69
Avail Cap(c_a), veh/h	443	985	439	374	631	645	300	886	421	260	886	462
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.4	30.5	26.4	21.8	21.8	21.8	23.5	31.5	31.5	23.8	30.4	30.5
Incr Delay (d2), s/veh	0.2	10.7	3.3	51.3	2.2	2.2	4.0	13.2	24.4	0.7	2.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	9.9	3.8	10.5	4.6	4.7	3.2	9.5	10.4	1.0	5.5	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.6	41.1	29.7	73.0	24.0	24.0	27.5	44.7	56.0	24.5	32.4	34.5
LnGrp LOS	B	D	C	F	C	C	C	D	E	C	C	C
Approach Vol, veh/h		1128			941			1356			925	
Approach Delay, s/veh		37.8			43.8			45.5			32.5	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	30.1	13.0	27.3	11.1	37.0	11.4	28.9
Change Period (Y+Rc), s	* 4.7	5.6	* 5	5.9	4.6	5.6	* 5	5.9
Max Green Setting (Gmax), s	* 13	24.5	* 8	23.0	8.0	29.9	* 8	23.0
Max Q Clear Time (g_c+I1), s	15.3	22.4	9.0	15.4	4.3	12.6	4.3	21.9
Green Ext Time (p_c), s	0.0	1.3	0.0	3.3	0.0	3.2	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	40.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Existing Plus Project Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	554	80	36	162	0	0	0	0	728	1390	165
Future Volume (vph)	0	554	80	36	162	0	0	0	0	728	1390	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9		4.9	4.9					5.8	5.8	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	
Frt		0.98		1.00	1.00					1.00	0.98	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3473		1770	3539					1770	3483	
Flt Permitted		1.00		0.22	1.00					0.95	1.00	
Satd. Flow (perm)		3473		408	3539					1770	3483	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	571	82	37	167	0	0	0	0	751	1433	170
RTOR Reduction (vph)	0	13	0	0	0	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	640	0	37	167	0	0	0	0	751	1593	0
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		2			2						4	
Permitted Phases				2						4		
Actuated Green, G (s)		22.8		22.8	22.8					54.2	54.2	
Effective Green, g (s)		22.8		22.8	22.8					54.2	54.2	
Actuated g/C Ratio		0.26		0.26	0.26					0.62	0.62	
Clearance Time (s)		4.9		4.9	4.9					5.8	5.8	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		902		106	920					1093	2152	
v/s Ratio Prot		c0.18			0.05						c0.46	
v/s Ratio Perm				0.09						0.42		
v/c Ratio		0.71		0.35	0.18					0.69	0.74	
Uniform Delay, d1		29.4		26.4	25.2					11.1	11.8	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		2.6		2.0	0.1					3.5	2.3	
Delay (s)		32.0		28.4	25.3					14.6	14.1	
Level of Service		C		C	C					B	B	
Approach Delay (s)		32.0			25.9			0.0			14.3	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	87.7	Sum of lost time (s)	10.7
Intersection Capacity Utilization	124.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	352	906	0	0	238	456	13	1661	75	0	0	0
Future Volume (veh/h)	352	906	0	0	238	456	13	1661	75	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	378	974	0	0	256	490	14	1786	81			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	384	1895	0	0	936	417	629	1769	80			
Arrive On Green	0.22	0.53	0.00	0.00	0.26	0.26	0.35	0.35	0.35			
Sat Flow, veh/h	1781	3647	0	0	3647	1585	1781	5007	227			
Grp Volume(v), veh/h	378	974	0	0	256	490	14	1214	653			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1585	1781	1702	1830			
Q Serve(g_s), s	19.0	15.9	0.0	0.0	5.1	23.7	0.5	31.8	31.8			
Cycle Q Clear(g_c), s	19.0	15.9	0.0	0.0	5.1	23.7	0.5	31.8	31.8			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.12			
Lane Grp Cap(c), veh/h	384	1895	0	0	936	417	629	1203	646			
V/C Ratio(X)	0.98	0.51	0.00	0.00	0.27	1.17	0.02	1.01	1.01			
Avail Cap(c_a), veh/h	384	1895	0	0	936	417	629	1203	646			
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	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	35.1	13.5	0.0	0.0	26.3	33.1	19.0	29.1	29.1			
Incr Delay (d2), s/veh	42.2	1.0	0.0	0.0	0.2	100.9	0.1	28.2	38.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	12.5	6.1	0.0	0.0	2.2	20.5	0.2	17.1	20.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.4	14.5	0.0	0.0	26.5	134.0	19.0	57.3	67.2			
LnGrp LOS	E	B	A	A	C	F	B	F	F			
Approach Vol, veh/h		1352			746			1881				
Approach Delay, s/veh		32.1			97.1			60.4				
Approach LOS		C			F			E				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		52.9			24.3	28.6		37.1				
Change Period (Y+Rc), s		4.9			4.9	4.9		5.3				
Max Green Setting (Gmax), s		48.0			19.4	23.7		31.8				
Max Q Clear Time (g_c+I1), s		17.9			21.0	25.7		33.8				
Green Ext Time (p_c), s		8.2			0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			57.7									
HCM 6th LOS			E									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	486	356	114	740	47	206	448	76	75	703	26
Future Volume (veh/h)	21	486	356	114	740	47	206	448	76	75	703	26
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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	517	379	121	787	50	219	477	81	80	748	28
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	224	572	419	225	1174	75	342	1006	170	383	1044	39
Arrive On Green	0.02	0.29	0.29	0.07	0.35	0.35	0.10	0.33	0.33	0.07	0.30	0.30
Sat Flow, veh/h	1781	1956	1433	1781	3393	216	1781	3041	514	1781	3493	131
Grp Volume(v), veh/h	22	470	426	121	412	425	219	278	280	80	380	396
Grp Sat Flow(s),veh/h/ln	1781	1777	1612	1781	1777	1832	1781	1777	1778	1781	1777	1847
Q Serve(g_s), s	0.7	21.8	21.8	3.9	16.9	16.9	7.2	10.6	10.7	2.5	16.4	16.4
Cycle Q Clear(g_c), s	0.7	21.8	21.8	3.9	16.9	16.9	7.2	10.6	10.7	2.5	16.4	16.4
Prop In Lane	1.00		0.89	1.00		0.12	1.00		0.29	1.00		0.07
Lane Grp Cap(c), veh/h	224	519	471	225	615	634	342	588	588	383	531	552
V/C Ratio(X)	0.10	0.90	0.91	0.54	0.67	0.67	0.64	0.47	0.48	0.21	0.72	0.72
Avail Cap(c_a), veh/h	292	539	489	295	645	665	342	588	588	404	531	552
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.2	29.2	29.2	21.8	23.9	23.9	19.8	22.7	22.8	18.3	26.8	26.8
Incr Delay (d2), s/veh	0.2	18.3	19.9	2.0	2.5	2.5	4.0	2.7	2.8	0.3	8.1	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	11.6	10.7	1.7	7.2	7.5	3.2	4.7	4.8	1.0	7.9	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	47.5	49.0	23.7	26.4	26.3	23.8	25.5	25.5	18.6	34.9	34.6
LnGrp LOS	C	D	D	C	C	C	C	C	C	B	C	C
Approach Vol, veh/h		918			958			777			856	
Approach Delay, s/veh		47.6			26.0			25.0			33.2	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	33.6	10.8	29.9	14.0	30.9	6.2	34.5
Change Period (Y+Rc), s	5.3	5.3	* 5.2	4.9	* 5.2	5.3	* 4.2	* 4.9
Max Green Setting (Gmax), s	7.0	27.3	* 9	26.0	* 8.8	25.6	* 5.3	* 31
Max Q Clear Time (g_c+I1), s	4.5	12.7	5.9	23.8	9.2	18.4	2.7	18.9
Green Ext Time (p_c), s	0.0	3.0	0.1	1.2	0.0	2.8	0.0	4.3

Intersection Summary	
HCM 6th Ctrl Delay	33.2
HCM 6th LOS	C

Notes

* HCM 6th 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												
Traffic Volume (veh/h)	51	448	334	266	567	115	149	757	68	48	716	62
Future Volume (veh/h)	51	448	334	266	567	115	149	757	68	48	716	62
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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	457	341	271	579	117	152	772	69	49	731	63
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	301	854	381	404	951	192	304	1111	99	269	1045	90
Arrive On Green	0.06	0.24	0.24	0.13	0.32	0.32	0.08	0.34	0.34	0.06	0.32	0.32
Sat Flow, veh/h	1781	3554	1585	1781	2947	594	1781	3299	295	1781	3311	285
Grp Volume(v), veh/h	52	457	341	271	349	347	152	416	425	49	392	402
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1763	1781	1777	1817	1781	1777	1819
Q Serve(g_s), s	1.9	9.8	18.3	9.5	14.5	14.6	5.0	17.8	17.8	1.6	17.0	17.0
Cycle Q Clear(g_c), s	1.9	9.8	18.3	9.5	14.5	14.6	5.0	17.8	17.8	1.6	17.0	17.0
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.16	1.00		0.16
Lane Grp Cap(c), veh/h	301	854	381	404	573	569	304	598	612	269	561	574
V/C Ratio(X)	0.17	0.53	0.89	0.67	0.61	0.61	0.50	0.69	0.70	0.18	0.70	0.70
Avail Cap(c_a), veh/h	341	895	399	409	573	569	323	598	612	312	561	574
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.6	29.1	32.3	20.3	25.1	25.1	19.8	25.2	25.2	19.4	26.4	26.4
Incr Delay (d2), s/veh	0.3	0.6	21.4	4.2	1.9	1.9	1.3	6.5	6.4	0.3	7.1	7.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	4.2	9.1	4.2	6.2	6.2	2.1	8.3	8.5	0.6	8.0	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.9	29.6	53.6	24.5	26.9	27.0	21.1	31.8	31.6	19.7	33.5	33.3
LnGrp LOS	C	C	D	C	C	C	C	C	C	B	C	C
Approach Vol, veh/h		850			967			993			843	
Approach Delay, s/veh		38.8			26.3			30.1			32.6	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	34.8	16.7	26.0	12.0	33.0	9.5	33.2
Change Period (Y+Rc), s	5.3	5.3	* 5.2	4.9	* 5.2	5.3	4.5	* 4.9
Max Green Setting (Gmax), s	7.0	28.4	* 12	22.1	* 7.8	27.7	7.0	* 28
Max Q Clear Time (g_c+I1), s	3.6	19.8	11.5	20.3	7.0	19.0	3.9	16.6
Green Ext Time (p_c), s	0.0	3.5	0.0	0.8	0.0	3.3	0.0	3.4

Intersection Summary	
HCM 6th Ctrl Delay	31.7
HCM 6th LOS	C

Notes

* HCM 6th 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												
Traffic Volume (veh/h)	24	156	26	97	167	176	64	1304	199	136	759	13
Future Volume (veh/h)	24	156	26	97	167	176	64	1304	199	136	759	13
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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	173	29	108	186	196	71	1449	221	151	843	14
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	382	64	257	204	215	404	1558	234	232	2281	38
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.50	0.50	0.50	0.08	0.64	0.64
Sat Flow, veh/h	1001	1561	262	1180	834	879	644	3097	466	1781	3577	59
Grp Volume(v), veh/h	27	0	202	108	0	382	71	823	847	151	419	438
Grp Sat Flow(s),veh/h/ln	1001	0	1823	1180	0	1712	644	1777	1786	1781	1777	1860
Q Serve(g_s), s	2.4	0.0	8.5	7.7	0.0	19.5	5.5	38.6	40.3	3.3	10.1	10.1
Cycle Q Clear(g_c), s	22.0	0.0	8.5	16.2	0.0	19.5	5.5	38.6	40.3	3.3	10.1	10.1
Prop In Lane	1.00		0.14	1.00		0.51	1.00		0.26	1.00		0.03
Lane Grp Cap(c), veh/h	108	0	446	257	0	419	404	894	898	232	1133	1186
V/C Ratio(X)	0.25	0.00	0.45	0.42	0.00	0.91	0.18	0.92	0.94	0.65	0.37	0.37
Avail Cap(c_a), veh/h	108	0	446	257	0	419	404	894	898	237	1133	1186
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.7	0.0	28.9	35.8	0.0	33.1	12.5	20.7	21.1	20.0	7.7	7.7
Incr Delay (d2), s/veh	1.2	0.0	0.7	1.1	0.0	24.1	0.9	16.2	19.0	6.1	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	3.7	2.3	0.0	10.7	0.9	18.6	20.1	1.9	3.7	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	0.0	29.6	36.8	0.0	57.1	13.4	36.9	40.1	26.0	8.7	8.6
LnGrp LOS	D	A	C	D	A	E	B	D	D	C	A	A
Approach Vol, veh/h		229			490			1741			1008	
Approach Delay, s/veh		31.4			52.7			37.5			11.2	
Approach LOS		C			D			D			B	

Timer - Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	12.1	50.6		27.3		62.7		27.3
Change Period (Y+Rc), s	5.3	5.3		5.3		5.3		5.3
Max Green Setting (Gmax), s	7.1	45.0		22.0		57.4		22.0
Max Q Clear Time (g_c+I1), s	5.3	42.3		24.0		12.1		21.5
Green Ext Time (p_c), s	0.1	2.3		0.0		6.5		0.2

Intersection Summary			
HCM 6th Ctrl Delay			31.6
HCM 6th LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	395	69	84	643	169	29	169	44	34	219	54
Future Volume (veh/h)	30	395	69	84	643	169	29	169	44	34	219	54
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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	31	407	71	87	663	174	30	174	45	35	226	56
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	411	1306	226	562	1662	741	234	336	85	261	354	86
Arrive On Green	0.05	0.43	0.43	0.08	0.47	0.47	0.04	0.12	0.12	0.05	0.12	0.12
Sat Flow, veh/h	1781	3029	524	1781	3554	1585	1781	2811	708	1781	2835	688
Grp Volume(v), veh/h	31	237	241	87	663	174	30	108	111	35	140	142
Grp Sat Flow(s),veh/h/ln	1781	1777	1776	1781	1777	1585	1781	1777	1743	1781	1777	1747
Q Serve(g_s), s	0.6	6.1	6.2	1.7	8.5	4.6	1.0	4.0	4.2	1.2	5.2	5.4
Cycle Q Clear(g_c), s	0.6	6.1	6.2	1.7	8.5	4.6	1.0	4.0	4.2	1.2	5.2	5.4
Prop In Lane	1.00		0.30	1.00		1.00	1.00		0.41	1.00		0.39
Lane Grp Cap(c), veh/h	411	766	766	562	1662	741	234	213	209	261	222	218
V/C Ratio(X)	0.08	0.31	0.31	0.15	0.40	0.23	0.13	0.51	0.53	0.13	0.63	0.65
Avail Cap(c_a), veh/h	529	766	766	641	1662	741	354	537	527	372	537	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.0	13.0	13.1	9.0	12.2	11.1	25.0	28.8	28.9	24.7	29.0	29.1
Incr Delay (d2), s/veh	0.1	1.1	1.1	0.1	0.7	0.7	0.2	1.9	2.1	0.2	2.9	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.5	2.5	0.6	3.2	1.6	0.4	1.7	1.8	0.5	2.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.1	14.1	14.1	9.1	12.9	11.9	25.3	30.7	31.0	24.9	32.0	32.4
LnGrp LOS	B	B	B	A	B	B	C	C	C	C	C	C
Approach Vol, veh/h		509			924			249			317	
Approach Delay, s/veh		13.9			12.3			30.2			31.4	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.9	36.0	8.3	14.6	8.4	38.5	8.6	14.3
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 8.8	30.1	* 7.8	21.1	* 7.8	31.1	* 7.8	21.1
Max Q Clear Time (g_c+I1), s	3.7	8.2	3.0	7.4	2.6	10.5	3.2	6.2
Green Ext Time (p_c), s	0.1	2.9	0.0	1.3	0.0	5.2	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	18.0
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	139	302	325	203	111	67
Future Volume (veh/h)	139	302	325	203	111	67
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	151	328	353	221	121	73
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	350	1324	697	591	1477	678
Arrive On Green	0.37	0.37	0.37	0.37	0.43	0.43
Sat Flow, veh/h	839	3647	1870	1585	3456	1585
Grp Volume(v), veh/h	151	328	353	221	121	73
Grp Sat Flow(s),veh/h/ln	839	1777	1870	1585	1728	1585
Q Serve(g_s), s	7.6	2.9	6.6	4.6	0.9	1.2
Cycle Q Clear(g_c), s	14.2	2.9	6.6	4.6	0.9	1.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	350	1324	697	591	1477	678
V/C Ratio(X)	0.43	0.25	0.51	0.37	0.08	0.11
Avail Cap(c_a), veh/h	373	1421	748	634	1477	678
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.4	9.8	10.9	10.3	7.6	7.7
Incr Delay (d2), s/veh	0.7	0.1	0.6	0.4	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.9	2.3	1.3	0.3	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.1	9.8	11.5	10.7	7.8	8.1
LnGrp LOS	B	A	B	B	A	A
Approach Vol, veh/h		479	574		194	
Approach Delay, s/veh		12.1	11.2		7.9	
Approach LOS		B	B		A	

Timer - Assigned Phs		4		6		8
Phs Duration (G+Y+Rc), s		21.3		23.7		21.3
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		18.0		18.0		18.0
Max Q Clear Time (g_c+I1), s		16.2		3.2		8.6
Green Ext Time (p_c), s		0.6		0.5		2.1

Intersection Summary	
HCM 6th Ctrl Delay	11.0
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	449	115	427	844	24	265	813	311	32	609	56
Future Volume (veh/h)	24	449	115	427	844	24	265	813	311	32	609	56
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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	499	128	474	938	27	294	903	346	36	677	62
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	263	1005	448	489	1387	40	318	965	369	188	1080	98
Arrive On Green	0.04	0.28	0.28	0.15	0.39	0.39	0.09	0.27	0.27	0.05	0.23	0.23
Sat Flow, veh/h	1781	3554	1585	1781	3527	102	1781	3635	1389	1781	4763	433
Grp Volume(v), veh/h	27	499	128	474	472	493	294	845	404	36	482	257
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1852	1781	1702	1620	1781	1702	1792
Q Serve(g_s), s	0.9	10.2	5.5	13.3	19.0	19.0	8.0	21.0	21.1	1.3	11.1	11.2
Cycle Q Clear(g_c), s	0.9	10.2	5.5	13.3	19.0	19.0	8.0	21.0	21.1	1.3	11.1	11.2
Prop In Lane	1.00		1.00	1.00		0.05	1.00		0.86	1.00		0.24
Lane Grp Cap(c), veh/h	263	1005	448	489	699	728	318	904	430	188	772	406
V/C Ratio(X)	0.10	0.50	0.29	0.97	0.68	0.68	0.93	0.94	0.94	0.19	0.63	0.63
Avail Cap(c_a), veh/h	349	1005	448	489	699	728	318	904	430	257	904	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.5	25.9	24.2	22.2	21.7	21.7	28.9	31.1	31.1	24.9	30.2	30.2
Incr Delay (d2), s/veh	0.2	1.8	1.6	32.9	5.2	5.0	31.8	17.9	30.4	0.5	1.0	2.1
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	0.4	4.4	2.2	11.0	8.5	8.9	5.1	10.6	11.6	0.6	4.5	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.6	27.7	25.8	55.1	26.9	26.7	60.7	49.0	61.5	25.4	31.2	32.3
LnGrp LOS	C	C	C	E	C	C	E	D	E	C	C	C
Approach Vol, veh/h		654			1439			1543			775	
Approach Delay, s/veh		27.0			36.1			54.5			31.3	
Approach LOS		C			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	30.1	13.0	25.5	8.4	39.7	9.6	28.9
Change Period (Y+Rc), s	* 4.7	5.6	* 5	5.9	4.6	5.6	* 5	5.9
Max Green Setting (Gmax), s	* 13	24.5	* 8	23.0	8.0	29.9	* 8	23.0
Max Q Clear Time (g_c+I1), s	15.3	12.2	10.0	13.2	2.9	21.0	3.3	23.1
Green Ext Time (p_c), s	0.0	3.0	0.0	3.4	0.0	4.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	40.4
HCM 6th LOS	D

Notes

* HCM 6th 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												
Traffic Volume (vph)	0	413	45	57	333	0	0	0	0	591	1261	174
Future Volume (vph)	0	413	45	57	333	0	0	0	0	591	1261	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.9		4.9	4.9					5.8	5.8	
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	
Frt		0.99		1.00	1.00					1.00	0.98	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3487		1770	3539					1770	3475	
Flt Permitted		1.00		0.36	1.00					0.95	1.00	
Satd. Flow (perm)		3487		677	3539					1770	3475	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	421	46	58	340	0	0	0	0	603	1287	178
RTOR Reduction (vph)	0	10	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	457	0	58	340	0	0	0	0	603	1454	0
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		2			2						4	
Permitted Phases				2						4		
Actuated Green, G (s)		21.5		21.5	21.5					54.2	54.2	
Effective Green, g (s)		21.5		21.5	21.5					54.2	54.2	
Actuated g/C Ratio		0.25		0.25	0.25					0.63	0.63	
Clearance Time (s)		4.9		4.9	4.9					5.8	5.8	
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		867		168	880					1110	2179	
v/s Ratio Prot		c0.13			0.10						c0.42	
v/s Ratio Perm				0.09						0.34		
v/c Ratio		0.53		0.35	0.39					0.54	0.67	
Uniform Delay, d1		28.1		26.7	27.0					9.1	10.3	
Progression Factor		1.00		1.00	1.00					1.00	1.00	
Incremental Delay, d2		0.6		1.2	0.3					1.9	1.6	
Delay (s)		28.6		27.9	27.3					11.0	12.0	
Level of Service		C		C	C					B	B	
Approach Delay (s)		28.6			27.3			0.0			11.7	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	86.4	Sum of lost time (s)	10.7
Intersection Capacity Utilization	99.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	266	792	0	0	326	517	15	1967	74	0	0	0
Future Volume (veh/h)	266	792	0	0	326	517	15	1967	74	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	274	816	0	0	336	533	15	2028	76			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	287	1741	0	0	975	435	707	2004	75			
Arrive On Green	0.16	0.49	0.00	0.00	0.27	0.27	0.40	0.40	0.40			
Sat Flow, veh/h	1781	3647	0	0	3647	1585	1781	5052	189			
Grp Volume(v), veh/h	274	816	0	0	336	533	15	1365	739			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1585	1781	1702	1836			
Q Serve(g_s), s	13.7	13.7	0.0	0.0	6.8	24.7	0.5	35.7	35.7			
Cycle Q Clear(g_c), s	13.7	13.7	0.0	0.0	6.8	24.7	0.5	35.7	35.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.10			
Lane Grp Cap(c), veh/h	287	1741	0	0	975	435	707	1350	728			
V/C Ratio(X)	0.95	0.47	0.00	0.00	0.34	1.23	0.02	1.01	1.01			
Avail Cap(c_a), veh/h	287	1741	0	0	975	435	707	1350	728			
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	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	37.4	15.2	0.0	0.0	26.2	32.6	16.5	27.1	27.2			
Incr Delay (d2), s/veh	42.7	0.9	0.0	0.0	0.2	120.3	0.1	27.2	37.0			
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	9.3	5.4	0.0	0.0	2.9	23.7	0.2	18.7	22.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.1	16.1	0.0	0.0	26.4	153.0	16.6	54.4	64.2			
LnGrp LOS	F	B	A	A	C	F	B	F	F			
Approach Vol, veh/h		1090			869			2119				
Approach Delay, s/veh		32.2			104.0			57.5				
Approach LOS		C			F			E				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		49.0			19.4	29.6		41.0				
Change Period (Y+Rc), s		4.9			4.9	4.9		5.3				
Max Green Setting (Gmax), s		44.1			14.5	24.7		35.7				
Max Q Clear Time (g_c+I1), s		15.7			15.7	26.7		37.7				
Green Ext Time (p_c), s		6.5			0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			60.7									
HCM 6th LOS			E									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	520	217	125	820	48	279	517	147	112	579	71
Future Volume (veh/h)	52	520	217	125	820	48	279	517	147	112	579	71
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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	547	228	132	863	51	294	544	155	118	609	75
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	209	653	272	256	1055	62	386	909	258	350	962	118
Arrive On Green	0.04	0.27	0.27	0.07	0.31	0.31	0.11	0.33	0.33	0.08	0.30	0.30
Sat Flow, veh/h	1781	2447	1017	1781	3409	201	1781	2732	775	1781	3185	392
Grp Volume(v), veh/h	55	397	378	132	450	464	294	353	346	118	339	345
Grp Sat Flow(s),veh/h/ln	1781	1777	1687	1781	1777	1834	1781	1777	1731	1781	1777	1800
Q Serve(g_s), s	1.8	17.6	17.7	4.4	19.5	19.5	9.2	13.8	13.9	3.7	13.7	13.8
Cycle Q Clear(g_c), s	1.8	17.6	17.7	4.4	19.5	19.5	9.2	13.8	13.9	3.7	13.7	13.8
Prop In Lane	1.00		0.60	1.00		0.11	1.00		0.45	1.00		0.22
Lane Grp Cap(c), veh/h	209	474	450	256	550	568	386	591	576	350	537	544
V/C Ratio(X)	0.26	0.84	0.84	0.52	0.82	0.82	0.76	0.60	0.60	0.34	0.63	0.63
Avail Cap(c_a), veh/h	248	554	526	317	660	682	386	591	576	394	537	544
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.2	28.9	28.9	21.7	26.6	26.6	19.8	23.2	23.2	18.1	25.1	25.1
Incr Delay (d2), s/veh	0.7	9.5	10.3	1.6	6.8	6.6	8.6	4.4	4.6	0.6	5.6	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	8.5	8.2	1.9	8.9	9.2	4.7	6.3	6.2	1.5	6.4	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.8	38.4	39.1	23.3	33.4	33.2	28.4	27.6	27.8	18.6	30.7	30.7
LnGrp LOS	C	D	D	C	C	C	C	C	C	B	C	C
Approach Vol, veh/h		830			1046			993			802	
Approach Delay, s/veh		37.7			32.1			27.9			28.9	
Approach LOS		D			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.8	33.1	11.3	27.2	14.4	30.5	7.8	30.7
Change Period (Y+Rc), s	5.3	5.3	* 5.2	4.9	* 5.2	5.3	* 4.2	* 4.9
Max Green Setting (Gmax), s	8.6	25.7	* 9	26.0	* 9.2	25.2	* 5.4	* 31
Max Q Clear Time (g_c+I1), s	5.7	15.9	6.4	19.7	11.2	15.8	3.8	21.5
Green Ext Time (p_c), s	0.1	3.1	0.1	2.6	0.0	2.9	0.0	4.0

Intersection Summary	
HCM 6th Ctrl Delay	31.5
HCM 6th LOS	C

Notes

* HCM 6th 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												
Traffic Volume (veh/h)	82	524	256	177	508	87	202	713	150	89	685	81
Future Volume (veh/h)	82	524	256	177	508	87	202	713	150	89	685	81
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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	86	552	269	186	535	92	213	751	158	94	721	85
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	289	764	341	316	770	132	362	1058	222	304	1078	127
Arrive On Green	0.07	0.21	0.21	0.10	0.25	0.25	0.10	0.36	0.36	0.07	0.34	0.34
Sat Flow, veh/h	1781	3554	1585	1781	3034	520	1781	2922	615	1781	3202	377
Grp Volume(v), veh/h	86	552	269	186	313	314	213	457	452	94	400	406
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1777	1781	1777	1760	1781	1777	1802
Q Serve(g_s), s	3.0	12.1	13.5	6.7	13.4	13.5	6.4	18.5	18.5	2.8	16.2	16.2
Cycle Q Clear(g_c), s	3.0	12.1	13.5	6.7	13.4	13.5	6.4	18.5	18.5	2.8	16.2	16.2
Prop In Lane	1.00		1.00	1.00		0.29	1.00		0.35	1.00		0.21
Lane Grp Cap(c), veh/h	289	764	341	316	451	451	362	643	637	304	598	607
V/C Ratio(X)	0.30	0.72	0.79	0.59	0.69	0.70	0.59	0.71	0.71	0.31	0.67	0.67
Avail Cap(c_a), veh/h	311	935	417	341	548	548	391	643	637	321	598	607
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	30.6	31.2	23.0	28.4	28.4	17.4	23.0	23.0	17.3	23.8	23.9
Incr Delay (d2), s/veh	0.6	2.2	8.1	2.3	2.9	3.0	2.0	6.5	6.6	0.6	5.8	5.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	5.3	5.8	2.9	5.9	5.9	2.7	8.5	8.5	1.1	7.5	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.7	32.8	39.3	25.4	31.3	31.4	19.4	29.5	29.6	17.9	29.7	29.6
LnGrp LOS	C	C	D	C	C	C	B	C	C	B	C	C
Approach Vol, veh/h		907			813			1122			900	
Approach Delay, s/veh		33.9			30.0			27.6			28.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	35.7	13.8	23.0	13.6	33.6	10.6	26.2
Change Period (Y+Rc), s	5.3	5.3	* 5.2	4.9	* 5.2	5.3	4.5	* 4.9
Max Green Setting (Gmax), s	7.0	30.4	* 9.8	22.1	* 9.8	27.7	7.1	* 26
Max Q Clear Time (g_c+I1), s	4.8	20.5	8.7	15.5	8.4	18.2	5.0	15.5
Green Ext Time (p_c), s	0.0	4.1	0.1	2.6	0.1	3.5	0.0	2.8

Intersection Summary	
HCM 6th Ctrl Delay	29.8
HCM 6th LOS	C

Notes

* HCM 6th 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												
Traffic Volume (veh/h)	15	221	32	198	183	78	59	997	183	281	1005	25
Future Volume (veh/h)	15	221	32	198	183	78	59	997	183	281	1005	25
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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	15	223	32	200	185	79	60	1007	185	284	1015	25
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	265	464	67	277	361	154	310	1272	233	337	2099	52
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.42	0.42	0.42	0.11	0.59	0.59
Sat Flow, veh/h	1115	1600	230	1125	1244	531	542	2998	550	1781	3544	87
Grp Volume(v), veh/h	15	0	255	200	0	264	60	596	596	284	509	531
Grp Sat Flow(s),veh/h/ln	1115	0	1829	1125	0	1775	542	1777	1771	1781	1777	1855
Q Serve(g_s), s	1.0	0.0	10.4	15.7	0.0	11.2	6.4	26.2	26.3	7.6	14.7	14.7
Cycle Q Clear(g_c), s	12.2	0.0	10.4	26.1	0.0	11.2	6.4	26.2	26.3	7.6	14.7	14.7
Prop In Lane	1.00		0.13	1.00		0.30	1.00		0.31	1.00		0.05
Lane Grp Cap(c), veh/h	265	0	530	277	0	515	310	754	751	337	1052	1098
V/C Ratio(X)	0.06	0.00	0.48	0.72	0.00	0.51	0.19	0.79	0.79	0.84	0.48	0.48
Avail Cap(c_a), veh/h	265	0	530	277	0	515	310	754	751	388	1052	1098
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.7	0.0	26.4	37.3	0.0	26.6	16.8	22.5	22.5	18.2	10.5	10.5
Incr Delay (d2), s/veh	0.1	0.0	0.7	8.9	0.0	0.9	1.4	8.3	8.4	14.0	1.6	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	4.5	5.0	0.0	4.7	0.9	12.1	12.1	4.1	5.7	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.8	0.0	27.0	46.2	0.0	27.5	18.2	30.8	30.9	32.2	12.1	12.0
LnGrp LOS	C	A	C	D	A	C	B	C	C	C	B	B
Approach Vol, veh/h		270			464			1252			1324	
Approach Delay, s/veh		27.3			35.6			30.2			16.4	
Approach LOS		C			D			C			B	

Timer - Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	15.1	43.5		31.4		58.6		31.4
Change Period (Y+Rc), s	5.3	5.3		5.3		5.3		5.3
Max Green Setting (Gmax), s	12.4	35.6		26.1		53.3		26.1
Max Q Clear Time (g_c+I1), s	9.6	28.3		14.2		16.7		28.1
Green Ext Time (p_c), s	0.2	4.6		1.2		8.4		0.0

Intersection Summary			
HCM 6th Ctrl Delay			25.2
HCM 6th LOS			C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	669	49	54	575	153	72	287	132	115	313	62
Future Volume (veh/h)	39	669	49	54	575	153	72	287	132	115	313	62
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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	690	51	56	593	158	74	296	136	119	323	64
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	389	1314	97	375	1432	639	304	410	184	292	543	106
Arrive On Green	0.05	0.39	0.39	0.06	0.40	0.40	0.07	0.17	0.17	0.08	0.18	0.18
Sat Flow, veh/h	1781	3355	248	1781	3554	1585	1781	2385	1070	1781	2963	580
Grp Volume(v), veh/h	40	365	376	56	593	158	74	219	213	119	192	195
Grp Sat Flow(s),veh/h/ln	1781	1777	1826	1781	1777	1585	1781	1777	1678	1781	1777	1766
Q Serve(g_s), s	1.0	12.1	12.1	1.4	9.2	5.1	2.5	8.9	9.3	4.1	7.6	7.8
Cycle Q Clear(g_c), s	1.0	12.1	12.1	1.4	9.2	5.1	2.5	8.9	9.3	4.1	7.6	7.8
Prop In Lane	1.00		0.14	1.00		1.00	1.00		0.64	1.00		0.33
Lane Grp Cap(c), veh/h	389	696	715	375	1432	639	304	305	288	292	326	324
V/C Ratio(X)	0.10	0.52	0.53	0.15	0.41	0.25	0.24	0.72	0.74	0.41	0.59	0.60
Avail Cap(c_a), veh/h	458	696	715	443	1432	639	356	511	483	324	511	508
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.6	17.9	17.9	12.8	16.4	15.2	23.2	30.0	30.2	23.4	28.7	28.8
Incr Delay (d2), s/veh	0.1	2.8	2.8	0.2	0.9	0.9	0.4	3.1	3.7	0.9	1.7	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	5.2	5.3	0.5	3.7	1.9	1.1	4.0	3.9	1.7	3.3	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	20.7	20.6	13.0	17.3	16.1	23.6	33.2	33.9	24.4	30.4	30.6
LnGrp LOS	B	C	C	B	B	B	C	C	C	C	C	C
Approach Vol, veh/h		781			807			506			506	
Approach Delay, s/veh		20.3			16.8			32.1			29.1	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	36.0	10.8	20.0	9.2	36.9	11.6	19.1
Change Period (Y+Rc), s	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9	* 5.2	5.9
Max Green Setting (Gmax), s	* 7.8	30.1	* 7.8	22.1	* 7	30.9	* 7.8	22.1
Max Q Clear Time (g_c+I1), s	3.4	14.1	4.5	9.8	3.0	11.2	6.1	11.3
Green Ext Time (p_c), s	0.0	4.2	0.0	1.8	0.0	4.5	0.0	1.9

Intersection Summary	
HCM 6th Ctrl Delay	23.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	81	525	282	109	425	157
Future Volume (veh/h)	81	525	282	109	425	157
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	88	571	307	118	462	171
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	537	1393	733	621	916	420
Arrive On Green	0.39	0.39	0.39	0.39	0.26	0.26
Sat Flow, veh/h	962	3647	1870	1585	3456	1585
Grp Volume(v), veh/h	88	571	307	118	462	171
Grp Sat Flow(s),veh/h/ln	962	1777	1870	1585	1728	1585
Q Serve(g_s), s	1.9	3.1	3.1	1.3	3.0	2.3
Cycle Q Clear(g_c), s	5.1	3.1	3.1	1.3	3.0	2.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	537	1393	733	621	916	420
V/C Ratio(X)	0.16	0.41	0.42	0.19	0.50	0.41
Avail Cap(c_a), veh/h	820	2439	1284	1088	2372	1088
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.6	5.8	5.8	5.2	8.2	7.9
Incr Delay (d2), s/veh	0.1	0.2	0.4	0.1	0.4	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.6	0.6	0.2	0.7	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.8	6.0	6.2	5.4	8.6	8.6
LnGrp LOS	A	A	A	A	A	A
Approach Vol, veh/h		659	425		633	
Approach Delay, s/veh		6.2	6.0		8.6	
Approach LOS		A	A		A	

Timer - Assigned Phs		4		6		8
Phs Duration (G+Y+Rc), s		14.8		11.4		14.8
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		18.0		18.0		18.0
Max Q Clear Time (g_c+I1), s		7.1		5.0		5.1
Green Ext Time (p_c), s		3.2		2.0		1.8

Intersection Summary	
HCM 6th Ctrl Delay	7.0
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	830	186	358	483	44	178	790	308	61	726	83
Future Volume (veh/h)	65	830	186	358	483	44	178	790	308	61	726	83
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		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	69	883	198	381	514	47	189	840	328	65	772	88
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	413	985	439	369	1169	107	300	941	366	227	1125	127
Arrive On Green	0.07	0.28	0.28	0.15	0.35	0.35	0.09	0.26	0.26	0.07	0.24	0.24
Sat Flow, veh/h	1781	3554	1585	1781	3293	300	1781	3617	1405	1781	4653	527
Grp Volume(v), veh/h	69	883	198	381	277	284	189	790	378	65	564	296
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1816	1781	1702	1617	1781	1702	1775
Q Serve(g_s), s	2.3	21.1	9.1	13.3	10.5	10.6	7.0	19.8	19.9	2.3	13.3	13.4
Cycle Q Clear(g_c), s	2.3	21.1	9.1	13.3	10.5	10.6	7.0	19.8	19.9	2.3	13.3	13.4
Prop In Lane	1.00		1.00	1.00		0.17	1.00		0.87	1.00		0.30
Lane Grp Cap(c), veh/h	413	985	439	369	631	645	300	886	421	227	823	429
V/C Ratio(X)	0.17	0.90	0.45	1.03	0.44	0.44	0.63	0.89	0.90	0.29	0.68	0.69
Avail Cap(c_a), veh/h	442	985	439	369	631	645	300	886	421	260	886	462
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.4	30.7	26.4	22.3	21.8	21.8	23.5	31.5	31.5	23.8	30.4	30.5
Incr Delay (d2), s/veh	0.2	12.5	3.3	55.1	2.2	2.2	4.1	13.2	24.4	0.7	2.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	10.4	3.8	10.9	4.6	4.8	3.2	9.5	10.4	1.0	5.5	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.6	43.2	29.7	77.3	24.0	24.0	27.6	44.7	56.0	24.5	32.4	34.5
LnGrp LOS	B	D	C	F	C	C	C	D	E	C	C	C
Approach Vol, veh/h		1150			942			1357			925	
Approach Delay, s/veh		39.4			45.6			45.5			32.5	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.0	30.1	13.0	27.3	11.1	37.0	11.4	28.9
Change Period (Y+Rc), s	* 4.7	5.6	* 5	5.9	4.6	5.6	* 5	5.9
Max Green Setting (Gmax), s	* 13	24.5	* 8	23.0	8.0	29.9	* 8	23.0
Max Q Clear Time (g_c+I1), s	15.3	23.1	9.0	15.4	4.3	12.6	4.3	21.9
Green Ext Time (p_c), s	0.0	0.9	0.0	3.3	0.0	3.2	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	41.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

APPENDIX C – PEQI AND BEQI CALCULATION SHEETS

City of Pasadena
Department of Transportation
Pedestrian Environmental Quality Index
Calculation Summary
-- Segment --

Segment: Fair Oaks Ave
Limits: Fillmore St and Bellefontaine St

	Indicator Category	Score Weight	Indicator Response	Northbound (East side) Surveyed Response Category Score	Indicator Response	Southbound (West side) Surveyed Response Category Score
Traffic						
	Number of Lanes	0.64	4+	0	4+	0
	Posted Speed Limit	0.64	Over 25 mph	0	Over 25 mph	0
	Traffic Volume[1]	0.64	6,001-12,000 V/D	4	6,001-12,000 V/D	4
	Street Traffic Calming Features (TCFs)	0.64	None	0	None	0
				4		**4**
Street design						
	Width of Sidewalk	1.35	8-12 ft	20	8-12 ft	20
	Width of Throughway	1.35	8 ft or more	22	8 ft or more	22
	Large SW Obstructions	1.35	None	22	None	22
	Sidewalk Impediments	1.35	Minor	13	Minor	13
	Trees	1.35	Sporadic	7	Sporadic	7
	Driveway Cuts	1.35	1 to 5	7	1 to 5	7
	Presence of Buffer	1.35	Parallel parking	11	Parallel parking	11
	Planters/Gardens	1.35	Yes	4	Yes	4
	Public Seating	1.35	No	0	No	0
				106		**106**
Land Use						
	Public Art/ Historic Sites	0.15	No	0	No	0
	Retail Use/Public Places	0.15	1 or 2	7	1 or 2	7
				7		**7**
Perceived Safety						
	Lighting	0.34	Continuous	17	Continuous	17
	Illegal Graffiti	0.34	No	2	No	2
	Litter	0.34	No	11	No	11
	Empty Spaces	0.34	No	4	No	4
				34		**34**
Domain Summary		Score Weight		Category Score		Category Score
	Traffic	0.64	Traffic	4	Traffic	4
	Street Design	1.35	Street Design	106	Street Design	106
	Land Use	0.15	Land Use	7	Land Use	7
	Safety	0.34	Safety	34	Safety	34
		2.48		151		151

PEQI Score **61** Northbound (East side)

PEQI Score **61** Southbound (West side)

[1] Traffic volumes are based on segment volumes, not directional traffic volumes.

City of Pasadena
Department of Transportation
Pedestrian Environmental Quality Index
Calculation Summary
-- Segment --

Segment: Fillmore St
Limits: Fair Oaks Avenue and Edmondson Alley

	Indicator Category	Score Weight	Indicator Response	Eastbound (South side) Surveyed Response Category Score	Indicator Response	Westbound (North side) Surveyed Response Category Score
Traffic						
	Number of Lanes	0.64	1	13	1	13
	Posted Speed Limit	0.64	25 mph or none posted	4	25 mph or none posted	4
	Traffic Volume[1]	0.64	Fewer than 1,000 Veh/Day (V/D)	15	Fewer than 1,000 Veh/Day (V/D)	15
	Street Traffic Calming Features (TCFs)	0.64	None	0	None	0
				32		**32**
Street design						
	Width of Sidewalk	1.35	12 ft or more	22	12 ft or more	22
	Width of Throughway	1.35	4-6 ft	13	4-6 ft	13
	Large SW Obstructions	1.35	None	22	None	22
	Sidewalk Impediments	1.35	None	24	None	24
	Trees	1.35	Sporadic	7	Sporadic	7
	Driveway Cuts	1.35	1 to 5	7	1 to 5	7
	Presence of Buffer	1.35	Parallel parking	11	None	0
	Planters/Gardens	1.35	Yes	4	Yes	4
	Public Seating	1.35	No	0	No	0
				110		**99**
Land Use						
	Public Art/ Historic Sites	0.15	No	0	No	0
	Retail Use/Public Places	0.15	1 or 2	7	1 or 2	7
				7		**7**
Perceived Safety						
	Lighting	0.34	Continuous	17	Continuous	17
	Illegal Graffiti	0.34	No	2	No	2
	Litter	0.34	No	11	No	11
	Empty Spaces	0.34	Yes	0	Yes	0
				30		**30**
Domain Summary		Score Weight		Category Score		Category Score
	Traffic	0.64	Traffic	32	Traffic	32
	Street Design	1.35	Street Design	110	Street Design	99
	Land Use	0.15	Land Use	7	Land Use	7
	Safety	0.34	Safety	30	Safety	30
		2.48		179		168

PEQI Score **72** Eastbound (South side)

PEQI Score **68** Westbound (North side)

[1] Traffic volumes are based on segment volumes, not directional traffic volumes.

City of Pasadena
Department of Transportation
Bicycle Environmental Quality Index
Calculation Summary

Segment: Fair Oaks Avenue
Limits: Filmore St and Bellefontaine

	Indicator Category	Score Weight	Indicator Response	Northbound (East side) Surveyed Response Category Score	Indicator Response	Southbound (West side) Surveyed Response Category Score
Street design						
	Presence of a Marked Area for Bicycle Traffic	2.05	None	4	None	4
	Width of Bike Lane	2.05	None	0	None	0
	Bicycle Lane Markings	2.05	None	4	None	4
	Connectivity of Bicycle Lanes	2.05	No	13	No	13
	Pavement Type/Condition	2.05	Smooth Surface	40	Smooth Surface	40
	Street Slope	2.05	< 5%	27	< 5%	27
	Driveway Cuts	2.05	Few (Less than Five)	16	Few (Less than Five)	16
	Presence of Trees	2.05	Sporadically Lined	22	Sporadically Lined	22
				126		**126**
Vehicle Traffic						
	Posted Speed Limit	1.39	35	0	35	0
	Traffic Volume - Avg # of Vehicles Per Day	1.39	5,000 - 10,000	14	5,000 - 10,000	14
	Percentage of Heavy Vehicles	1.39	Less than 5%	36	Less than 5%	36
	Parallel Parking Adjacent to Bicycle Lane/Route	1.39	Parallel Parking (PP) < 7 ft	11	Parallel Parking (PP) < 7 ft	11
	Traffic Calming Features Streets	1.39	0 TCF	11	0 TCF	11
	Number of Lanes	1.39	4+	15	4+	15
				87		**87**
Safety/Other						
	Presence of Bicycle Lane Signs	0.42	No	15	No	15
	Bicycle/Pedestrian Scale Lighting	0.42	No	15	No	15
				30		**30**
Land Use						
	Bicycle Parking	0.66	No	12	No	12
	Retail Use	0.66	1 - 2	16	0	14
	Line of Site	0.66	Adequate Sight Distance	25	Adequate Sight Distance	25
				53		**51**

Domain Summary	Score Weight	Min Score	Category Score	Min Score	Category Score
Street design	2.05	62	126	62	126
Vehicle Traffic	1.39	59	87	59	87
Safety/Other	0.42	30	30	30	30
Land Use	0.66	33	53	33	51
	4.52	184	296	184	294

BEQI Score [1] **25** Northbound (East side)

BEQI Score [1] **24** Southbound (West side)

[1] BEQI calculation did not consider intersection indicators.

City of Pasadena
Department of Transportation
Bicycle Environmental Quality Index
Calculation Summary

Segment: Fillmore St
Limits: Fair Oaks Avenue and Edmondson Alley

	Indicator Category	Score Weight	Indicator Response	Eastbound (South side) Surveyed Response Category Score	Indicator Response	Westbound (North side) Surveyed Response Category Score
Street design						
	Presence of a Marked Area for Bicycle Traffic	2.05	None	4	None	4
	Width of Bike Lane	2.05	None	0	None	0
	Bicycle Lane Markings	2.05	None	4	None	4
	Connectivity of Bicycle Lanes	2.05	No	13	No	13
	Pavement Type/Condition	2.05	Mild Obstructions (e.g. cracks)	25	Mild Obstructions (e.g. cracks)	25
	Street Slope	2.05	< 5%	27	< 5%	27
	Driveway Cuts	2.05	Few (Less than Five)	16	Few (Less than Five)	16
	Presence of Trees	2.05	Sporadically Lined	22	Sporadically Lined	22
				111		**111**
Vehicle Traffic						
	Posted Speed Limit	1.39	25	29	25	29
	Traffic Volume - Avg # of Vehicles Per Day	1.39	Less than 1,000	27	Less than 1,000	27
	Percentage of Heavy Vehicles	1.39	Less than 5%	36	Less than 5%	36
	Parallel Parking Adjacent to Bicycle Lane/Route	1.39	Parallel Parking (PP) < 7 ft	11	None	27
	Traffic Calming Features Streets	1.39	0 TCF	11	0 TCF	11
	Number of Lanes	1.39	1	36	1	36
				150		**166**
Safety/Other						
	Presence of Bicycle Lane Signs	0.42	Yes	36	Yes	36
	Bicycle/Pedestrian Scale Lighting	0.42	Yes - Public and Private	36	Yes - Public and Private	36
				72		**72**
Land Use						
	Bicycle Parking	0.66	No	12	No	12
	Retail Use	0.66	1 - 2	16	0	14
	Line of Site	0.66	Clear Line of Sight	36	Clear Line of Sight	36
				64		**62**

Domain Summary	Score Weight	Min Score	Category Score	Min Score	Category Score
Street design	2.05	62	111	62	111
Vehicle Traffic	1.39	59	150	59	166
Safety/Other	0.42	30	72	30	72
Land Use	0.66	33	64	33	62
	4.52	184	397	184	411

BEQI Score [1] **47** Eastbound (South side)

BEQI Score [1] **50** Westbound (North side)

[1] BEQI calculation did not consider intersection indicators.

APPENDIX B:

NOISE TECHNICAL MEMORANDUM

Michael Baker INTERNATIONAL

We Make a Difference

MEMORANDUM

To: Beilin Yu, Senior Planner, City of Pasadena

From: Zhe Chen, Michael Baker International
Tina Yuan, Michael Baker International

Date: October 27, 2021

Subject: Huntington Hospital Medical Office Building Project – Noise Technical Memorandum

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PURPOSE

The purpose of this technical memorandum is to evaluate potential short- and long-term noise and ground-borne vibration impacts as a result of the proposed Huntington Hospital Medical Office Building Project (project), located in the City of Pasadena (City), California.

PROJECT LOCATION

The project is located at 758 South Fair Oaks Avenue and 766 South Fair Oaks Avenue in the City, bounded by Fair Oaks Avenue to the west, Fillmore Street to the north, and Edmondson Alley to the East. Regional access to the site is available via Interstate 110 (I-110) approximately 0.13 mile to the east of the site and Interstate 710 (I-710) approximately 0.37 miles to the northwest of the site. Local access to the site is provided via Fillmore Street.

EXISTING SITE CONDITIONS

The project site is approximately 1.27 acres and currently is a retail store (Huntington Collection) with a surface parking lot.

The project site is currently designated High Mixed-Use with a maximum Floor Area Ratio (FAR) of 3.0 and a maximum of 87 dwelling units per acre[1] in the City of Pasadena General Plan (General Plan). The project site is located within the South Fair Oaks Specific Plan (SFOSP) Area and is designated for primary development opportunity[2]. The parcels in the primary development opportunity zone are likely to provide the sites for the majority of new development authorized in the General Plan. However, owners of these sites may elect to undertake rehabilitation and adaptive re-use of existing structures, or not to undertake any changes.

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[1] City of Pasadena, *City of Pasadena Land Use Diagram*, November 14, 2016, https://www.cityofpasadena.net/wp-content/uploads/sites/30/Land-Use-Diagram-2016-11-14.pdf?v=1584653610006, accessed September 27, 2021.

[2] City of Pasadena, *South Fair Oaks Specific Plan, Private Realm Urban Design Framework Plan*, June 23, 2016. https://www.cityofpasadena.net/planning/wp-content/uploads/sites/30/South-Fair-Oaks-Specific-Plan-Updated-6232016.pdf?v=1632768097460, accessed September 27, 2021.

5 Hutton Centre Drive, Suite 500, Santa Ana, CA 92707
Office: 949.472.3505 | Fax: 949.472.8373

PROJECT DESCRIPTION

The project would involve demolition of the existing retail store building and construction of a four-story high-density mixed-use building. The proposed building would be approximately 100,285 square feet, consisting of approximately 80,285 square feet of medical office use and approximately 20,000 square feet of general office use. There would be two and half levels of subterranean parking.

Project construction would occur over approximately 20 months, beginning in June 2022. Construction of the project would require approximately 43,500 cubic yards of soil export and include the following phases: demolition, grading, building construction, paving, and architectural coating. It is anticipated that the project would be completed and operational in 2024.

FUNDAMENTALS OF SOUND AND ENVIRONMENTAL NOISE

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air and is characterized by both its amplitude and frequency (or pitch). The human ear does not hear all frequencies equally. In particular, the ear deemphasizes low and very high frequencies. To better approximate the sensitivity of human hearing, the A-weighted decibel scale (dBA) has been developed. Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dBA higher than another is perceived to be twice as loud and 20 dBA higher is perceived to be four times as loud, and so forth. Everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). On this scale, the human range of hearing extends from approximately 3 dBA to around 140 dBA.

Noise is generally defined as unwanted or excessive sound, which can vary in intensity by over one million times within the range of human hearing; therefore, a logarithmic scale, known as the decibel scale (dB), is used to quantify sound intensity. Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks, and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Noise generated by mobile sources typically attenuates (is reduced) at a rate between 3 dBA and 4.5 dBA per doubling of distance. The rate depends on the ground surface and the number or type of objects between the noise source and the receiver. Hard and flat surfaces, such as concrete or asphalt, have an attenuation rate of 3 dBA per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, have an attenuation rate of about 4.5 dBA per doubling of distance. Noise generated by stationary sources typically attenuates at a rate between 6 dBA and about 7.5 dBA per doubling of distance.

There are several metrics used to characterize community noise exposure, which fluctuate constantly over time. One such metric, the equivalent sound level (L_{eq}), represents a constant sound that, over the specified period, has the same sound energy as the time-varying sound. Noise exposure over a longer period is often evaluated based on the Day-Night Sound Level (L_{dn}). This is a measure of 24-hour noise levels that incorporates a 10-dBA penalty for sounds occurring between 10:00 p.m. and 7:00 a.m. The penalty is intended to reflect the increased human sensitivity to noises occurring during nighttime hours, particularly at times when people are sleeping and there are lower ambient noise conditions. Typical L_{dn} noise levels for light and medium density residential areas range from 55 dBA to 65 dBA. Similarly, Community Noise Equivalent Level (CNEL) is a measure of 24-hour noise levels that incorporates a 5-dBA

penalty for sounds occurring between 7:00 p.m. and 10:00 p.m. and a 10-dBA penalty for sounds occurring between 10:00 p.m. and 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively.

FUNDAMENTALS OF ENVIRONMENTAL GROUNDBORNE VIBRATION

Sources of earth-borne vibrations include natural phenomena (earthquakes, volcanic eruptions, sea waves, landslides, etc.) or man-made causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions). Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

Table 1, *Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration Levels*, displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage.

Table 1
Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration Levels

Peak Particle Velocity (inches/second)	Approximate Vibration Velocity Level (VdB)	Human Reaction	Effect on Buildings
0.006–0.019	64–74	Range of threshold of perception.	Vibrations unlikely to cause damage of any type.
0.08	87	Vibrations readily perceptible.	Recommended upper level to which ruins and ancient monuments should be subjected.
0.1	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities.	Virtually no risk of architectural damage to normal buildings.
0.2	94	Vibrations may begin to annoy people in buildings.	Threshold at which there is a risk of architectural damage to normal dwellings.
0.4–0.6	98–104	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges.	Architectural damage and possibly minor structural damage.

Source: California Department of Transportation, *Transportation Related Earthborne Vibrations*, 2002.

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be

perceptible. Common sources for groundborne vibration are planes, trains, and construction activities such as pile driving and vibratory compacting activities which require the use of heavy-duty earth moving equipment. For the purposes of this analysis, a PPV descriptor with units of inches per section (in/sec) is used to evaluate construction-generated vibration for building damage and human complaints.

REGULATORY SETTING

State of California

State Office of Planning and Research

The State Office of Planning and Research's *Noise Element Guidelines* include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The *Noise Element Guidelines* contain a land use compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of the CNEL. The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

City of Pasadena

General Plan Noise Element

Table 2, *City of Pasadena Land Use Compatibility Matrix*, presents the City's Community Noise and Land Use Compatibility matrix and presents the land use compatibility chart for community noise adopted by the City through its General Plan Noise Element[3]. This table provides urban planners with a tool to gauge the compatibility of new land uses relative to existing and future exterior noise exposure levels. This table identifies clearly acceptable, normally acceptable, conditionally acceptable, and normally unacceptable exterior noise exposure levels for various land uses. A clearly acceptable designation assumes that buildings of standard construction would suffice. A conditionally acceptable designation means that new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use is made and needed noise insulation features are incorporated into the design to reduce noise to normally acceptable levels. By comparison, a normally acceptable designation indicates that standard construction can likely occur with no special noise reduction requirements.

[3] City of Pasadena, *City of Pasadena General Plan Noise Element*, December 2002, https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2017/07/Pasadena-Noise-Element-Policy.pdf, accessed September 19, 2021.

Table 2
City of Pasadena Land Use Compatibility Matrix

Land Use Category	Community Noise Exposure (L_{dn} or CNEL, dBA)			
	Clearly Acceptable	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable
Residential – Low Density Single Family, Duplex, Mobile Homes	50 – 60	55 – 70	70 – 75	75 – 85
Residential – Multiple Family and Mixed Commercial/Residential Use	50 – 65	60 – 70	70 – 75	70 – 85
Transient Lodging – Motels, Hotels	50 – 65	60 – 70	70 – 80	80 – 85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 – 65	60 – 70	70 – 80	80 – 85
Auditoriums, Concert Halls, Amphitheaters	NA	50 – 70	65 – 85	NA
Sports Arenas, Outdoor Spectator Sports	NA	50 – 75	70 – 85	NA
Playgrounds, Neighborhood Parks	50 – 70	NA	67.5 – 75	72.5 – 85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 – 75	NA	70 – 80	80 – 85
Office Buildings, Business Commercial and Professional	50 – 70	67.5 – 77.5	75 – 85	NA
Industrial, Manufacturing, Utilities, Agriculture	50 – 75	70 – 80	80 – 85	NA

L_{dn} = Day-Night Sound Level; CNEL = community noise equivalent level; dBA = A-weighted decibel scale; NA = not applicable

Source: City of Pasadena, *City of Pasadena General Plan Noise Element*, Figure 1: Guidelines for Noise Compatible Land Use, December 2002.

The General Plan Noise Element also outlines the objectives and policies for noise control within the City. The following objectives and policies are applicable to the project:

Objective 2: The City will work to reduce the effects of traffic-generated noise from major roadways on residential and other sensitive land uses.

Policy 2b: The City will encourage site planning and traffic control measures that minimize the effects of traffic noise in residential zones.

Policy 2c: The City will encourage the use of alternative transportation modes as stipulated in the Mobility Element (walking, bicycling, transit use, electric vehicles) to minimize traffic noise in the City.

Policy 2d: The City will work with local and regional transit agencies and businesses to provide transportation services that reduce traffic and associated noise as stipulated in the Mobility Element.

Objective 6: The City will minimize noise spillovers from commercial and industrial operations into adjacent residential neighborhoods and other sensitive uses, while maximizing the Land Use Element's objectives to encourage mixed-use development in the Central District and other Specific Plan areas as well as to promote economic vitality.

Policy 6a: The City will encourage automobile and truck access to industrial and commercial properties abutting residential zones to be located at the maximum practical distance from residential zones.

Policy 6b: The City will limit the use of motorized landscaping equipment, parking lot sweepers, and other high-noise equipment on commercial properties if their activity will result in noise that adversely affects residential zones.

Objective 7: The City will minimize the effects of nuisance noise on sensitive land uses as defined in Figure 1 (Table 2) to the degree feasible.

Policy 7b: The City will encourage limitations on construction activities adjacent to sensitive noise receptors as defined in Figure 1 (Table 2).

Policy 7c: The City will encourage construction and landscaping activities that employ techniques to minimize noise.

Policy 7d: The City will enforce noise level restrictions contained in the City of Pasadena Noise Regulations (Chapter 9.36 of the Municipal Code), except during federal, State, or local emergencies (such as power generators required for energy emergencies).

Municipal Code Noise Ordinance

The City of Pasadena regulates stationary source noise in Municipal Code Chapter 9.36[4]. Noise regulations are based on the increment of noise that a source generates above the ambient background noise level.

9.36.050 – General noise sources.

Municipal Code Section 9.36.050 prohibits the generation of noise that exceeds the existing ambient noise at the property line of any property by more than 5 dBA, with adjustments made for steady audible tones, repeated impulsive noise, and noise occurring for limited time periods.

9.36.070 – Construction projects.

The City of Pasadena limits construction activities within a residential district or within 500 feet therefrom to the hours from 7:00 a.m. to 7:00 p.m., Monday through Friday, and from 8:00 a.m. to 5:00 p.m. on Saturdays. Performance of construction and repair work is prohibited on Sundays and holidays.

9.36.080 – Construction equipment.

Municipal Code Section 9.36.080 prohibits noise from operation of any powered construction equipment from exceeding 85 dBA at a distance of 100 feet from such equipment.

9.36.090 – Machinery, equipment, fans and air conditioning.

Section 9.36.090 prohibits machinery, equipment, and fans, and air conditioning units from generating noise that increases the ambient noise level by 5 dBA or more at the property line of the receiving property. Under the City's Municipal Code, ambient is defined as the actual measured ambient noise level.

[4] City of Pasadena, *Code of Ordinances: Chapter 9.36, Noise Restrictions,* 2008.

9.36.120 – Near schools, hospitals and churches.

It is unlawful for any person to create any noise on any street, sidewalk or public place adjacent to any school, institution of learning, or church while the same is in use or adjacent to any hospital, which noise unreasonably interferes with the workings of such institution or which disturbs or unduly annoys patients in the hospital, provided conspicuous signs are displayed in such streets, sidewalk or public place indicating the presence of a school, church or hospital.

EXISTING SETTING

Noise Sensitive Receptors

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as parks, historic sites, cemeteries, and recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

The nearest sensitive receptors to the project site are a nursing home (GEM Transitional Care Center) that is located approximately 130 feet to the north of project site, a school (Pasadena Art Center) that is located approximately 330 feet southeast of the site, and a hospital (Shriners for Children Medical Center) that is located approximately 430 feet to the southwest of the site. Additionally, the closest residential building is located approximately 670 feet to the southwest of the site. Multiple existing buildings are located between the closest residences and the project site. Due to the distance and the existing buildings completely blocking the line-of-sight between the closest residences and the project site, impacts at the residences are not further analyzed.

Existing Stationary Noise Levels

Land uses in the project area are mostly hospitals and medical offices. The primary sources of stationary noise in the project vicinity are urban-related activities (i.e., mechanical equipment and parking areas). The noise associated with these sources may represent a single-event noise occurrence, short-term, or long-term/continuous noise.

Existing Roadway Noise Levels

The majority of the existing noise in the project area is generated from traffic along surrounding roadways including South Fair Oaks Avenue and Filmore Street. Mobile source noise was modeled using the Federal Highway Administration's Highway Noise Prediction Model (FHWA RD-77-108), which incorporates several roadway and site parameters. The model does not account for ambient noise levels. Noise projections are based on modeled vehicular traffic as derived from the *Huntington Medical Building Transportation Impact Analysis Outside CEQA Evaluation Final Report* (Transportation Impact Analysis), prepared by Iteris Incorporated (dated October 2021); refer to Appendix A, *Noise Data*. As shown in Table 3, *Existing Traffic Noise Levels*, mobile source noise levels in the vicinity of the project site range from 54.6 dBA to 64.3 dBA at 100 feet from the roadway centerline.

Table 3
Existing Traffic Noise Levels

Roadway Segment	Existing Without Project Conditions				
	ADT	dBA @ 100 Feet from Roadway Centerline	Distance from Roadway Centerline to: (Feet)		
			70 CNEL Noise Contour	65 CNEL Noise Contour	60 CNEL Noise Contour
North-South					
St John Ave south of California Blvd	16,860	60.1	-	47	102
Pasadena Ave north of California Blvd	34,040	63.2	-	76	164
Pasadena Ave south of California Blvd	25,690	62.0	-	63	135
Fair Oaks Ave north of Del Mar Blvd	17,150	61.4	-	57	123
Fair Oaks Ave between Del Mar & California Blvd	22,330	62.4	-	68	145
Fair Oaks Ave between California & Fillmore St	26,180	63.2	-	76	163
Fair Oaks Ave between Fillmore St & Glenarm St	29,300	63.7	-	82	176
Fair Oaks Ave south of Glenarm St	30,840	63.9	-	85	182
Raymond Ave north of California Blvd	12,110	59.9	-	-	98
Raymond Ave between California Blvd & Glenarm St	11,340	59.5	-	-	93
Arroyo Pkwy north of California Blvd	22,110	62.7	-	71	152
Arroyo Pkwy south of California Blvd	31,810	64.3	-	90	194
East-West					
Del Mar Blvd west of Fair Oaks Ave	24,490	61.9	-	62	133
Del Mar Blvd east of Fair Oaks Ave	22,137	61.4	-	58	124
California Blvd west of St John Ave	12,057	58.7	-	38	82
California Blvd between St John Ave & Pasadena Ave	17,446	58.9	-	-	84
California Blvd between Pasadena & Fair Oaks Ave	20,916	59.9	-	-	98
California Blvd between Fair Oaks & Raymond Ave	18,738	59.2	-	-	88
California Blvd between Raymond Ave & Arroyo Pkwy	21,998	61.5	-	59	126
California Blvd east of Arroyo Pkwy	25,972	62.1	-	65	139
Glenarm St west of Fair Oaks Ave	6,677	54.6	-	-	44
Glenarm St between Fair Oaks Ave & Raymond Ave	13,561	57.6	-	-	69
Notes: ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level, - = Contour located within the roadway right of way.					
Source: Based on traffic data within the *Huntington Medical Building Transportation Impact Analysis Outside CEQA Evaluation Final Report (Transportation Impact Analysis)*, prepared by Iteris Incorporated, October 2021.					

Existing Ambient Noise Levels

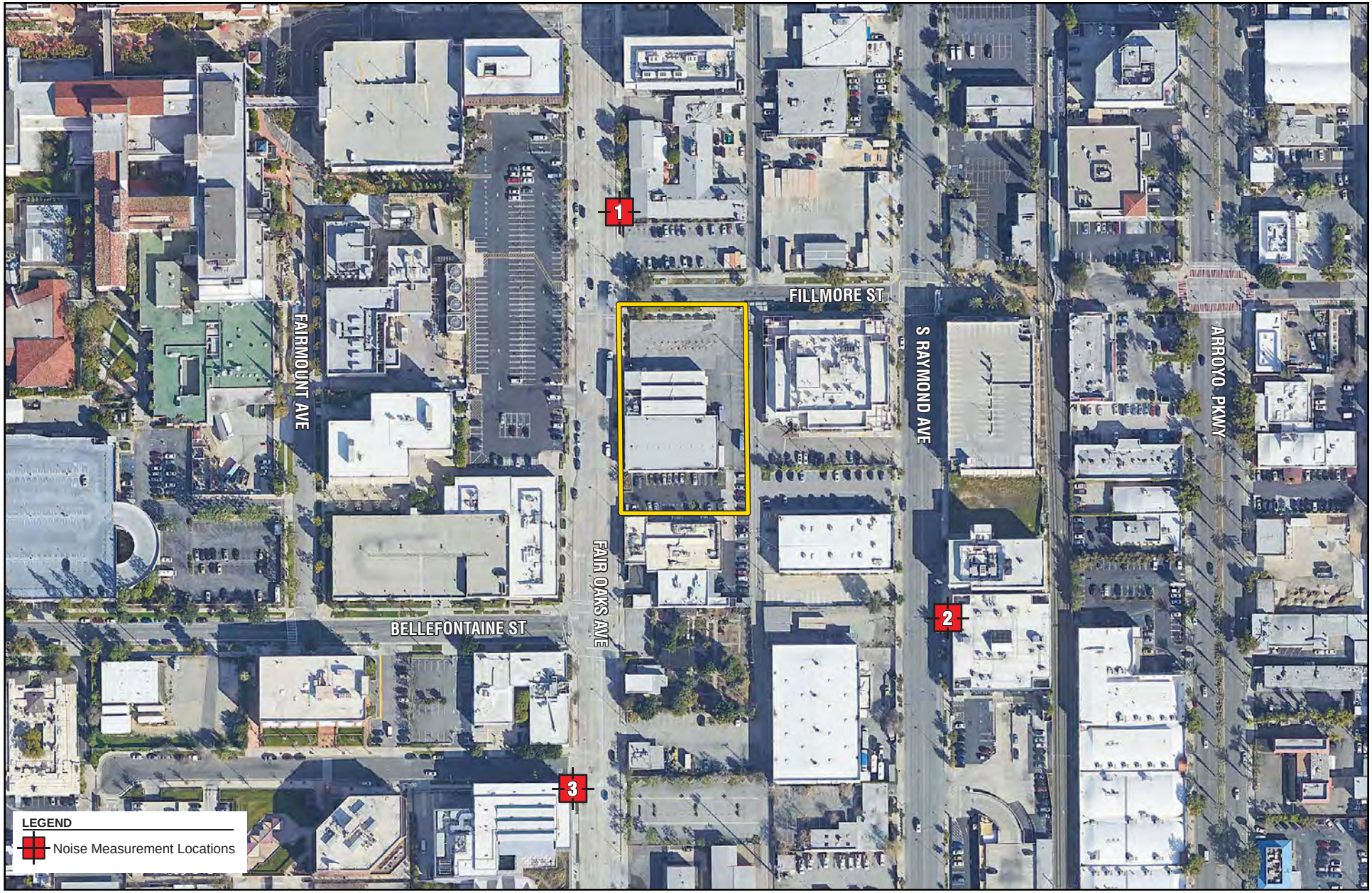
In order to quantify existing ambient noise levels in the project area, Michael Baker International conducted three short-term noise measurements in the project vicinity on October 7, 2021. The noise measurement locations are shown in Exhibit 1, *Noise Measurement Locations* and were representative of typical existing noise exposure within and immediately adjacent to the project site. The 10-minute measurements were taken between 10:30 a.m. and 11:30 a.m. Short-term (L_{eq}) measurements are considered representative of the noise levels throughout the day. The noise measurements were taken during "off-peak" (9:00 a.m. through 3:00 p.m.) traffic noise hours as this provides a more conservative baseline. During rush hour traffic, vehicle speeds and heavy truck volumes are often low. Free-flowing traffic conditions just before or after rush hour often yield higher noise levels.[5] The noise levels measured near the project site is identified in Table 4, *Noise Measurements*.

[5] California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013.

Table 4
Noise Measurements

Site No.	Location	L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)	Peak (dBA)	Start Time
1	Along South Fair Oaks Avenue sidewalk, in between GEM Transitional Center and its parking lot	70.9	54.4	88.3	112.6	10:30 a.m.
2	Along South Raymond Avenue sidewalk, in front of 870 S. Raymond Avenue.	62.4	50.6	79.1	100.5	10:53 a.m.
3	Intersection of South Fair Oaks Avenue and Alessandro Place near Shriners for Children Medical Center.	69.5	52.6	87.3	100.1	11:21 a.m.
Source: Michael Baker International, October 7, 2021.						

Meteorological conditions were cloudy, cool temperatures (66 degrees), and moderate wind speeds (approximately 1 mile per hour). Measured noise levels during the daytime measurements ranged from 62.4 to 70.9 dBA L_{eq}. The sources of peak noise are traffic along South Fair Oaks Avenue and trucks backing up near the measurement site. Noise monitoring equipment used for the ambient noise survey consisted of a Brüel & Kjær Hand-held Analyzer Type 2250 equipped with a Type 4189 pre-polarized microphone. The monitoring equipment complies with applicable requirements of the American National Standards Institute (ANSI) for Type I (precision) sound level meters. Refer to Appendix A, for the results of the field measurement.



Source: Google Earth Pro, October 2021

HUNTINGTON HOSPITAL MEDICAL OFFICE BUILDING PROJECT
NOISE TECHNICAL MEMORANDUM

Michael Baker INTERNATIONAL

NOT TO SCALE

10/2021 JN 185971

Noise Measurement Locations

Exhibit 1

THRESHOLDS OF SIGNIFICANCE

The environmental analysis in this memorandum is patterned after the Initial Study Checklist recommended by the *CEQA Guidelines*. The issues presented in the Initial Study Checklist have been utilized as thresholds of significance in this section. Accordingly, a project would have a significant adverse impact related to noise and vibration if it would cause one or more of the following to occur:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies (refer to Impact NOI-1);

- Generation of excessive groundborne vibration or groundborne noise levels (refer to Impact NOI-2); and/or

- For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels (refer to Impact NOI-3).

IMPACT ANALYSIS

Impact NOI-1: Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less Than Significant Impact. The City's General Plan Noise Element contains the City's policies on noise. The Noise Element is a comprehensive program to limit the exposure of the community to excessive noise levels. The Noise Element establishes guidelines for controlling both construction and operational noise in the City. For operational noise standards, the City identifies noise-sensitive land uses and noise sources with the intent of separating them.

Construction Noise Impacts

Temporary increases in ambient noise levels as a result of the project would predominantly be associated with construction activities. Project construction would occur over approximately 18 months, beginning in June 2022. Construction of the project would include the following phases: demolition, grading, building construction, paving, and architectural coating. It is anticipated that the project would be completed and operational by January 2024. Typical noise levels generated by construction equipment are shown in Table 5, *Maximum Noise Levels Generated by Construction Equipment*. It should be noted that the noise levels identified in Table 5 are maximum sound levels (L_{max}), which are the highest individual sound occurring at an individual time period. Operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be due to random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts).

Table 5
Maximum Noise Levels Generated by Construction Equipment

Type of Equipment	Acoustical Use Factor[1]	L_{max} at 100 Feet (dBA)	L_{max} at 130 Feet (dBA)
Backhoe	40	72	70
Compressor	40	72	70
Concrete Mixer Truck	40	73	71
Concrete Saw	20	84	82
Crane	16	73	71
Dozer	40	76	74
Forklift	40	72	70
Generator	50	75	73
Grader	40	79	77
Loader	40	73	71
Paver	50	71	69
Roller	20	74	72
Tractor	40	78	76
Welder	40	68	66

Note:
1. Acoustical Use Factor (percent): Estimates the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

Source: Federal Highway Administration, *Roadway Construction Noise Model (FHWA-HEP-05-054)*, January 2006.

The nearest sensitive receptor to the project site is the nursing home (GEM Transitional Care Center) that is located approximately 130 feet to the north of project site. This sensitive receptor may be exposed to elevated noise levels during project construction. However, the project would adhere to the City's Noise Ordinance governing hours of construction and noise levels generated by construction equipment (Municipal Code Chapter 9.36). In accordance with these regulations, construction noise would be limited to normal working hours (7:00 a.m. to 7:00 p.m. Monday through Friday, 8:00 a.m. to 5:00 p.m. on Saturday, within 500 feet of a residential area; construction activities are not allowed on Sundays or holidays). Municipal Code Section 9.36.080, *Construction Equipment*, prohibits any person to operate any powered construction equipment if the operation of such equipment emits noise at a level in excess of 85 dBA when measured within a radius of 100 feet from such equipment. Due to geometric spreading, these noise levels would diminish with distance from the construction site at a rate of approximately 6 dBA per doubling of distance; refer to Table 5.

As seen in Table 5, the loudest piece of equipment would operate at a maximum noise level of 84 dBA at 100 feet from the source. Therefore, construction noise levels would not exceed the City's Noise Ordinance threshold of 85 dBA at 100 feet. Compliance with the City's Noise Ordinance would ensure the project would be consistent with the City's General Plan Noise Element Policy 7b through Policy 7d and the impact associated with construction noise would be considered less than significant.

Long-Term Operational Noise Impacts

Off-Site Mobile Noise

Future development generated by the proposed project would result in some additional traffic on adjacent roadways, thereby potentially increasing vehicular noise in the vicinity of existing and proposed land uses. The most prominent source of mobile traffic noise in the project vicinity is along South Fair Oak Avenue. In community noise assessments, a 3 dBA increase is considered "barely perceptible," and increases over 5 dBA are generally considered "readily perceptible".[6]

According to Transportation Impact Analysis, the proposed project would generate a net increase of 1,532 daily trips, including 163 trips during the a.m. peak hour and 146 trips during the p.m. peak hour. Based upon Transportation Impact Analysis, the "Existing Without Project" and "Existing Plus Project" were compared for future noise conditions along roadway segments in the project vicinity.

According to Table 6, *Existing Plus Project Traffic Noise Levels*, under the "Existing Without Project" scenario, noise levels at a distance of 100 feet from the roadway centerline would range from approximately 54.6 dBA to 64.3 dBA, with the highest noise levels occurring along Arroyo Parkway south of California Boulevard. Under the "Existing Plus Project" scenario, noise levels at a distance of 100 feet from the roadway centerline would range from approximately 54.7 dBA to 64.3 dBA, with the highest noise occurring along the same roadway segment. These noise levels would not exceed the normally acceptable land use compatibility standard. Additionally, the highest noise level increase is 0.2 dBA along Fair Oaks Avenue between California and Fillmore Street and Glenarm Street between Fair Oaks Avenue and Raymond Avenue and would not exceed the 3 dBA threshold. Therefore, existing noise conditions along roadway segments in the project vicinity would not exceed the applicable normally acceptable land use compatibility standard and the 3.0 dBA increase threshold simultaneously. Additionally, the project would be consistent with the City's General Plan Noise Element Policy 2b through Policy 2d that aim to reduce the effects of traffic-generated noise. Thus, a less than significant impact would occur in this regard.

[6] California Department of Transportation (Caltrans), *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, September 2013, https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf, accessed October 12, 2021.

Table 6
Existing Plus Project Traffic Noise Levels

Roadway Segment	Existing Land Uses Located Along Roadway Segment	Existing Without Project Traffic Noise Level (dBA)	Existing Plus Project					Normally Acceptable Land Use Compatibility Standard Threshold (dBA)[2]	Project Noise Level Increase (dBA)	Both Thresholds Exceeded?
			dBA @ 100 Feet from Roadway Centerline	ADT[1]	Distance from Roadway Centerline to: (Feet)					
					70 CNEL Noise Contour	65 CNEL Noise Contour	60 CNEL Noise Contour			
North-South										
St John Ave south of California Blvd	Residential/Commercial	60.1	60.2	16,937	-	48	102	70	0.1	No
Pasadena Ave north of California Blvd	School/Commercial	63.2	63.2	34,193	-	76	165	70	0	No
Pasadena Ave south of California Blvd	Hospital/Residential	62.0	62.0	25,767	-	63	136	70	0	No
Fair Oaks Ave north of Del Mar Blvd	Park/Commercial	61.4	61.4	17,227	-	57	124	75	0	No
Fair Oaks Ave between Del Mar & California Blvd	Hospital/Commercial	62.4	62.5	22,483	-	68	146	70	0.1	No
Fair Oaks Ave between California & Fillmore St	Hospital/Commercial	63.2	63.4	27,138	-	78	167	70	0.2	No
Fair Oaks Ave between Fillmore St & Glenarm St	Hospital/Commercial	63.7	63.8	29,875	-	83	179	70	0.1	No
Fair Oaks Ave south of Glenarm St	Residential/Hospital	63.9	63.9	30,917	-	85	183	70	0	No
Raymond Ave north of California Blvd	Hospital/Commercial	59.9	59.9	12,110	-	-	98	70	0	No
Raymond Ave between California Blvd & Glenarm St	School/Commercial	59.5	59.5	11,340	-	-	93	70	0	No
Arroyo Pkwy north of California Blvd	Commercial	62.7	62.7	22,110	-	71	152	77.5	0	No
Arroyo Pkwy south of California Blvd	School/Commercial	64.3	64.3	16,937	-	90	195	70	0	No
East-West										
Del Mar Blvd west of Fair Oaks Ave	Medical Office	61.9	61.9	24,490	-	62	133	77.5	0	No
Del Mar Blvd east of Fair Oaks Ave	Park/School	61.4	61.4	22,137	-	58	124	70	0	No
California Blvd west of St John Ave	Residential/Park	58.7	58.7	12,057	-	38	82	70	0	No
California Blvd between St John Ave & Pasadena Ave	Residential/School	58.9	58.9	17,446	-	-	85	70	0	No
California Blvd between Pasadena & Fair Oaks Ave	Hospital/Commercial	59.9	60.0	20,916	-	-	100	70	0.1	No
California Blvd between Fair Oaks & Raymond Ave	Commercial	59.2	59.2	18,738	-	-	89	77.5	0	No
California Blvd between Raymond Ave & Arroyo Pkwy	Commercial	61.5	61.6	21,998	-	59	127	77.5	0.1	No
California Blvd east of Arroyo Pkwy	Residential/Commercial	62.1	62.2	25,972	-	65	140	70	0.1	No
Glenarm St west of Fair Oaks Ave	Residential	54.6	54.7	6,677	-	-	44	70	0.1	No
Glenarm St between Fair Oaks Ave & Raymond Ave	Commercial	57.6	57.8	13,561	-	-	71	77.5	0.2	No

Notes: ADT = average daily trips; dBA = A-weighted decibels; CNEL = community noise equivalent level, - = Contour located within the roadway right of way.

Source:
1. Based on traffic data within the *Huntington Medical Building Transportation Impact Analysis Outside CEQA Evaluation Final Report*, prepared by Iteris Incorporated, October 2021.
2. The normally acceptable land use compatibility standard identifies the lowest accepted threshold established by the City of Pasadena as shown in Table 2.

Stationary Noise

As stated above, the project proposes a high-density mixed-use building with medical office and general office uses. Stationary noise sources associated with the project would include the operation of mechanical equipment, parking lot activities, and outdoor gathering area activities.

Mechanical Equipment Noise

The Heating Ventilation and Air Conditioning (HVAC) units would be installed in the subterranean parking garage of the proposed building, and the mechanical exhaust vent would be located on the roof. Noise generated from HVAC units in the subterranean parking garage would be inaudible at off-site uses as the structure would be completely enclosed underground. The nearest sensitive receptor to the exhaust vent is the nursing home located to the north of the project site approximately 150 feet from the exhaust vent measured from the property line of the nursing home. Typically, exhaust fan noise is 55 dBA at 50 feet from the source.[7]

Noise has a decay rate due to distance attenuation, which is calculated based on the Inverse Square Law of sound propagation. Based upon the Inverse Square Law, sound levels decrease by 6 dBA for each doubling of distance from the source.[8] The proposed building would be approximately 75 feet high. Therefore, the distance between the ground level property line of the closest sensitive receptors and the exhaust vent would be approximately 168 feet. At the distance of 168 feet, noise level would be approximately 44 dBA. As such, noise level from the exhaust vent would be 44 dBA at the property line of the nearest sensitive receptors to the north and would not exceed the City's 70 dBA CNEL normally acceptable exterior noise compatibility standard for nursing homes. In addition, the proposed exhaust vent fan would not generate noise levels in excess of 5 dBA over existing ambient noise level (67.6 dBA L_{eq}, refer to Table 4) in compliance with Section 9.36.090 (Machinery, Equipment, Fans, and Air Conditioning) of the City's Noise Ordinance. Thus, the proposed project would not result in noise impacts to nearby sensitive receptors from HVAC units and exhaust vent fan, and stationary noise levels from the proposed HVAC units and exhaust vent fan would comply with the City's noise compatibility standard and Noise Ordinance. Impacts in this regard would be less than significant.

Parking Garage Noise

The proposed project would include two and half levels of subterrane parking. Estimates of the maximum noise levels associated with the parking garage activities attributed to the project are presented in Table 7, *Typical Noise Levels Generated by Parking Related Activities*.

[7] Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, July 6, 2010.

[8] Cyril M. Harris, *Noise Control in Buildings*, 1994.

Table 7
Maximum Noise Levels Generated by Parking Related Activities

Noise Source	Maximum Noise Levels at 50 Feet from Source	Approximate Noise Levels at 130 feet from the Source
Car door slamming	61 dBA L_{eq}	53 dBA L_{eq}
Car starting	60 dBA L_{eq}	52 dBA L_{eq}
Car idling	53 dBA L_{eq}	45 dBA L_{eq}
Source: Kariel, H. G., *Noise in Rural Recreational Environments*, Canadian Acoustics 19(5), 3-10, 1991.		

As shown in Table 7, parking activities can result in noise levels up to 61 dBA at a distance of 50 feet. It is noted that parking activity noises are instantaneous noise levels compared to noise standards in the CNEL scale, which are averaged over time. As a result, actual noise levels over time resulting from parking activities would be far lower than what is identified in Table 7. Parking in the subterranean parking garage would have intermittent parking related noise due to the movement of vehicles. However, noise generated in the subterranean parking garage would be inaudible at off-site uses as the structure would be underground. The access driveway to the subterranean parking garage is located near the northern boundary of the project site approximately 130 feet from the property line of the closest sensitive receptor to the north. At this distance, noise levels from parking activities would be up to 53 dBA. In addition, parking lot noise exist within the existing surface parking lot on-site. Therefore, the proposed parking activities would not result in substantially greater noise levels than existing conditions in the project vicinity. As such, the noise level at the property line of the closest sensitive receptors would not exceed the City's 70 dBA CNEL normally acceptable exterior noise compatibility standard for nursing homes and would not generate noise levels in excess of 5 dBA over existing ambient noise level (67.6 dBA L_{eq}, refer to Table 4) in compliance with Section 9.36.050 of the City's Noise Ordinance. Therefore, parking related noise associated with the project is not expected to exceed the City's noise standards and would not introduce a new noise source compared to existing conditions. Impacts would be less than significant in this regard.

Outdoor Gathering Area Noise

The project would include a plaza and a terrace for the tenants. The plaza is closer to the closest sensitive receptor than the terrace. The plaza has the potential to be accessed by groups of people intermittently. Noise generated by groups of people (i.e., crowds) is dependent on several factors including vocal effort, impulsiveness, and the random orientation of the crowd members. Crowd noise is estimated at 60 dBA at one meter (3.28 feet) away for raised normal speaking.[9] This noise level would have a +5 dBA adjustment for the impulsiveness of the noise source, and a -3 dBA adjustment for the random orientation of the crowd members.[10] Therefore, crowd noise would be approximately 62 dBA at one meter from the source (i.e., the plaza).

The closest sensitive receptor to the north of the project site is located approximately 148 feet from the plaza measured from the property line of the receptor. At the distance of 148 feet, crowd noise would be reduced to approximately 29 dBA, which would not exceed the City's 70 dBA CNEL normally acceptable exterior noise compatibility standard for nursing homes and would not generate noise levels in excess of 5 dBA over existing ambient noise level (67.6 dBA L_{eq}, refer to Table 4) in compliance with Section 9.36.050

[9] M.J. Hayne, et al, *Prediction of Crowd Noise*, Acoustics, November 2006.
[10] Ibid.

of the City's Noise Ordinance. As such, the proposed outdoor plaza area would not generate noise levels that would exceed the City's noise standards at the closest sensitive receptors. Therefore, impacts would be less than significant.

Mitigation Measures: No mitigation is required.

Impact NOI-2: Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Less Than Significant Impact.

Construction Vibration Impacts

Project construction can generate varying degrees of groundborne vibration, depending on the construction procedure and the construction equipment used. Operation of some heavy-duty construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of the construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Groundborne vibrations from construction activities rarely reach levels that damage structures.

The Federal Transit Administration (FTA) has published standard vibration velocities for construction equipment operations. The types of construction vibration impact include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural. For most residential structures that are non-engineered timber and masonry buildings, the FTA architectural damage criterion for continuous vibrations is 0.2 in/sec. Typical vibration produced by construction equipment is illustrated in Table 8, *Typical Vibration Levels for Construction Equipment*.

Table 8
Typical Vibration Levels for Construction Equipment

Equipment	Approximate peak particle velocity at 25 feet (inches/second)[1]	Approximate peak particle velocity at 27 feet (inches/second)[1]
Large bulldozer	0.089	0.0793
Loaded trucks	0.076	0.0677
Small bulldozer	0.003	0.0027
Jackhammer	0.035	0.0312
Vibratory Roller	0.21	0.1871

Notes:
1. Calculated using the following formula:

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

where: PPV (equip) = the peak particle velocity in in/sec of the equipment adjusted for the distance
PPV (ref) = the reference vibration level in in/sec from Table 7-4 of the FTA *Transit Noise and Vibration Impact Assessment Manual.*
D = the distance from the equipment to the receiver

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, Table 7-4 *Vibration Source Levels for Construction Equipment*, September 2018.

Groundborne vibration decreases rapidly with distance. As indicated in Table 8, based on the FTA data, vibration velocities from typical heavy construction equipment operations that would be used during project construction range from 0.003 to 0.21 inch/second PPV at 25 feet from the source of activity. The nearest structure is located approximately 27 feet to the east of the project site. As shown in Table 8, the vibration velocities at the nearest structure ranges from 0.027 to 0.1871 inch/second PPV. As such, the construction activities would not be capable of exceeding the 0.2 inch/second PPV significance threshold for vibration to the nearest structure and a less than significant impact would occur in this regard.

Operational Vibration Impacts

Operation of the project would not include or require equipment, facilities, or activities that would result in perceptible groundborne vibration. According to the FTA, it is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. As such, it can be reasonably inferred that project operations would not create perceptible vibration impacts to the nearest sensitive receptors. A less than significant impact would occur in this regard.

Mitigation Measures: No mitigation is required.

Impact NOI-3: For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The nearest public use airport to the project site is the San Gabriel Valley Airport (previously known as El Monte Airport) which lies approximately 7.3 miles to the southeast of the project site. This airport is open to the public for use and owned and operated by the County of Los Angeles.[11] According to the *Airport Influence Area of El Monte Airport*, the project site is not located within the San Gabriel Valley Airport CNEL contours. The project site is not in the vicinity of a private airstrip. Therefore, no impact related to airport land use compatibility would occur.

Mitigation Measures: No mitigation is required.

[11] Los Angeles County Airport Land Use Commission, *Los Angeles County Airport Land Use Plan,* December 1, 2004, http://planning.lacounty.gov/assets/upl/data/pd_alup.pdf, accessed September 27, 2021.

REFERENCES

Documents

1. California Department of Transportation, *Technical Noise Supplement to the Traffic Noise Analysis Protocol*, 2013.

2. City of Pasadena, *City of Pasadena Land Use Diagram*, November 14, 2016, https://www.cityofpasadena.net/wp-content/uploads/sites/30/Land-Use-Diagram-2016-11-14.pdf?v=1584653610006, September 27, 2021.

3. City of Pasadena, *South Fair Oaks Specific Plan*, Private Realm Urban Design Framework Plan, June 23, 2016. https://www.cityofpasadena.net/planning/wp-content/uploads/sites/30/South-Fair-Oaks-Specific-Plan-Updated-6232016.pdf?v=1632768097460, accessed September 27, 2021.

4. City of Pasadena, *City of Pasadena General Plan Noise Element*, December 2002, https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2017/07/Pasadena-Noise-Element-Policy.pdf, September 27, 2021.

5. City of Pasadena, *Code of Ordinances: Chapter 9.36, Noise Restrictions*, 2008.

6. Elliott H. Berger, Rick Neitzel, and Cynthia A. Kladden, *Noise Navigator Sound Level Database with Over 1700 Measurement Values*, July 6, 2010.

7. Federal Highway Administration, *Roadway Construction Noise Model User's Guide,* January 2006.

8. Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

9. Harris, Cyril, *Handbook of Noise Control,* 1979.

10. Iteris Incorporated, *Huntington Medical Building Transportation Impact Analysis Outside CEQA Evaluation Final Report*, October 2021.

11. Kariel, H. G., *Noise in Rural Recreational Environments*, Canadian Acoustics 19(5), March 10, 1991.

12. Los Angeles County Airport Land Use Commission, *Los Angeles County Airport Land Use Plan,* December 1, 2004, http://planning.lacounty.gov/assets/upl/data/pd_alup.pdf, accessed September 27, 2021.

13. National Institute on Deafness and Other Communication Disorders, *Noise-Induced Hearing Loss*,

https://www.nidcd.nih.gov/sites/default/files/Documents/health/hearing/NoiseInducedHearingLoss.pdf, accessed October 11.

14. State Office of Planning and Research, *State of California General Plan Guidelines*, October 2017.

15. U.S. Environmental Protection Agency, *Noise Effects Handbook – A Desk Reference to Health and Welfare Effects of Noise*, October 1979 (revised July 1981).

Websites / Programs

1. Google Earth, 2021.

Appendix A
Noise Data

Site Number: NM-1			
Recorded By: Winnie Woo, Tina Yuan			
Job Number: 185971			
Date: 10/7/2021			
Time: 10:30 AM			
Location: Along South Fair Oaks Avenue sidewalk, in between of GEM Transitional Center and its parking lot			
Source of Peak Noise: Traffic along S. Fair Oaks Avenue			
Noise Data			
Leq (dB)	Lmax(dB)	Lmin (dB)	Peak (dB)
70.9	88.3	54.4	112.6

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Brüel & Kjær	2250	3011133	04/08/2019	
	Microphone	Brüel & Kjær	4189	3086765	04/08/2019	
	Preamp	Brüel & Kjær	ZC 0032	25380	04/08/2019	
	Calibrator	Brüel & Kjær	4231	2545667	04/08/2019	

Weather Data			
Est.	Duration: 10 minutes	Sky: Cloudy	
	Note: dBA Offset = 0.02	Sensor Height (ft): 5 ft	
	Wind Ave Speed (mph / m/s)	Temperature (degrees Fahrenheit)	Barometer Pressure (inches)
	E 1 mph	66	30.04

Photo of Measurement Location

2250

Instrument:		2250
Application:		BZ7225 Version 4.7.6
Start Time:		10/07/2021 10:29:16
End Time:		10/07/2021 10:39:16
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		142.09

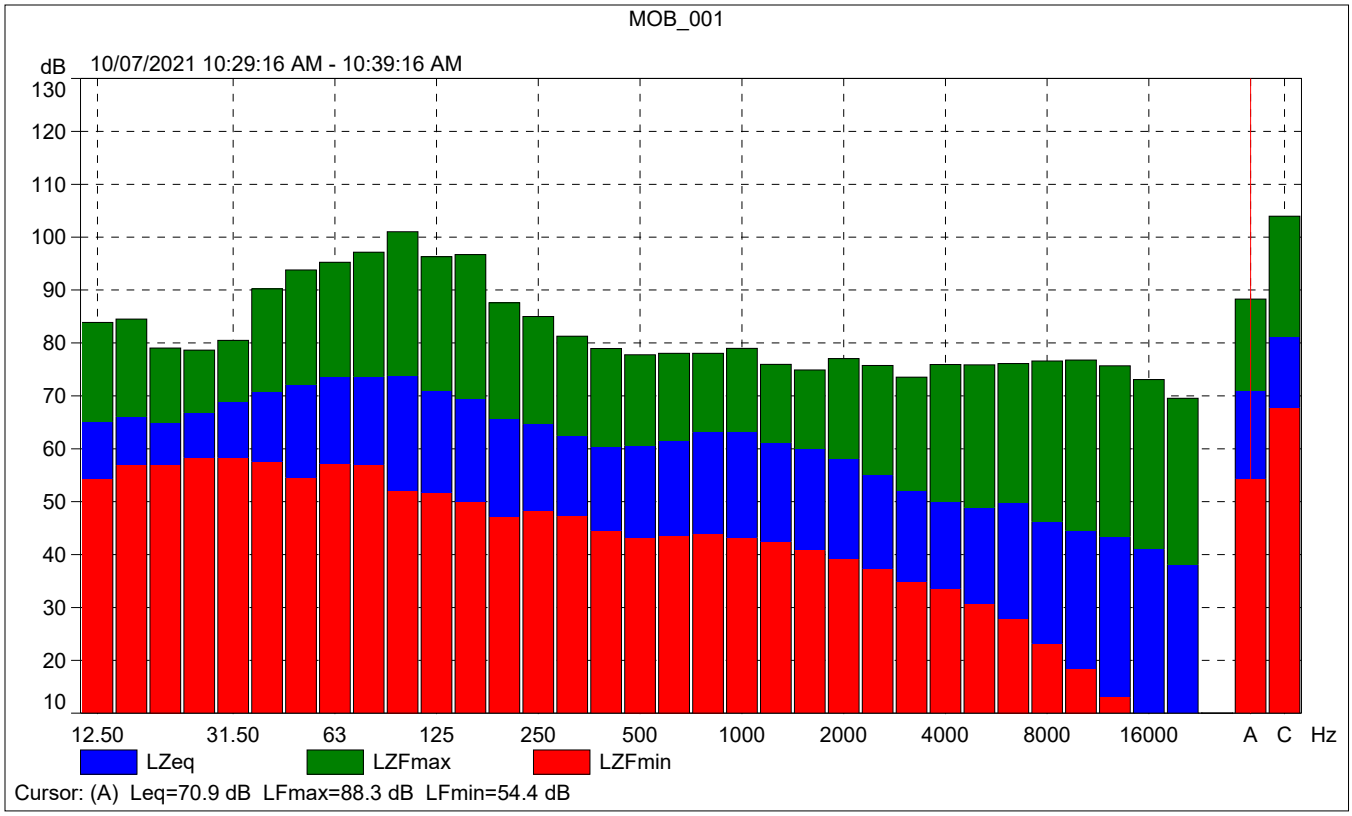
	Time	Frequency
Broadband (excl. Peak):	FSI	AC
Broadband Peak:		C
Spectrum:	FS	Z

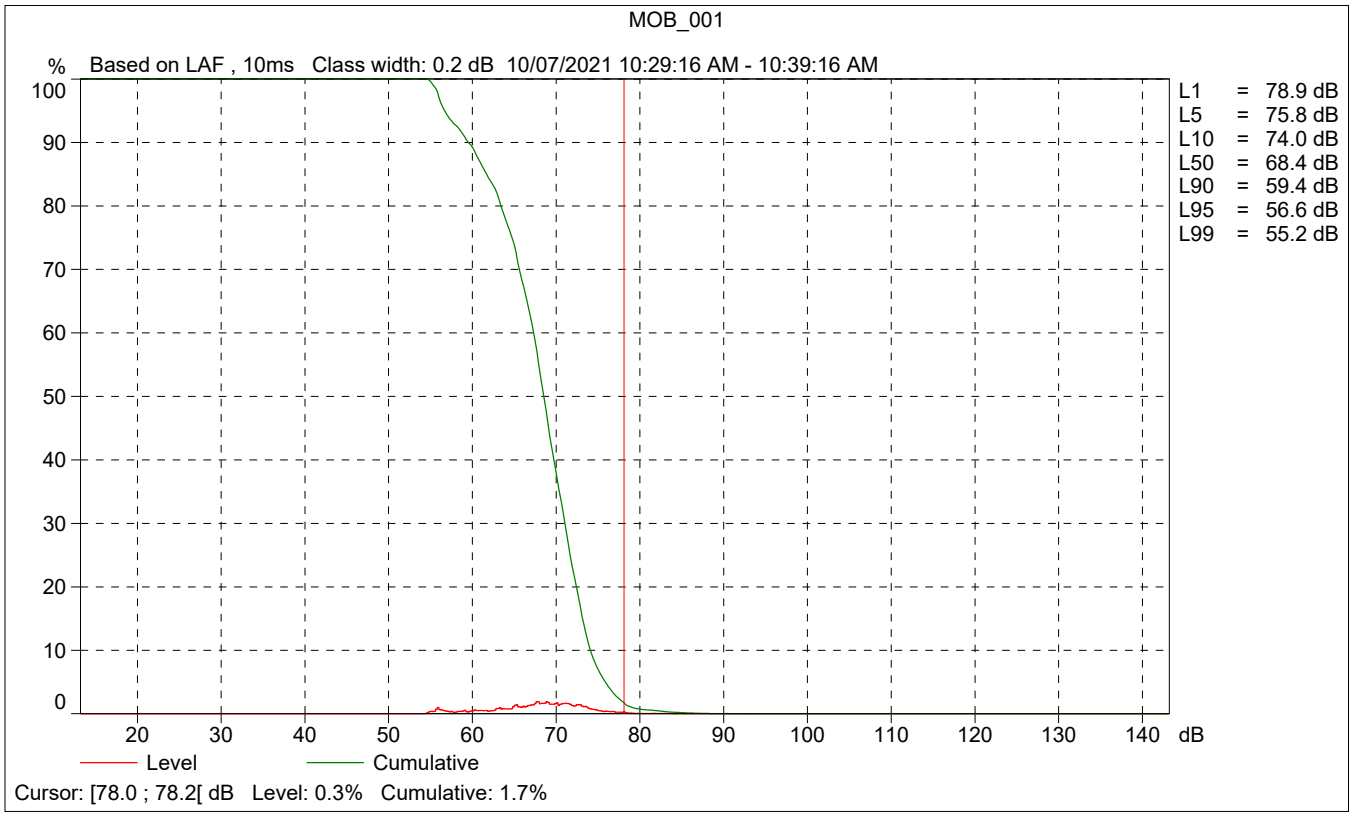
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		None
Sound Field Correction:		Free-field

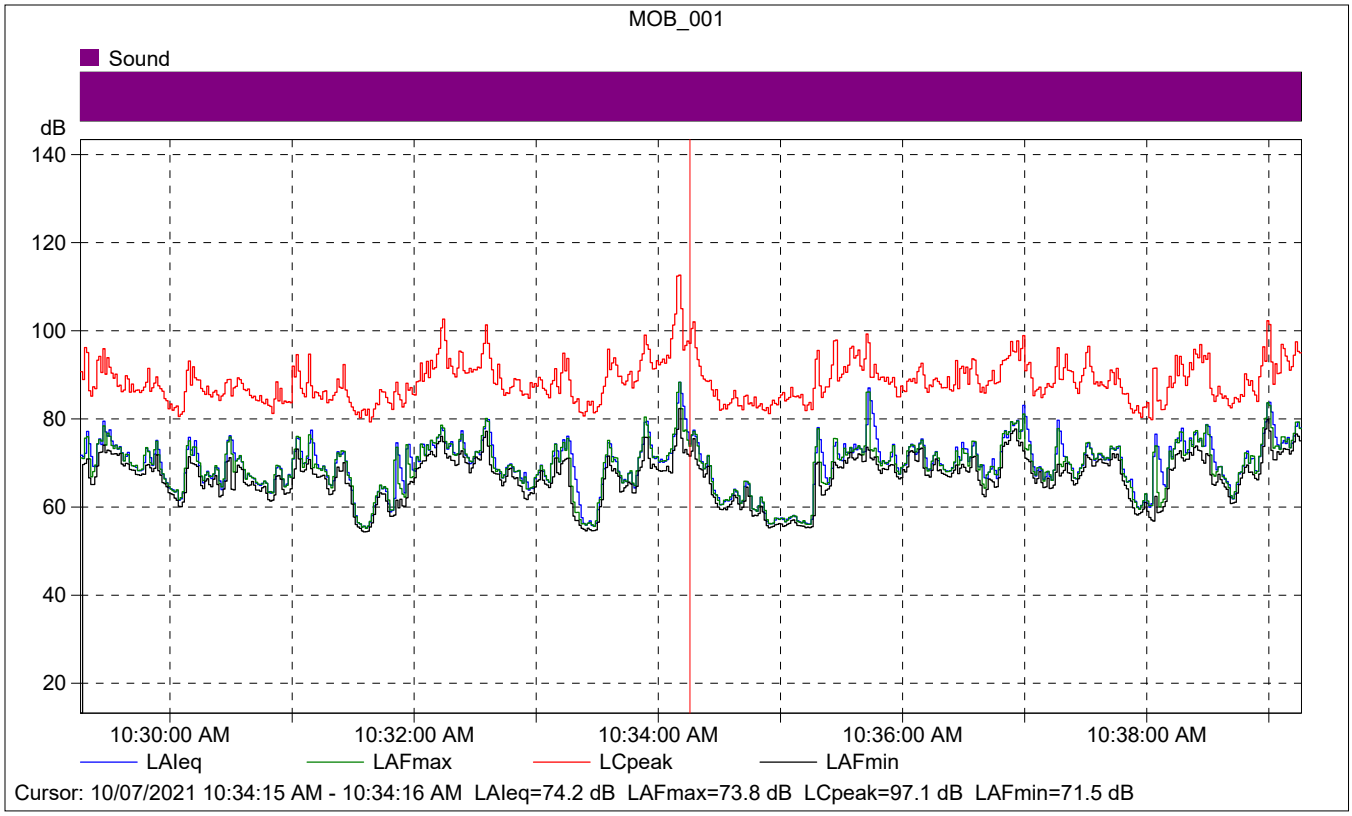
Calibration Time:		10/07/2021 08:53:40
Calibration Type:		External reference
Sensitivity:		43.797567486763 mV/Pa

MOB_001

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	70.9	88.3	54.4
Time	10:29:16 AM	10:39:16 AM	0:10:00				
Date	10/07/2021	10/07/2021					

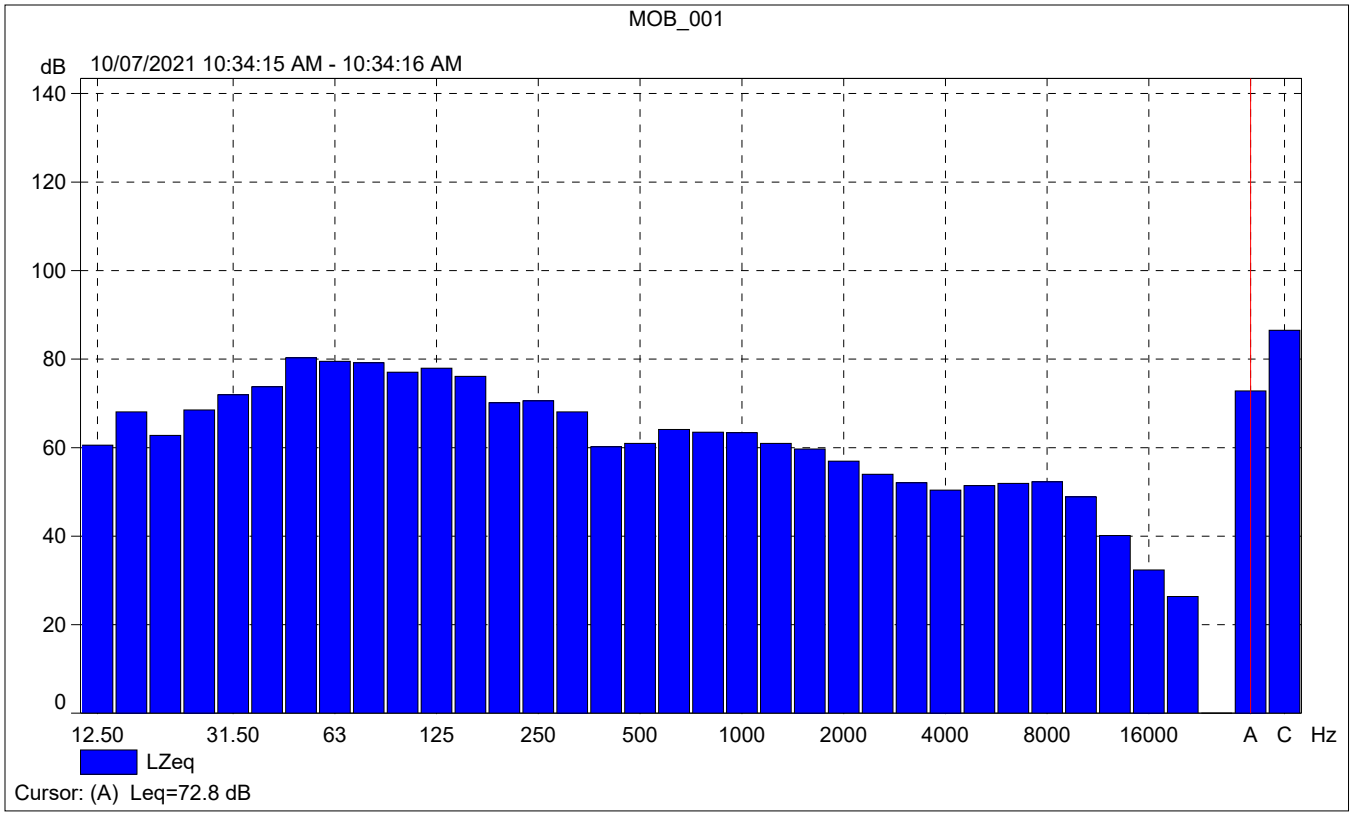

MOB_001
dB
10/07/2021 10:29:16 AM - 10:39:16 AM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=70.9 dB LFmax=88.3 dB LFmin=54.4 dB

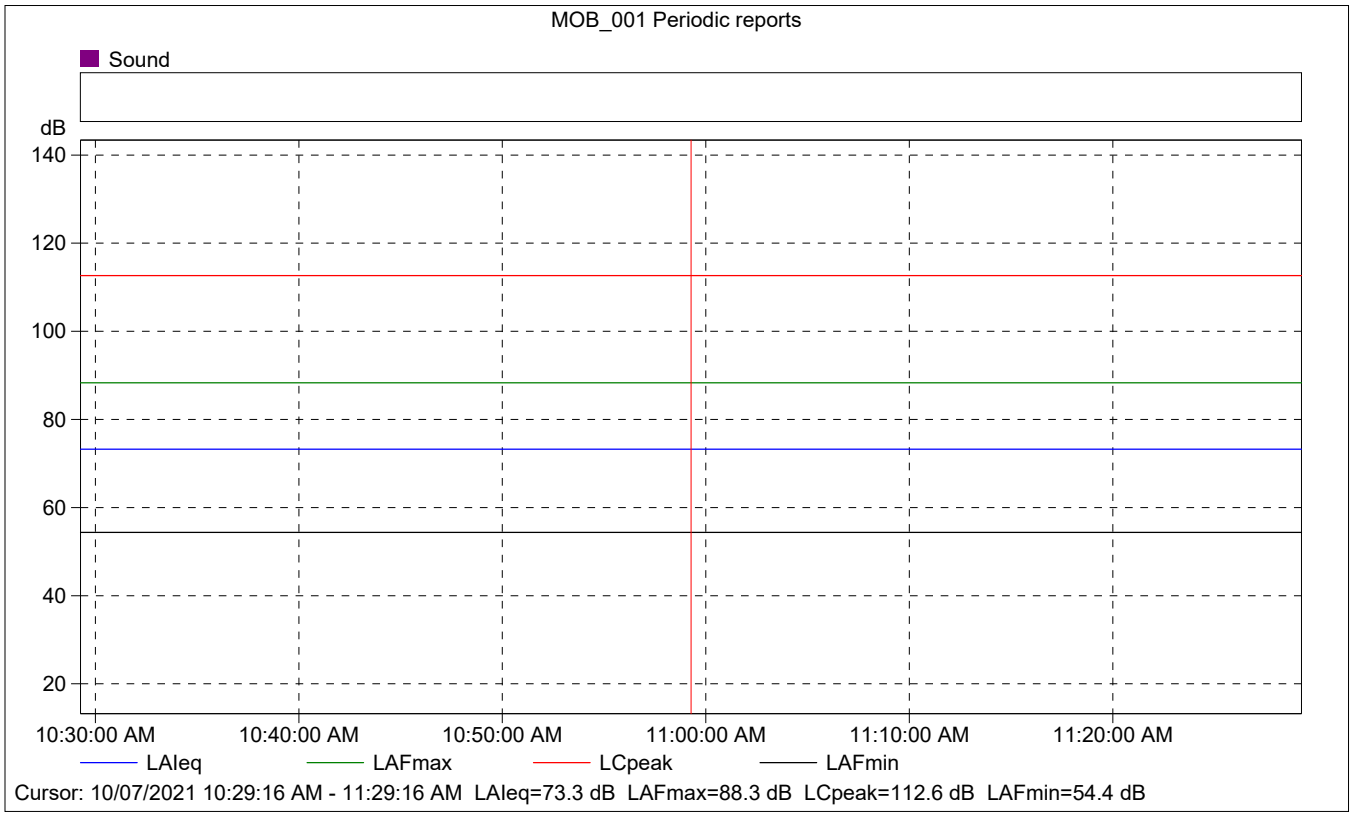

MOB_001
%
Based on LAF , 10ms Class width: 0.2 dB 10/07/2021 10:29:16 AM - 10:39:16 AM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 78.9 dB
L5 = 75.8 dB
L10 = 74.0 dB
L50 = 68.4 dB
L90 = 59.4 dB
L95 = 56.6 dB
L99 = 55.2 dB
Level
Cumulative
Cursor: [78.0 ; 78.2[dB Level: 0.3% Cumulative: 1.7%



MOB_001

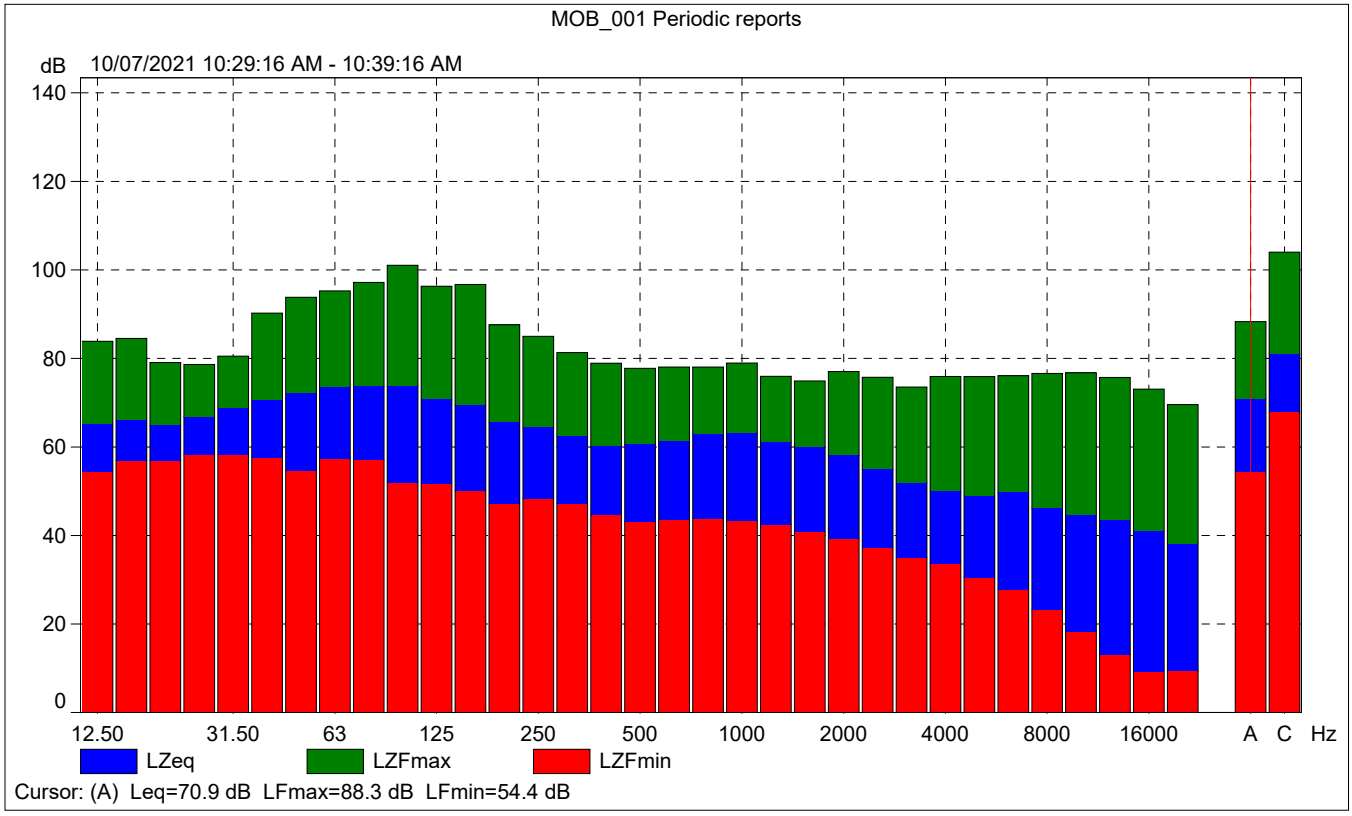
	Start time	Elapsed time	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			74.2	73.8	71.5
Time	10:34:15 AM	0:00:01			
Date	10/07/2021				

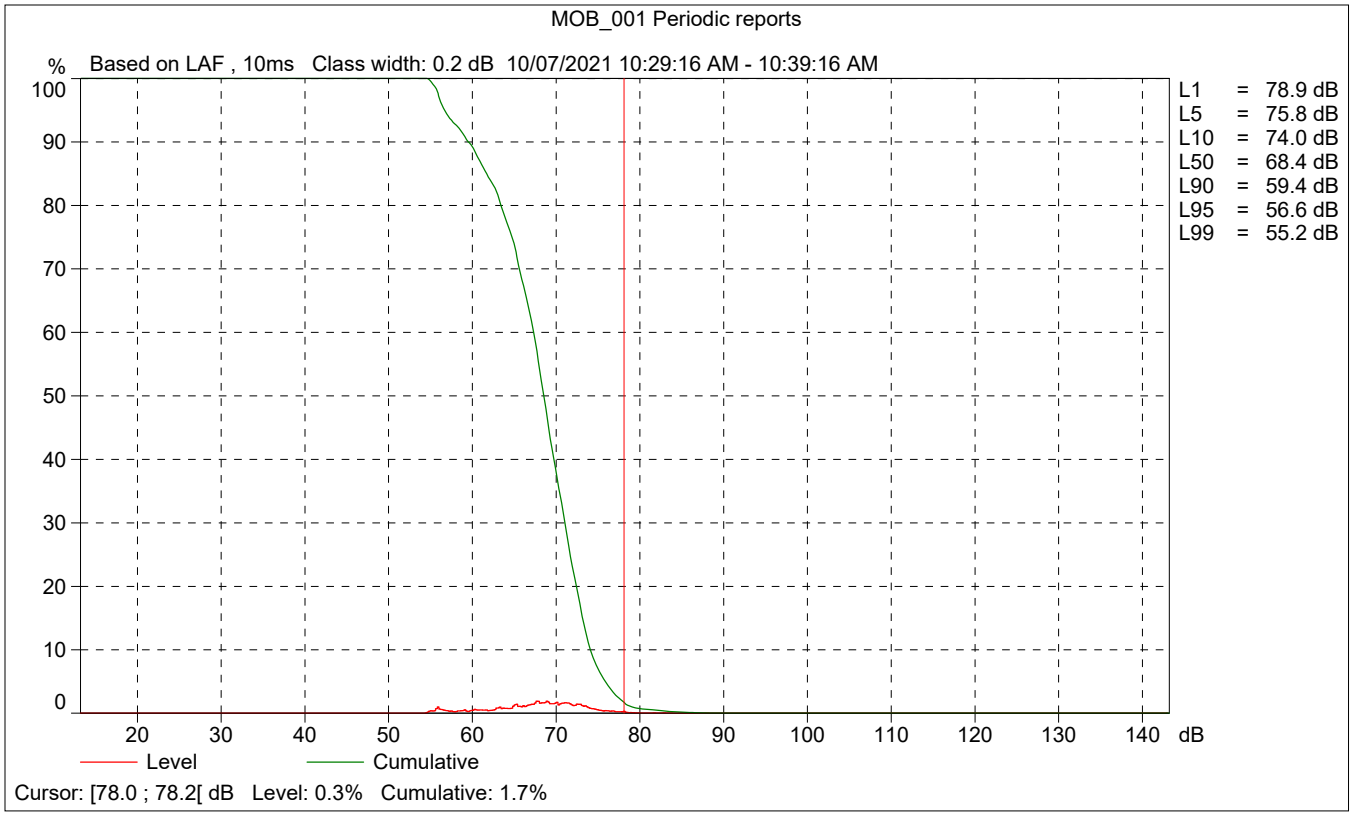

MOB_001
dB
10/07/2021 10:34:15 AM - 10:34:16 AM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
Cursor: (A) Leq=72.8 dB


MOB_001 Periodic reports
Sound
dB
140
120
100
80
60
40
20
10:30:00 AM
10:40:00 AM
10:50:00 AM
11:00:00 AM
11:10:00 AM
11:20:00 AM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 10/07/2021 10:29:16 AM - 11:29:16 AM LAIeq=73.3 dB LAFmax=88.3 dB LCpeak=112.6 dB LAFmin=54.4 dB

MOB_001 Periodic reports

	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	73.3	88.3	54.4
Time	10:29:16 AM	0:10:00				
Date	10/07/2021					




MOB_001 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 10/07/2021 10:29:16 AM - 10:39:16 AM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 78.9 dB
L5 = 75.8 dB
L10 = 74.0 dB
L50 = 68.4 dB
L90 = 59.4 dB
L95 = 56.6 dB
L99 = 55.2 dB
Level
Cumulative
Cursor: [78.0 ; 78.2[dB Level: 0.3% Cumulative: 1.7%

Site Number: NM-2			
Recorded By: Winnie Woo, Tina Yuan			
Job Number: 185971			
Date: 10/7/2021			
Time: 10:53 AM			
Location: Along South Raymond Avenue Sidewalk, in front of 870 S. Raymond Avenue.			
Source of Peak Noise: Traffic along S. Raymond Ave, truck backing up, nearby construction.			
Noise Data			
Leq (dB)	Lmax(dB)	Lmin (dB)	Peak (dB)
62.4	79.1	50.6	100.5

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Brüel & Kjær	2250	3011133	04/08/2019	
	Microphone	Brüel & Kjær	4189	3086765	04/08/2019	
	Preamp	Brüel & Kjær	ZC 0032	25380	04/08/2019	
	Calibrator	Brüel & Kjær	4231	2545667	04/08/2019	

Weather Data			
Est.	Duration: 10 minutes	Sky: Cloudy	
	Note: dBA Offset = 0.02	Sensor Height (ft): 5 ft	
	Wind Ave Speed (mph / m/s)	Temperature (degrees Fahrenheit)	Barometer Pressure (inches)
	E 1 mph	66	30.04

Photo of Measurement Location

2250

Instrument:		2250
Application:		BZ7225 Version 4.7.6
Start Time:		10/07/2021 10:47:55
End Time:		10/07/2021 10:57:55
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		142.09

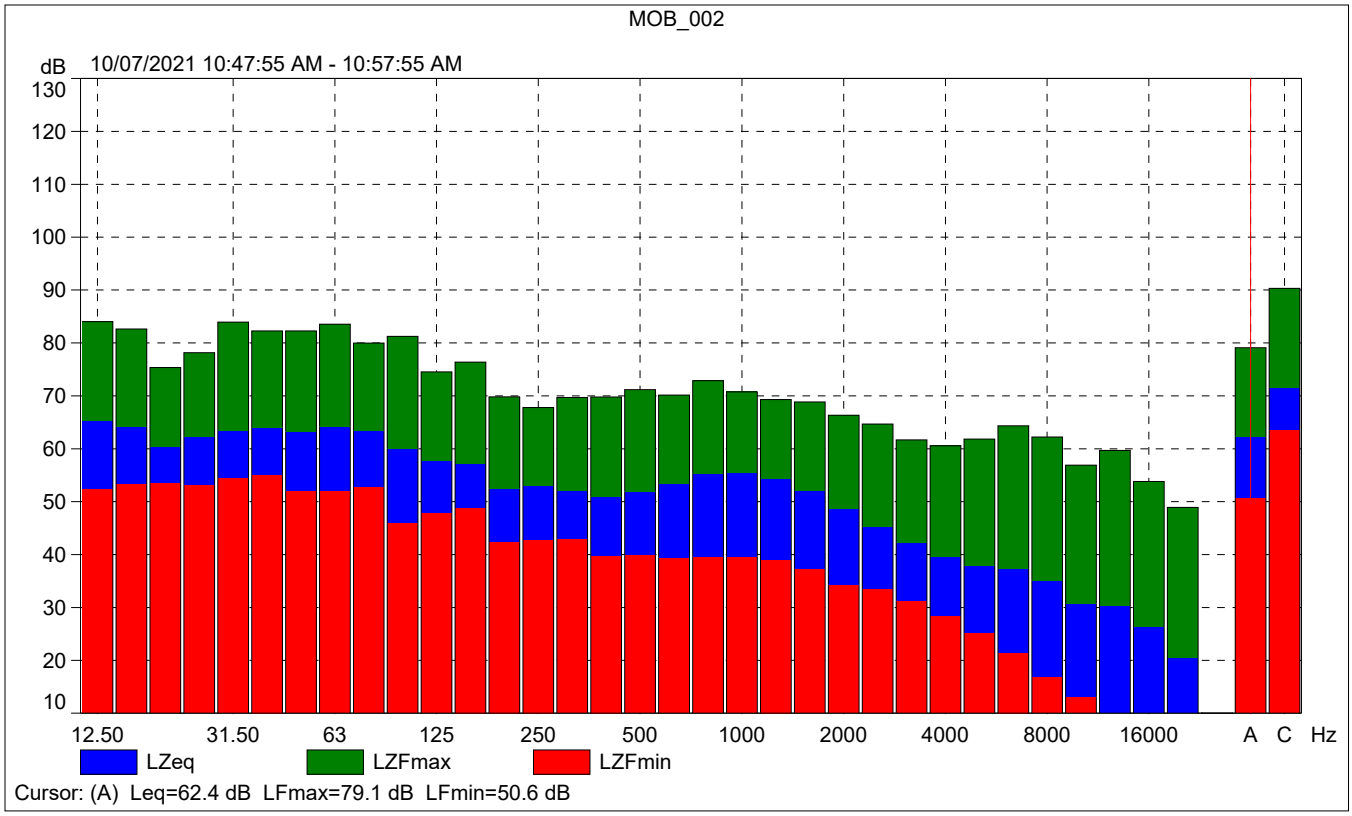
	Time	Frequency
Broadband (excl. Peak):	FSI	AC
Broadband Peak:		C
Spectrum:	FS	Z

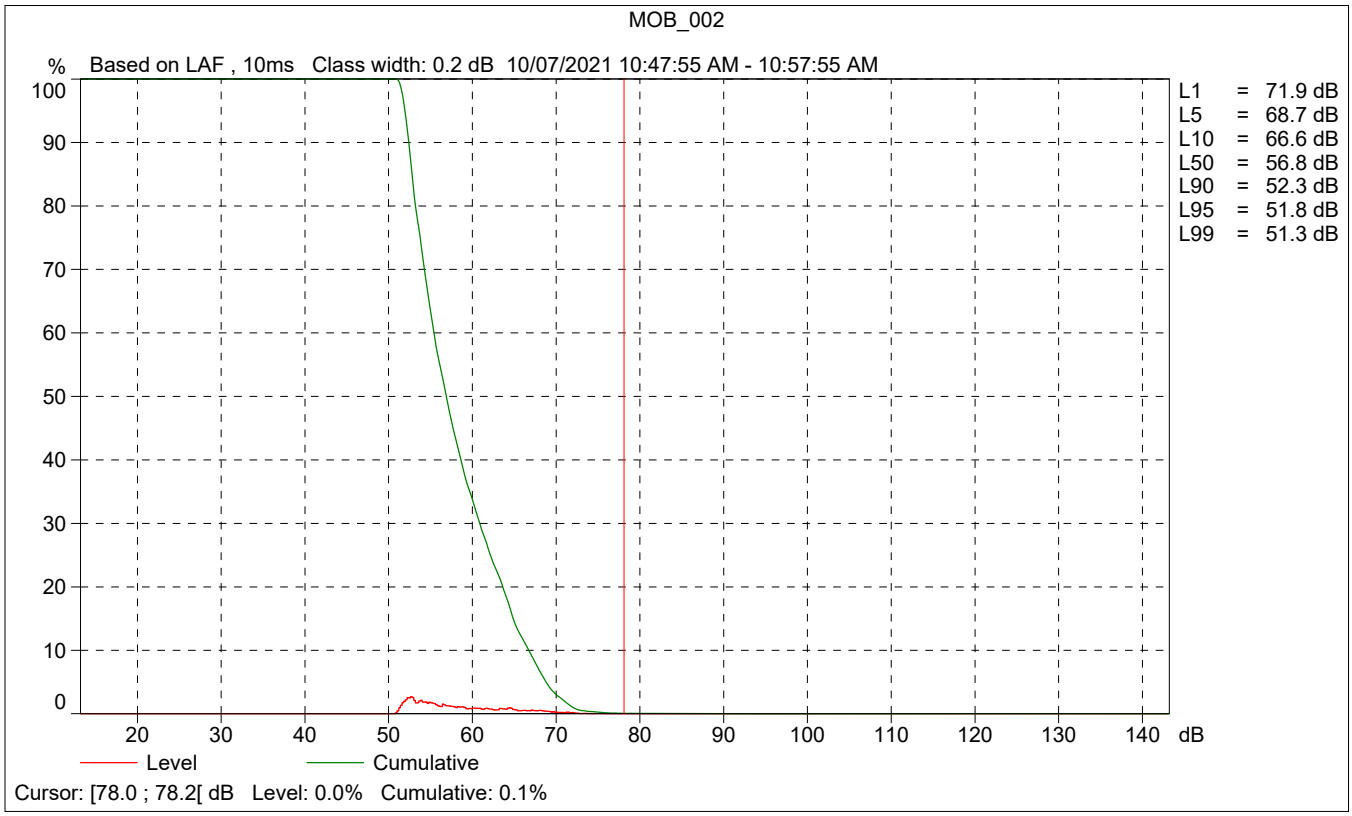
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		None
Sound Field Correction:		Free-field

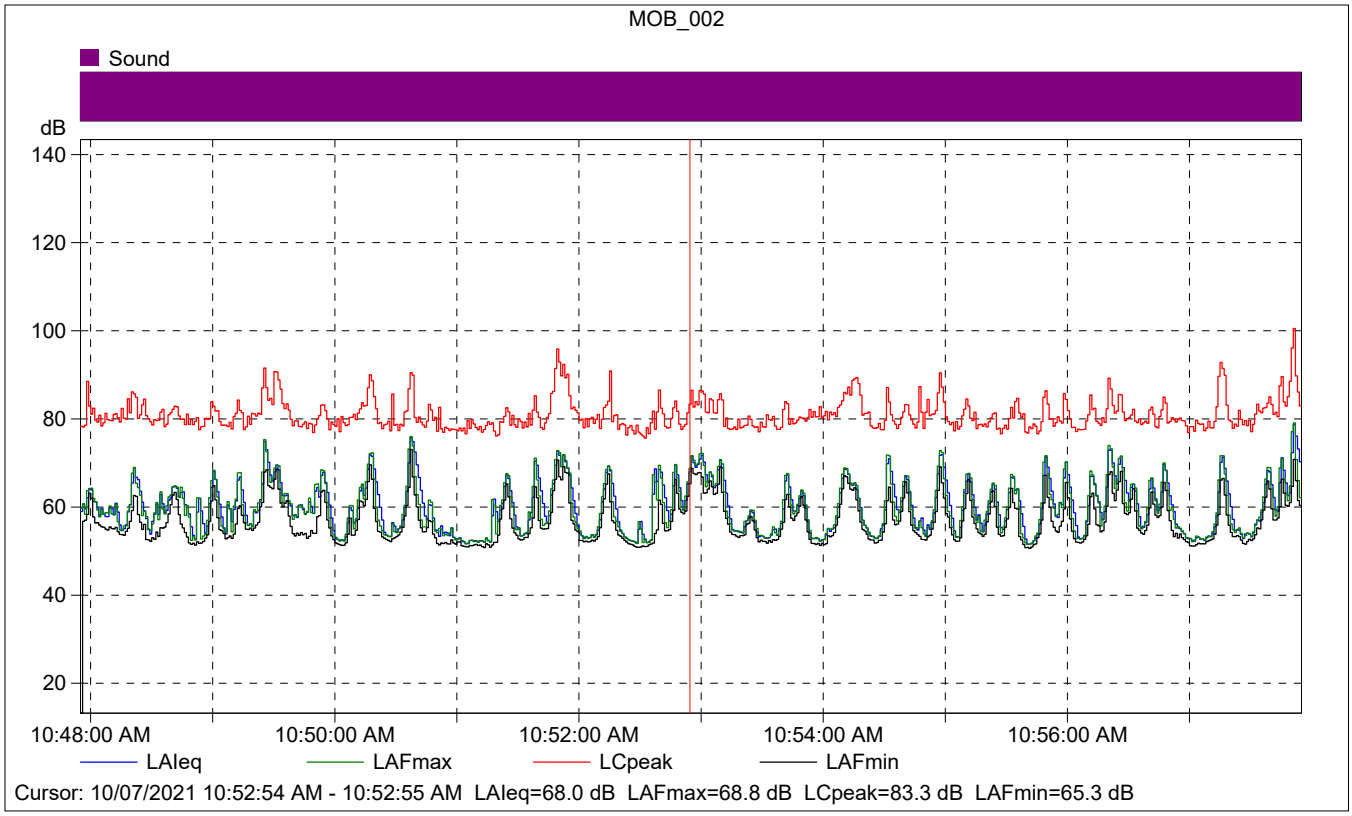
Calibration Time:		10/07/2021 08:53:40
Calibration Type:		External reference
Sensitivity:		43.797567486763 mV/Pa

MOB_002

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	62.4	79.1	50.6
Time	10:47:55 AM	10:57:55 AM	0:10:00				
Date	10/07/2021	10/07/2021					

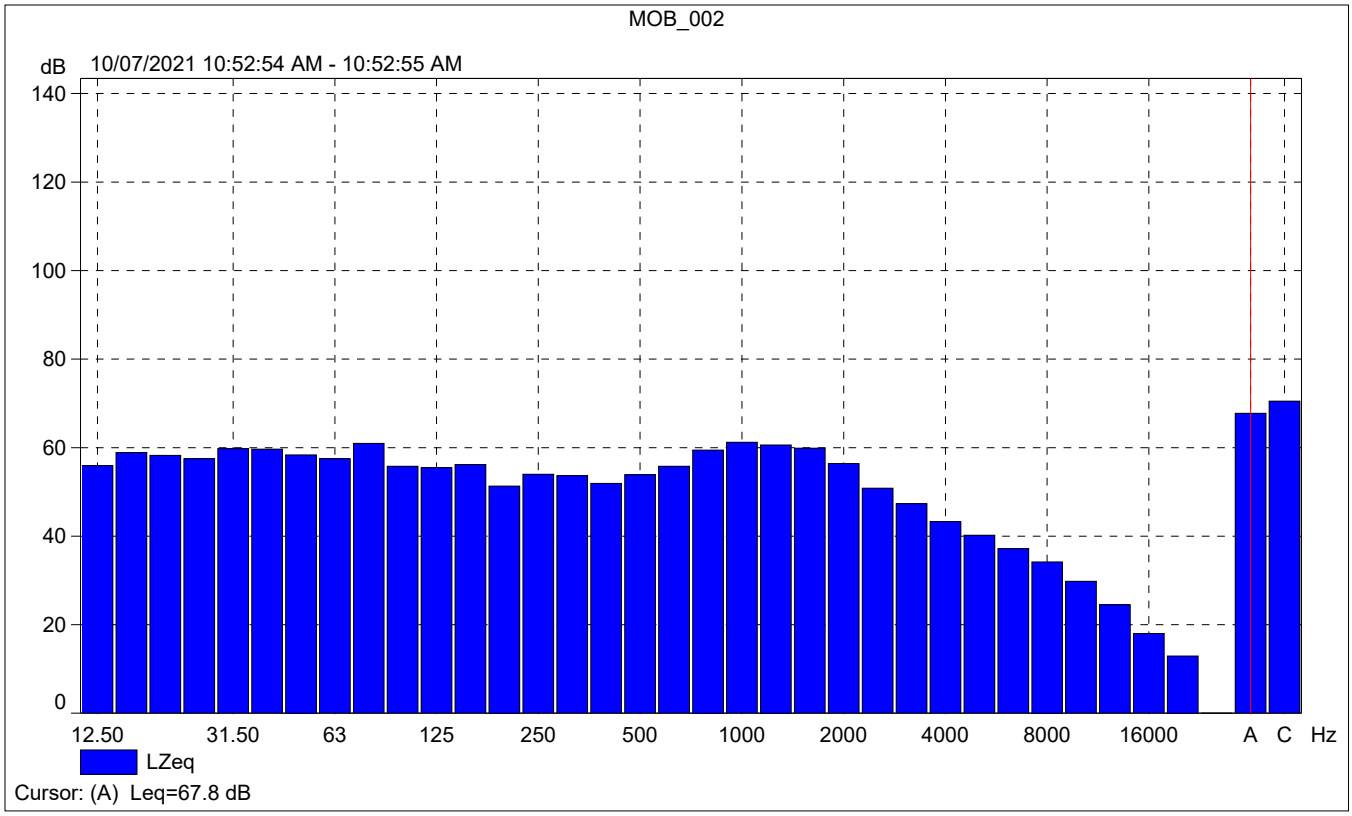

MOB_002
dB
10/07/2021 10:47:55 AM - 10:57:55 AM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=62.4 dB LFmax=79.1 dB LFmin=50.6 dB

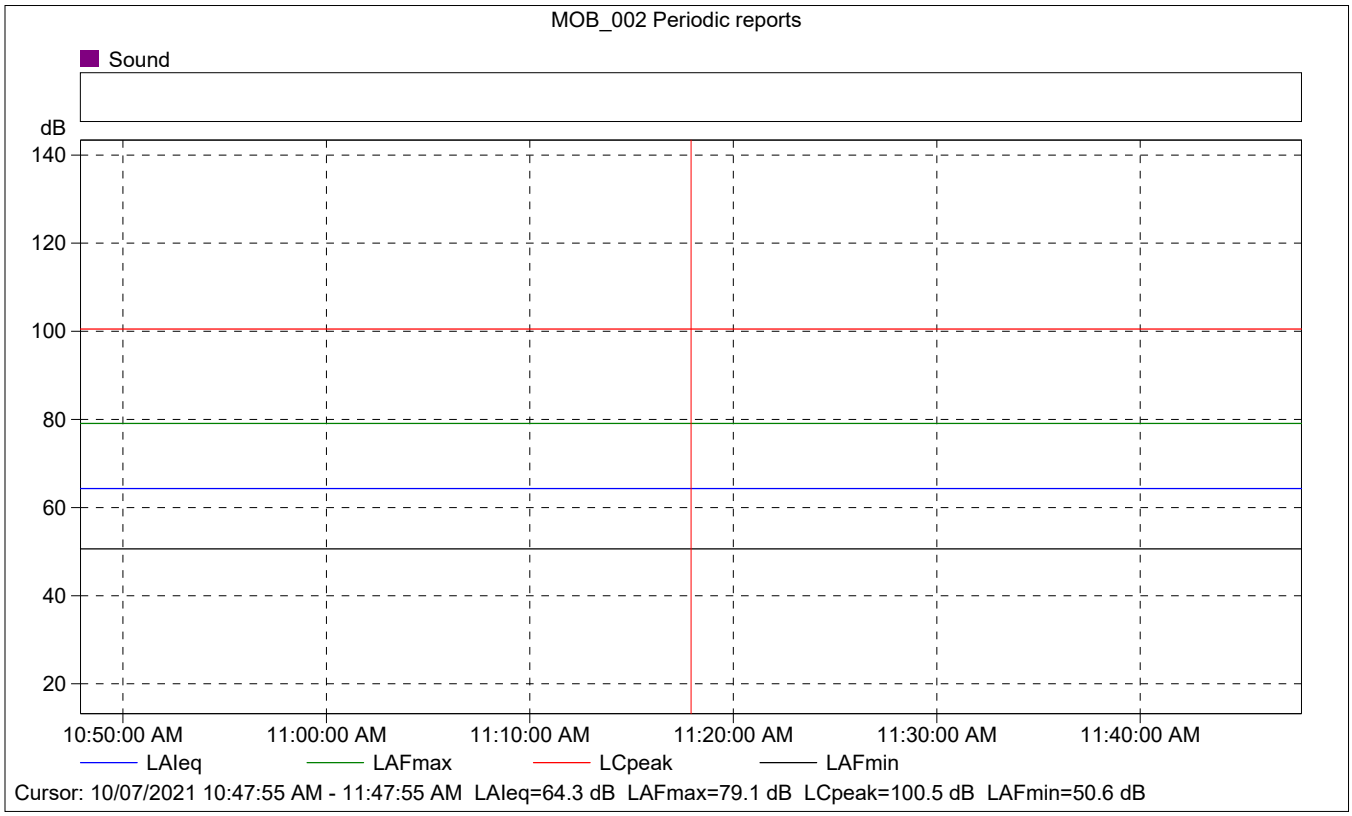

MOB_002
%
Based on LAF , 10ms Class width: 0.2 dB 10/07/2021 10:47:55 AM - 10:57:55 AM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 71.9 dB
L5 = 68.7 dB
L10 = 66.6 dB
L50 = 56.8 dB
L90 = 52.3 dB
L95 = 51.8 dB
L99 = 51.3 dB
Level
Cumulative
Cursor: [78.0 ; 78.2[dB Level: 0.0% Cumulative: 0.1%



MOB_002

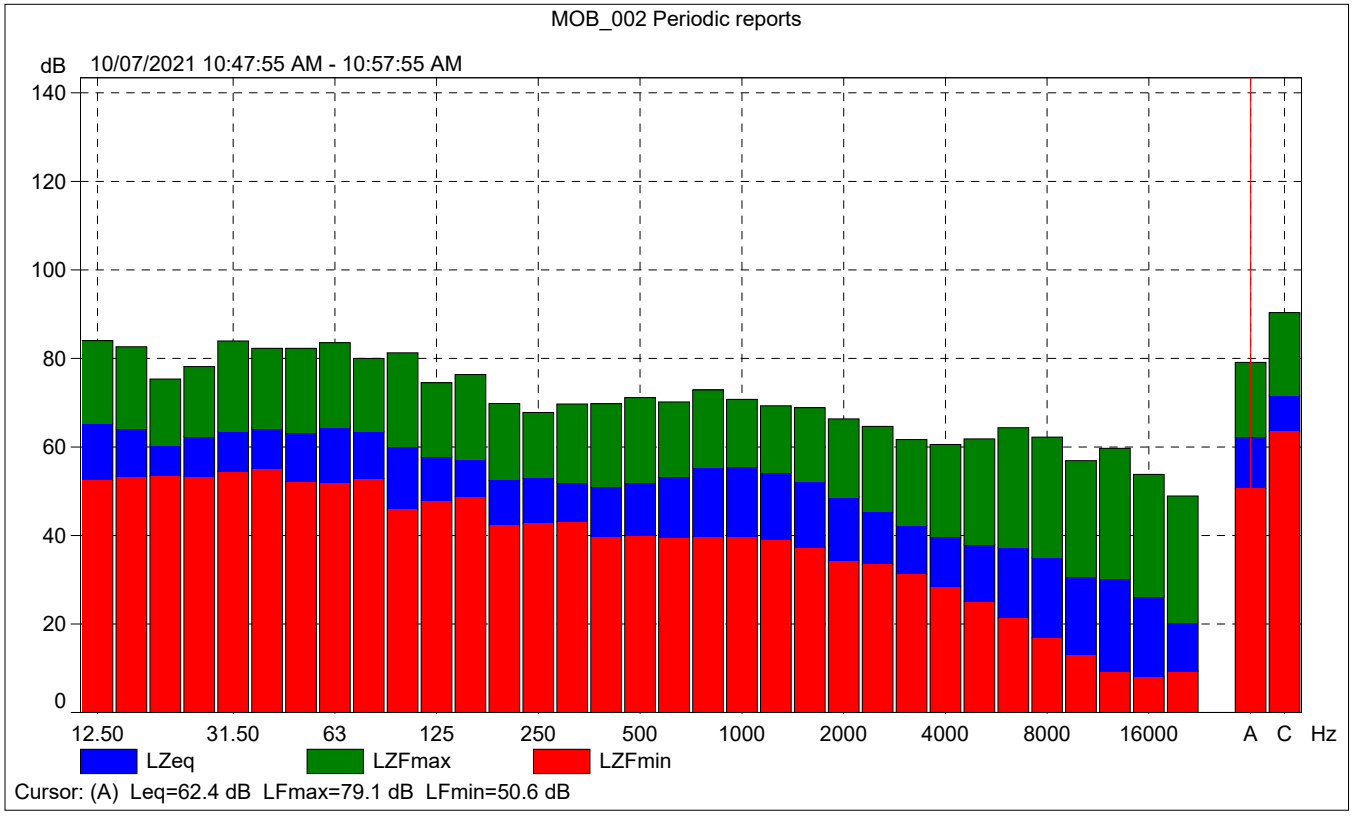
	Start time	Elapsed time	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			68.0	68.8	65.3
Time	10:52:54 AM	0:00:01			
Date	10/07/2021				

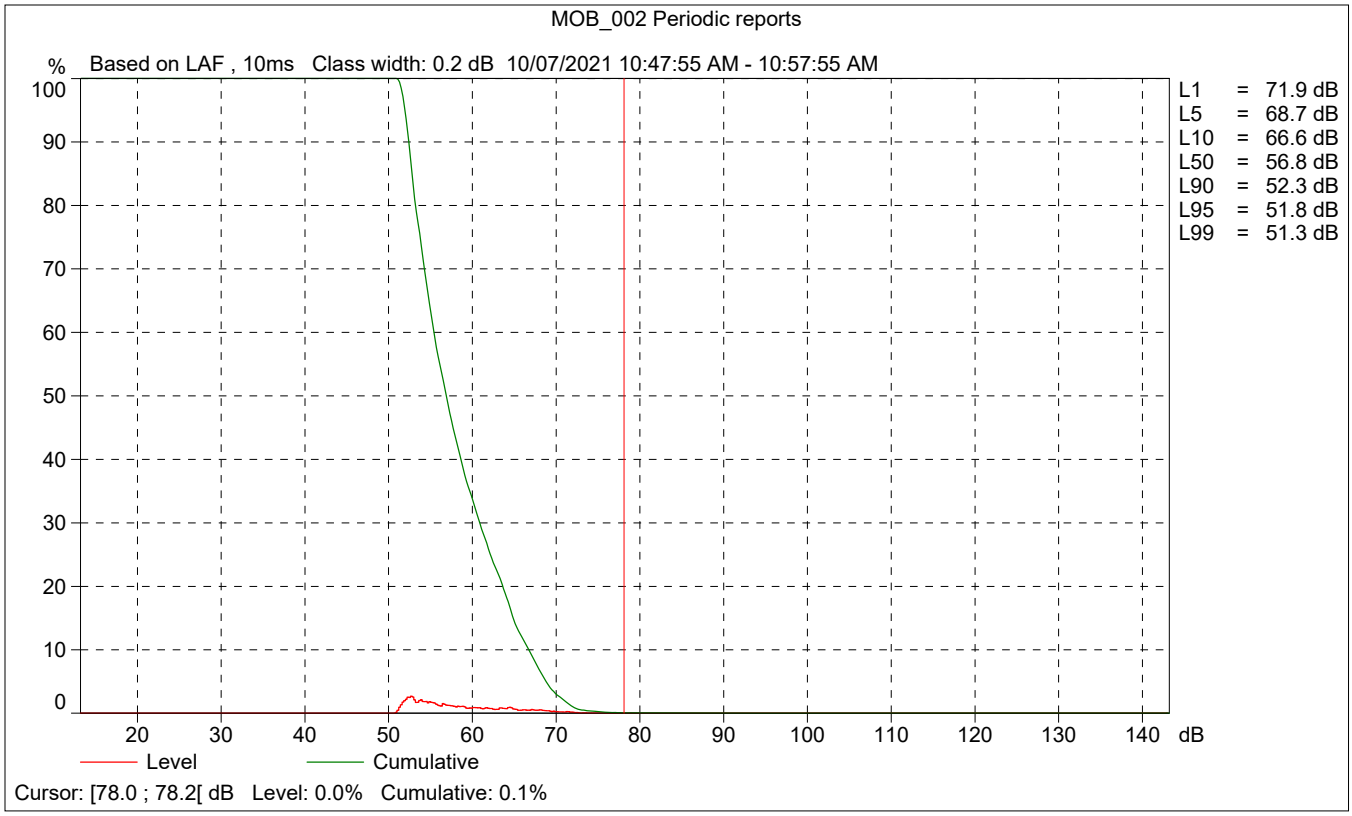

MOB_002
dB
10/07/2021 10:52:54 AM - 10:52:55 AM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
Cursor: (A) Leq=67.8 dB


MOB_002 Periodic reports
Sound
dB
140
120
100
80
60
40
20
10:50:00 AM
11:00:00 AM
11:10:00 AM
11:20:00 AM
11:30:00 AM
11:40:00 AM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 10/07/2021 10:47:55 AM - 11:47:55 AM LAIeq=64.3 dB LAFmax=79.1 dB LCpeak=100.5 dB LAFmin=50.6 dB

MOB_002 Periodic reports

	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	64.3	79.1	50.6
Time	10:47:55 AM	0:10:00				
Date	10/07/2021					




MOB_002 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 10/07/2021 10:47:55 AM - 10:57:55 AM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 71.9 dB
L5 = 68.7 dB
L10 = 66.6 dB
L50 = 56.8 dB
L90 = 52.3 dB
L95 = 51.8 dB
L99 = 51.3 dB
Level
Cumulative
Cursor: [78.0 ; 78.2[dB Level: 0.0% Cumulative: 0.1%

Site Number: NM-3			
Recorded By: Winnie Woo, Tina Yuan			
Job Number: 185971			
Date: 10/7/2021			
Time: 11:21 AM			
Location: Intersection of South Fair Oaks Avenue and Alessandro Place near Shriners for Children Medical Center.			
Source of Peak Noise: Traffic along South Fair Oaks Avenue and traffic along Alessandro Place.			
Noise Data			
Leq (dB)	Lmax(dB)	Lmin (dB)	Peak (dB)
69.5	87.3	52.6	100.1

Equipment						
Category	Type	Vendor	Model	Serial No.	Cert. Date	Note
Sound	Sound Level Meter	Brüel & Kjær	2250	3011133	04/08/2019	
	Microphone	Brüel & Kjær	4189	3086765	04/08/2019	
	Preamp	Brüel & Kjær	ZC 0032	25380	04/08/2019	
	Calibrator	Brüel & Kjær	4231	2545667	04/08/2019	

Weather Data			
Est.	Duration: 10 minutes	Sky: Cloudy	
	Note: dBA Offset = 0.02	Sensor Height (ft): 5 ft	
	Wind Ave Speed (mph / m/s)	Temperature (degrees Fahrenheit)	Barometer Pressure (inches)
	E 1 mph	66	30.04

Photo of Measurement Location

2250

Instrument:		2250
Application:		BZ7225 Version 4.7.6
Start Time:		10/07/2021 11:20:41
End Time:		10/07/2021 11:30:41
Elapsed Time:		00:10:00
Bandwidth:		1/3-octave
Max Input Level:		142.09

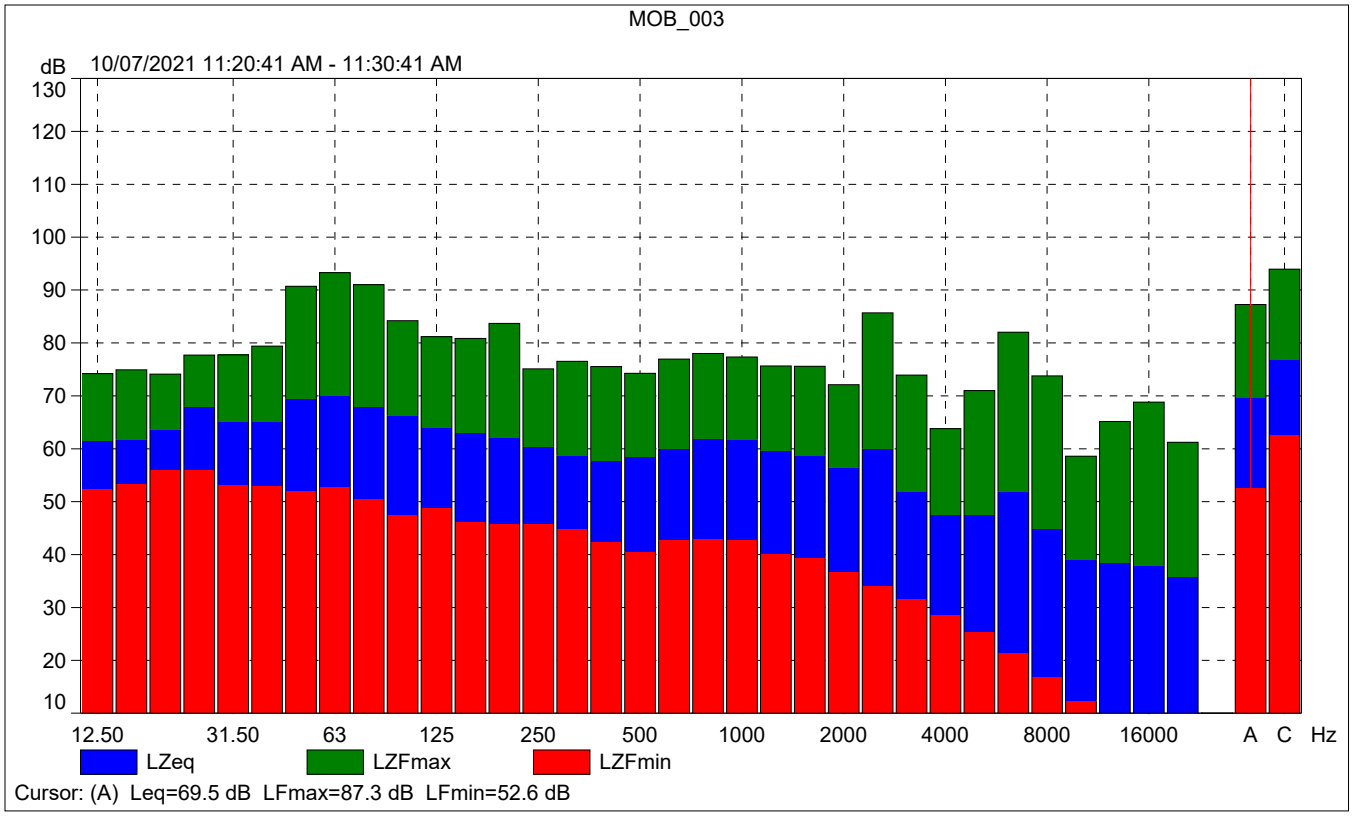
	Time	Frequency
Broadband (excl. Peak):	FSI	AC
Broadband Peak:		C
Spectrum:	FS	Z

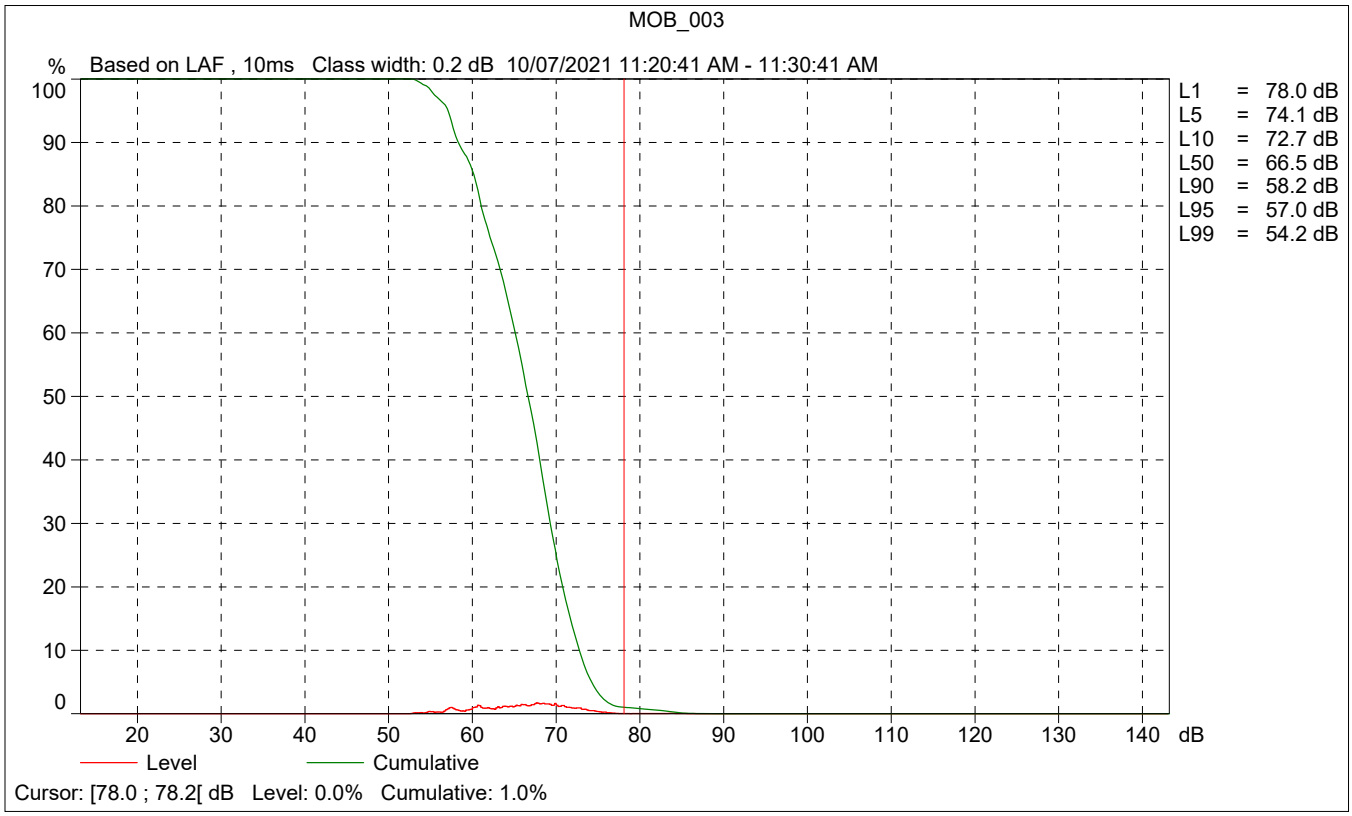
Instrument Serial Number:		3011133
Microphone Serial Number:		3086765
Input:		Top Socket
Windscreen Correction:		None
Sound Field Correction:		Free-field

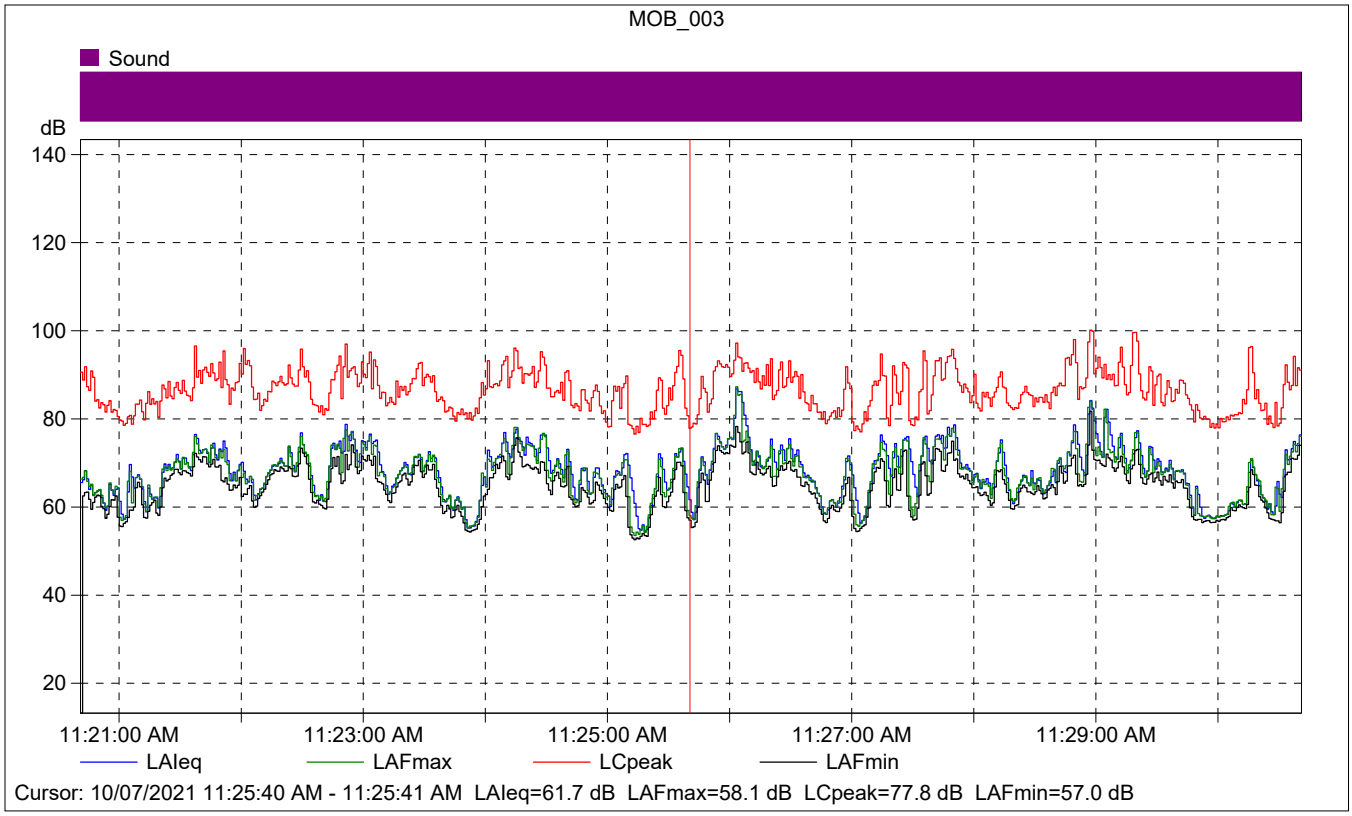
Calibration Time:		10/07/2021 08:53:40
Calibration Type:		External reference
Sensitivity:		43.797567486763 mV/Pa

MOB_003

	Start time	End time	Elapsed time	Overload [%]	LAeq [dB]	LAFmax [dB]	LAFmin [dB]
Value				0.00	69.5	87.3	52.6
Time	11:20:41 AM	11:30:41 AM	0:10:00				
Date	10/07/2021	10/07/2021					

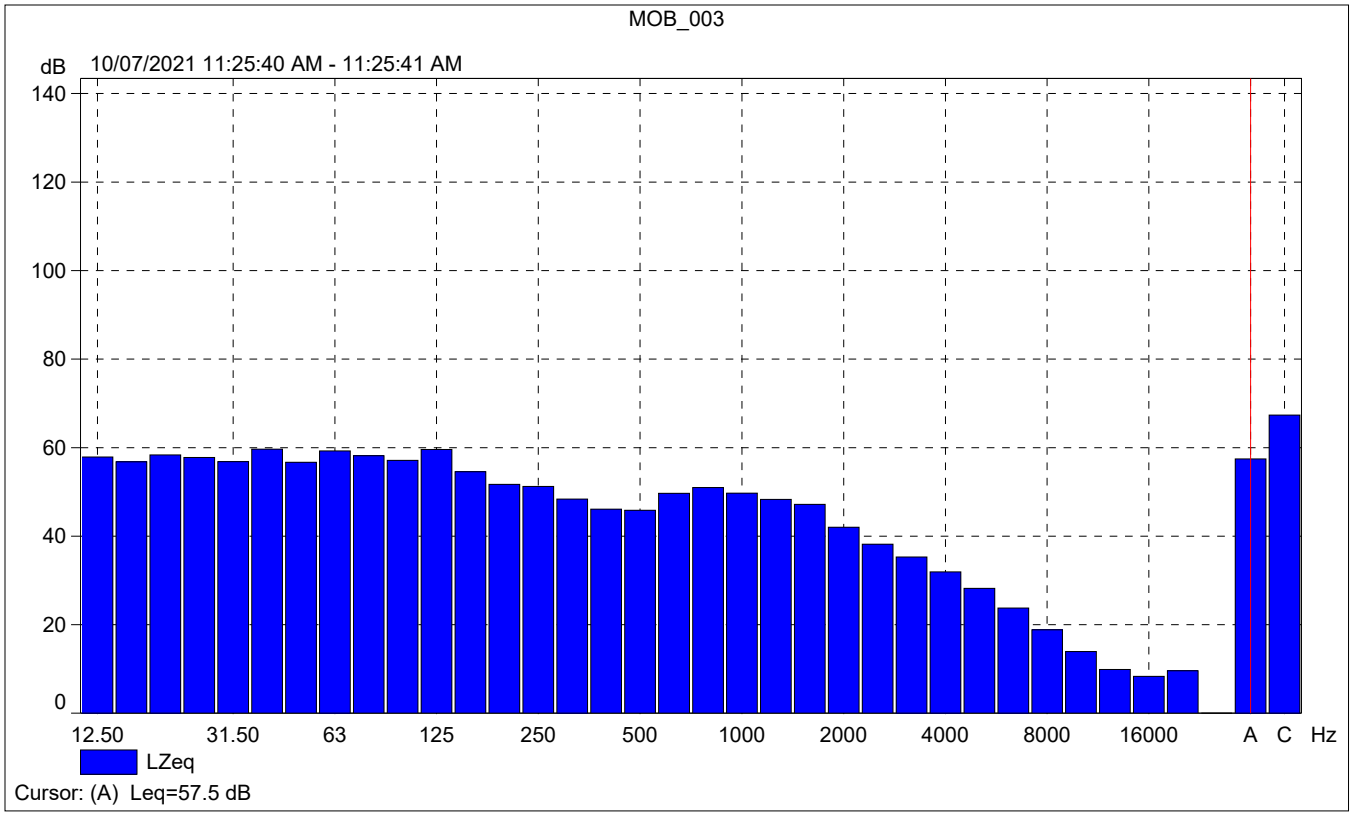

MOB_003
dB
10/07/2021 11:20:41 AM - 11:30:41 AM
130
120
110
100
90
80
70
60
50
40
30
20
10
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
LZFmax
LZFmin
Cursor: (A) Leq=69.5 dB LFmax=87.3 dB LFmin=52.6 dB

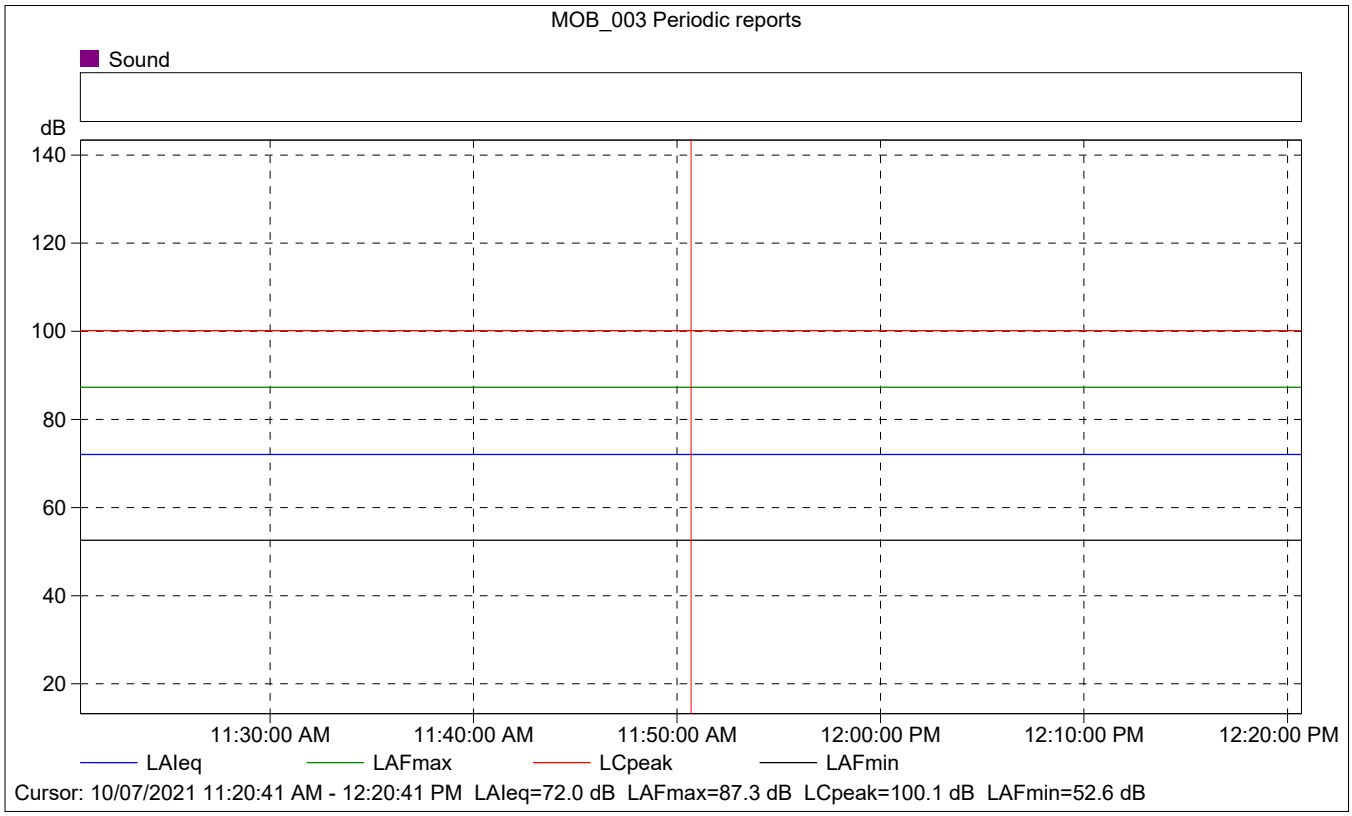

MOB_003
%
Based on LAF , 10ms Class width: 0.2 dB 10/07/2021 11:20:41 AM - 11:30:41 AM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 78.0 dB
L5 = 74.1 dB
L10 = 72.7 dB
L50 = 66.5 dB
L90 = 58.2 dB
L95 = 57.0 dB
L99 = 54.2 dB
Level
Cumulative
Cursor: [78.0 ; 78.2[dB Level: 0.0% Cumulative: 1.0%



MOB_003

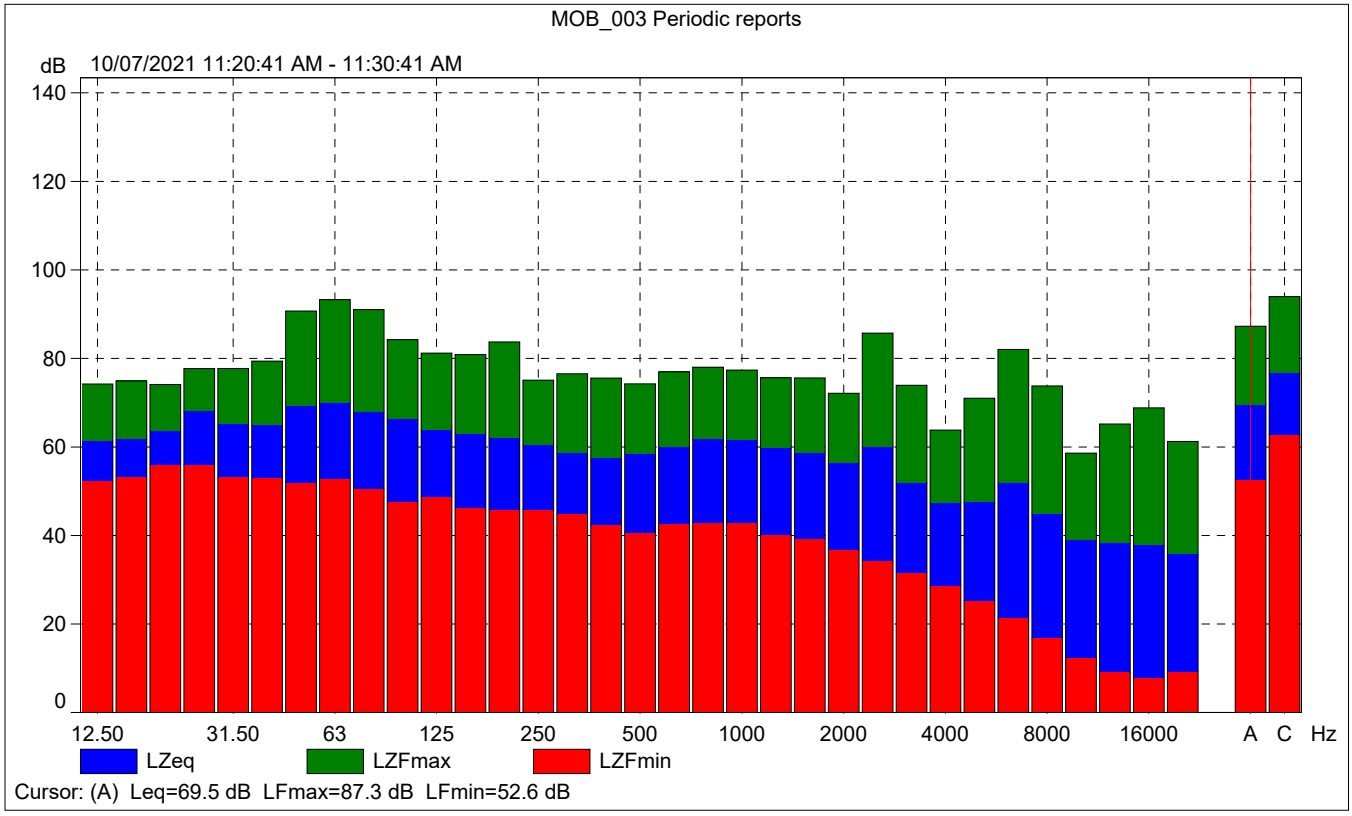
	Start time	Elapsed time	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			61.7	58.1	57.0
Time	11:25:40 AM	0:00:01			
Date	10/07/2021				

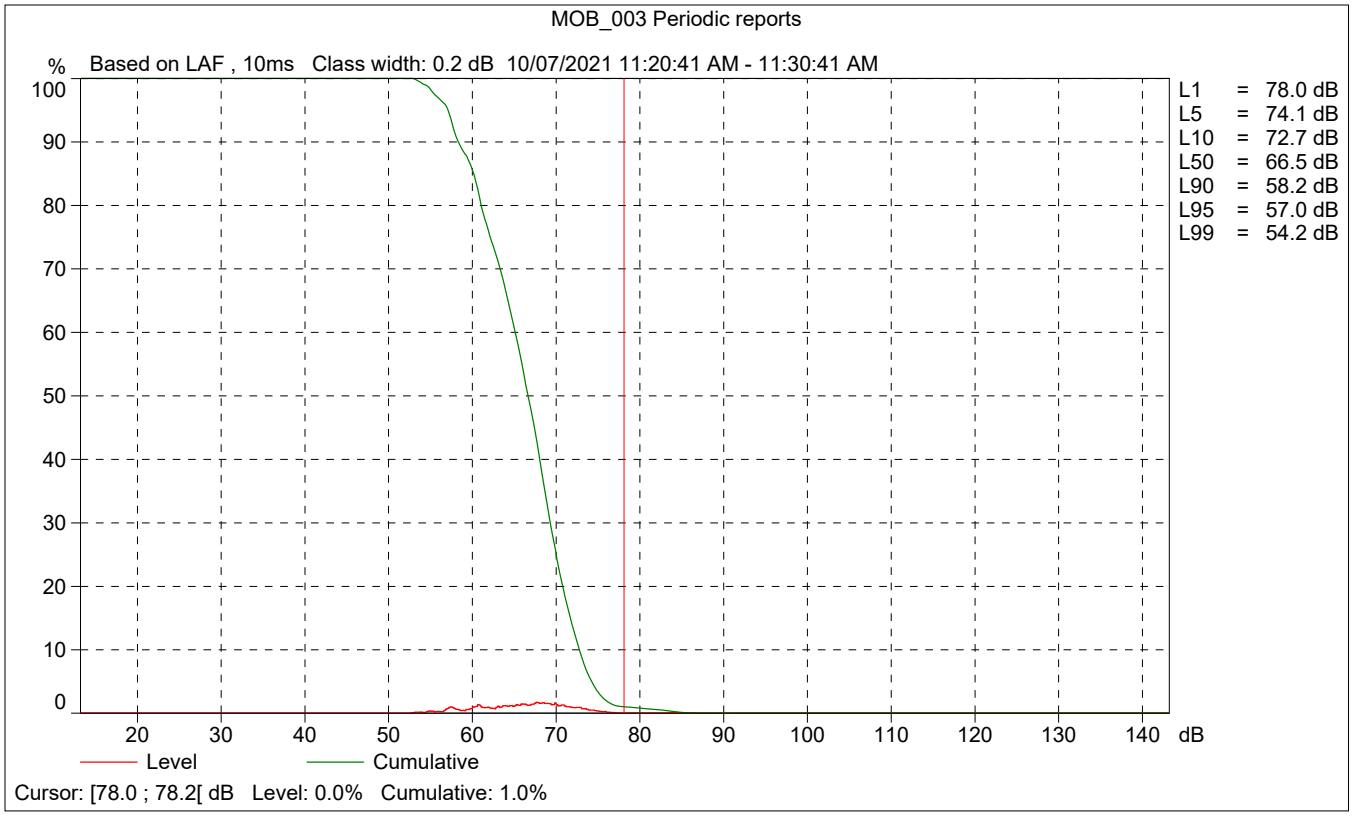

MOB_003
dB
10/07/2021 11:25:40 AM - 11:25:41 AM
140
120
100
80
60
40
20
0
12.50
31.50
63
125
250
500
1000
2000
4000
8000
16000
A
C
Hz
LZeq
Cursor: (A) Leq=57.5 dB


MOB_003 Periodic reports
Sound
dB
140
120
100
80
60
40
20
11:30:00 AM
11:40:00 AM
11:50:00 AM
12:00:00 PM
12:10:00 PM
12:20:00 PM
LAIeq
LAFmax
LCpeak
LAFmin
Cursor: 10/07/2021 11:20:41 AM - 12:20:41 PM LAIeq=72.0 dB LAFmax=87.3 dB LCpeak=100.1 dB LAFmin=52.6 dB

MOB_003 Periodic reports

	Start time	Elapsed time	Overload [%]	LAIeq [dB]	LAFmax [dB]	LAFmin [dB]
Value			0.00	72.0	87.3	52.6
Time	11:20:41 AM	0:10:00				
Date	10/07/2021					




MOB_003 Periodic reports
% Based on LAF , 10ms Class width: 0.2 dB 10/07/2021 11:20:41 AM - 11:30:41 AM
100
90
80
70
60
50
40
30
20
10
0
20
30
40
50
60
70
80
90
100
110
120
130
140
dB
L1 = 78.0 dB
L5 = 74.1 dB
L10 = 72.7 dB
L50 = 66.5 dB
L90 = 58.2 dB
L95 = 57.0 dB
L99 = 54.2 dB
Level
Cumulative
Cursor: [78.0 ; 78.2[dB Level: 0.0% Cumulative: 1.0%

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 185971
Project Name: Huntington Hospital MOB
Scenario: Existing

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Michael Baker International (March 2021)
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.50%	12.90%	9.60%
Medium-Duty Trucks	84.80%	4.90%	10.30%
Heavy-Duty Trucks	86.50%	2.70%	10.80%

Analysis Condition Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix Medium Trucks	Heavy Trucks	Distance from Centerline of Roadway CNEL at 100 Feet	Distance to Contour 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist
North-South													
St John Ave south of California Blvd	2	0	16,860	30	0.5	1.8%	0.7%	60.1	-	47	102	220	100
Pasadena Ave north of California Blvd	3	0	34,040	30	0.5	1.8%	0.7%	63.2	-	76	164	353	100
Pasadena Ave south of California Blvd	2	0	25,690	30	0.5	1.8%	0.7%	62.0	-	63	135	291	100
Fair Oaks Ave north of Del Mar Blvd	4	10	17,150	35	0.5	1.8%	0.7%	61.4	-	57	123	266	100
Fair Oaks Ave between Del Mar & California Blvd	4	0	22,330	35	0.5	1.8%	0.7%	62.4	-	68	145	313	100
Fair Oaks Ave between California & Fillmore St	4	10	26,180	35	0.5	1.8%	0.7%	63.2	-	76	163	352	100
Fair Oaks Ave between Fillmore St & Glenarm St	4	10	29,300	35	0.5	1.8%	0.7%	63.7	-	82	176	380	100
Fair Oaks Ave south of Glenarm St	4	10	30,840	35	0.5	1.8%	0.7%	63.9	-	85	182	393	100
Raymond Ave north of California Blvd	4	10	12,110	35	0.5	1.8%	0.7%	59.9	-	-	98	211	100
Raymond Ave between California Blvd & Glenarm St	4	0	11,340	35	0.5	1.8%	0.7%	59.5	-	-	93	200	100
Arroyo Pkwy north of California Blvd	6	12	22,110	35	0.5	1.8%	0.7%	62.7	-	71	152	328	100
Arroyo Pkwy south of California Blvd	6	12	31,810	35	0.5	1.8%	0.7%	64.3	-	90	194	418	100
East-West													
Del Mar Blvd west of Fair Oaks Ave	4	0	24,490	30	0.5	1.8%	0.7%	61.9	-	62	133	286	100
Del Mar Blvd east of Fair Oaks Ave	4	0	22,060	30	0.5	1.8%	0.7%	61.4	-	58	124	267	100
California Blvd west of St John Ave	2	10	11,980	30	0.5	1.8%	0.7%	58.7	-	38	82	176	100
California Blvd between St John Ave & Pasadena Ave	4	10	17,140	25	0.5	1.8%	0.7%	58.9	-	-	84	181	100
California Blvd between Pasadena & Fair Oaks Ave	6	10	20,380	25	0.5	1.8%	0.7%	59.9	-	-	98	211	100
California Blvd between Fair Oaks & Raymond Ave	4	10	18,470	25	0.5	1.8%	0.7%	59.2	-	-	88	190	100
California Blvd between Raymond Ave & Arroyo Pkwy	5	10	21,730	30	0.5	1.8%	0.7%	61.5	-	59	126	272	100
California Blvd east of Arroyo Pkwy	4	10	25,780	30	0.5	1.8%	0.7%	62.1	-	65	139	300	100
Glenarm St west of Fair Oaks Ave	3	10	6,600	25	0.5	1.8%	0.7%	54.6	-	-	44	95	100
Glenarm St between Fair Oaks Ave & Raymond Ave	3	10	13,140	25	0.5	1.8%	0.7%	57.6	-	-	69	150	100
Glenarm St east of Raymond Ave	4	10	16,230	25	0.5	1.8%	0.7%	58.6	-	-	81	174	100

[1] Distance is from the centerline of the roadway segment to the receptor location.
"-" = contour is located within the roadway right-of-way.
NA = not applicable (does not exist without project)

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 185971
Project Name: Huntington Hospital MOB
Scenario: Existing Plus Project

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: Michael Baker International (March 2021)
Community Noise Descriptor: L_{dn}: _____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.50%	12.90%	9.60%
Medium-Duty Trucks	84.80%	4.90%	10.30%
Heavy-Duty Trucks	86.50%	2.70%	10.80%

Analysis Condition				Design		Vehicle Mix		Distance from Centerline of Roadway					
		Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour				Calc
Roadway, Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL	Dist
North-South													
St John Ave south of California Blvd	2	0	16,937	30	0.5	1.8%	0.7%	60.2	-	48	102	221	100
Pasadena Ave north of California Blvd	3	0	34,193	30	0.5	1.8%	0.7%	63.2	-	76	165	355	100
Pasadena Ave south of California Blvd	2	0	25,767	30	0.5	1.8%	0.7%	62.0	-	63	136	292	100
Fair Oaks Ave north of Del Mar Blvd	4	10	17,227	35	0.5	1.8%	0.7%	61.4	-	57	124	266	100
Fair Oaks Ave between Del Mar & California Blvd	4	0	22,483	35	0.5	1.8%	0.7%	62.5	-	68	146	315	100
Fair Oaks Ave between California & Fillmore St	4	10	27,138	35	0.5	1.8%	0.7%	63.4	-	78	167	361	100
Fair Oaks Ave between Fillmore St & Glenarm St	4	10	29,875	35	0.5	1.8%	0.7%	63.8	-	83	179	385	100
Fair Oaks Ave south of Glenarm St	4	10	30,917	35	0.5	1.8%	0.7%	63.9	-	85	183	394	100
Raymond Ave north of California Blvd	4	10	12,110	35	0.5	1.8%	0.7%	59.9	-	-	98	211	100
Raymond Ave between California Blvd & Glenarm St	4	0	11,340	35	0.5	1.8%	0.7%	59.5	-	-	93	200	100
Arroyo Pkwy north of California Blvd	6	12	22,110	35	0.5	1.8%	0.7%	62.7	-	71	152	328	100
Arroyo Pkwy south of California Blvd	6	12	31,887	35	0.5	1.8%	0.7%	64.3	-	90	195	419	100
East-West													
Del Mar Blvd west of Fair Oaks Ave	4	0	24,490	30	0.5	1.8%	0.7%	61.9	-	62	133	286	100
Del Mar Blvd east of Fair Oaks Ave	4	0	22,137	30	0.5	1.8%	0.7%	61.4	-	58	124	268	100
California Blvd west of St John Ave	2	10	12,057	30	0.5	1.8%	0.7%	58.7	-	38	82	177	100
California Blvd between St John Ave & Pasadena Ave	4	10	17,446	25	0.5	1.8%	0.7%	58.9	-	-	85	183	100
California Blvd between Pasadena & Fair Oaks Ave	6	10	20,916	25	0.5	1.8%	0.7%	60.0	-	-	100	215	100
California Blvd between Fair Oaks & Raymond Ave	4	10	18,738	25	0.5	1.8%	0.7%	59.2	-	-	89	192	100
California Blvd between Raymond Ave & Arroyo Pkwy	5	10	21,998	30	0.5	1.8%	0.7%	61.6	-	59	127	274	100
California Blvd east of Arroyo Pkwy	4	10	25,972	30	0.5	1.8%	0.7%	62.2	-	65	140	301	100
Glenarm St west of Fair Oaks Ave	3	10	6,677	25	0.5	1.8%	0.7%	54.7	-	-	44	95	100
Glenarm St between Fair Oaks Ave & Raymond Ave	3	10	13,561	25	0.5	1.8%	0.7%	57.8	-	-	71	153	100
Glenarm St east of Raymond Ave	4	10	16,651	25	0.5	1.8%	0.7%	58.7	-	-	82	177	100

[1] Distance is from the centerline of the roadway segment to the receptor location.
"-" = contour is located within the roadway right-of-way.
NA = not applicable (does not exist without project)

APPENDIX C.1:

AIR QUALITY TECHNICAL MEMORANDUM

Michael Baker INTERNATIONAL

We Make a Difference

MEMORANDUM

To: Beilin Yu, Senior Planner, City of Pasadena

From: Zhe Chen, Michael Baker International

Date: November 4, 2021

Subject: Huntington Hospital Medical Office Building Project – Air Quality Technical Memorandum

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PURPOSE

The purpose of this technical memorandum is to evaluate potential short- and long-term air quality impacts resulting from the construction and operation of the proposed Huntington Hospital Medical Office Building Project (project), located in the City of Pasadena (City), California.

PROJECT LOCATION

The project is located at 758 South Fair Oaks Avenue and 766 South Fair Oaks Avenue in the City, bounded by Fair Oaks Avenue to the west, Fillmore Street to the north, and Edmondson Alley to the east. Regional access to the site is available via Interstate 110 (I-110) approximately 0.13 mile to the east of the site and Interstate 710 (I-710) approximately 0.37 miles to the northwest of the site. Local access to the site is provided via Fillmore Street.

EXISTING SITE CONDITIONS

The project site is approximately 1.27 acres and currently is occupied by a retail store (Huntington Collection) with a surface parking lot.

The project site is currently designated High Mixed-Use with a maximum Floor Area Ratio (FAR) of 3.0 and a maximum of 87 dwelling units per acre[1] in the *City of Pasadena General Plan* (General Plan). The project site is located within the South Fair Oaks Specific Plan Area and is designated for primary development opportunity[2]. The parcels in the primary development opportunity zone are likely to provide the sites for the majority of new development authorized in the General Plan. However, owners of these sites may elect to undertake rehabilitation and adaptive re-use of existing structures, or not to undertake any changes.

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[1] City of Pasadena, *City of Pasadena Land Use Diagram*, November 14, 2016, https://www.cityofpasadena.net/wp-content/uploads/sites/30/Land-Use-Diagram-2016-11-14.pdf?v=1584653610006, accessed September 27, 2021.

[2] City of Pasadena, *South Fair Oaks Specific Plan, Private Realm Urban Design Framework Plan*, June 23, 2016. https://www.cityofpasadena.net/planning/wp-content/uploads/sites/30/South-Fair-Oaks-Specific-Plan-Updated-6232016.pdf?v=1632768097460, accessed September 27, 2021.

5 Hutton Centre Drive, Suite 500, Santa Ana, CA 92707

Office: 949.472.3505 | Fax: 949.472.8373

PROJECT DESCRIPTION

The project would involve demolition of the existing retail store building and construction of a four-story high-density mixed-use building. The proposed building would be approximately 100,285 square feet, consisting of approximately 80,285 square feet of medical office use and approximately 20,000 square feet of general office use. There would be two and half levels of subterranean parking.

Project construction would occur over approximately 20 months, beginning in June 2022. Construction of the project would require approximately 43,500 cubic yards of soil export and include the following phases: demolition, grading, building construction, paving, and architectural coating. It is anticipated that the project would be completed and operational in 2024.

ENVIRONMENTAL SETTING

Regional Topography

The State of California is divided geographically into 15 air basins. The project site is located within the South Coast Air Basin (Basin), a 6,600-square mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and the San Jacinto Mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Gorgonio Pass area of Riverside County.

The extent and severity of the air pollution problem in the Basin is a function of the area's natural physical characteristics (weather and topography), as well as man-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and dispersion of air pollutants throughout the Basin.

Climate

The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. The climate consists of a semi-arid environment with mild winters, warm summers, moderate temperatures, and comfortable humidity. Precipitation is limited to a few winter storms. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

The average annual temperature varies little throughout the Basin, averaging 75 degrees Fahrenheit (°F). However, with a less-pronounced oceanic influence, the eastern inland portions of the Basin show greater variability in annual minimum and maximum temperatures. All portions of the Basin have had recorded temperatures over 100°F in recent years.

Although the Basin has a semi-arid climate, the air near the surface is moist due to the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the Basin by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent, and low stratus clouds, occasionally referred to as "high fog," are a characteristic climate feature. The annual average relative humidity is 70 percent at the coast and 57 percent in the eastern part of the Basin. Precipitation in the Basin is typically nine to 14 inches annually and is rarely in the form of snow or hail due to typically warm weather. The frequency and amount of rainfall are greater in the coastal areas of the Basin.

The height of the inversion is important in determining pollutant concentration. When the inversion is approximately 2,500 feet above sea level, the sea breezes carry the pollutants inland to escape over the mountain slopes or through the passes. At a height of 1,200 feet, the terrain prevents the pollutants from entering the upper atmosphere, resulting in a settlement in the foothill communities. Below 1,200 feet, the inversion puts a tight lid on pollutants, concentrating them in a shallow layer over the entire coastal Basin. Usually, inversions are lower before sunrise than during the day. Mixing heights for inversions are lower in the summer and more persistent, being partly responsible for the high levels of ozone (O_3) observed during the summer months in the Basin. Smog in southern California is generally the result of these temperature inversions combining with coastal day winds and local mountains to contain the pollutants for long periods of time, allowing them to form secondary pollutants by reacting with sunlight. The Basin has a limited ability to disperse these pollutants due to typically low wind speeds.

Criteria Air Pollutants

Carbon Monoxide (CO). CO is an odorless, colorless toxic gas that is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. CO replaces oxygen in the body's red blood cells. Individuals with a deficient blood supply to the heart, patients with diseases involving heart and blood vessels, fetuses (unborn babies), and patients with chronic hypoxemia (oxygen deficiency) as seen in high altitudes are most susceptible to the adverse effects of CO exposure. People with heart disease are also more susceptible to developing chest pains when exposed to low levels of CO.

Ozone (O_3). O_3 occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. The troposphere extends approximately 10 miles above ground level, where it meets the second layer, the stratosphere. The stratospheric (the "good" O_3 layer) extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays. "Bad" O_3 is a photochemical pollutant, and needs volatile organic compounds (VOCs), nitrogen oxides (NO_X), and sunlight to form; therefore, VOCs and NO_X are O_3 precursors. To reduce O_3 concentrations, it is necessary to control the emissions of these O_3 precursors. Significant O_3 formation generally requires an adequate amount of precursors in the atmosphere and a period of several hours in a stable atmosphere with strong sunlight. High O_3 concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

While O_3 in the upper atmosphere (stratosphere) protects the earth from harmful ultraviolet radiation, high concentrations of ground-level O_3 (in the troposphere) can adversely affect the human respiratory system and other tissues. O_3 is a strong irritant that can constrict the airways, forcing the respiratory system to work hard to deliver oxygen. Individuals exercising outdoors, children, and people with pre-existing lung disease such as asthma and chronic pulmonary lung disease are considered to be the most susceptible to the health effects of O_3. Short-term exposure (lasting for a few hours) to O_3 at elevated levels can result in aggravated respiratory diseases such as emphysema, bronchitis and asthma, shortness of breath, increased susceptibility to infections, inflammation of the lung tissue, increased fatigue, as well as chest pain, dry throat, headache, and nausea.

Nitrogen Dioxide (NO_2). NO_X are a family of highly reactive gases that are a primary precursor to the formation of ground-level O_3 and react in the atmosphere to form acid rain. NO_2 (often used interchangeably with NO_X) is a reddish-brown gas that can cause breathing difficulties at elevated levels. Peak readings of NO_2 occur in areas that have a high concentration of combustion sources (e.g., motor vehicle engines, power plants, refineries, and other industrial operations). NO_2 can irritate and damage

the lungs and lower resistance to respiratory infections such as influenza. The health effects of short-term exposure are still unclear. However, continued or frequent exposure to NO_2 concentrations that are typically much higher than those normally found in the ambient air may increase acute respiratory illnesses in children and increase the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may aggravate eyes and mucus membranes and cause pulmonary dysfunction.

Coarse Particulate Matter (PM_{10}). PM_{10} refers to suspended particulate matter, which is smaller than 10 microns or ten one-millionths of a meter. PM_{10} arises from sources such as road dust, diesel soot, combustion products, construction operations, and dust storms. PM_{10} scatters light and significantly reduces visibility. In addition, these particulates penetrate into lungs and can potentially damage the respiratory tract. On June 19, 2003, the California Air Resources Board (CARB) adopted amendments to the statewide 24-hour particulate matter standards based upon requirements set forth in the Children's Environmental Health Protection Act (Senate Bill 25).

Fine Particulate Matter ($PM_{2.5}$). Due to recent increased concerns over health impacts related to fine particulate matter (particulate matter 2.5 microns in diameter or less), both State and Federal $PM_{2.5}$ standards have been created. Particulate matter impacts primarily affect infants, children, the elderly, and those with pre-existing cardiopulmonary disease. In 1997, the U.S. Environmental Protection Agency (EPA) announced new $PM_{2.5}$ standards. Industry groups challenged the new standard in court and the implementation of the standard was blocked. However, upon appeal by the EPA, the United States Supreme Court reversed this decision and upheld the EPA's new standards.

On January 5, 2005, the EPA published a Final Rule in the Federal Register that designates the Basin as a nonattainment area for Federal $PM_{2.5}$ standards. On June 20, 2002, CARB adopted amendments for statewide annual ambient particulate matter air quality standards. These standards were revised/established due to increasing concerns by CARB that previous standards were inadequate, as almost everyone in California is exposed to levels at or above the current State standards during some parts of the year, and the statewide potential for significant health impacts associated with particulate matter exposure was determined to be large and wide-ranging. On July 8, 2016, EPA made a finding that the South Coast has attained the 1997 24-hour and annual $PM_{2.5}$ standards based on 2011-2013 data. However, the Basin remains in nonattainment as the EPA has not determined that California has met the Federal Clean Air Act requirements for redesignating the Basin nonattainment area to attainment.

Sulfur Dioxide (SO_2). Sulfur dioxide (SO_2) is a colorless, irritating gas with a rotten egg smell; it is formed primarily by the combustion of sulfur-containing fossil fuels. Sulfur dioxide is often used interchangeably with SO_X. Exposure of a few minutes to low levels of SO_2 can result in airway constriction in some asthmatics.

Volatile Organic Compounds (VOC). VOCs are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOCs contribute to the formation of smog through atmospheric photochemical reactions and/or may be toxic. Compounds of carbon (also known as organic compounds) have different levels of reactivity; that is, they do not react at the same speed or do not form O_3 to the same extent when exposed to photochemical processes. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints. Exceptions to the VOC designation include: carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. VOCs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The terms VOC and reactive organic gases (ROG) (see below) are often used interchangeably.

Reactive Organic Gases (ROG). Similar to VOCs, ROGs are also precursors in forming O_3 and consist of compounds containing methane, ethane, propane, butane, and longer chain hydrocarbons, which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and NO_X react in the presence of sunlight. ROGs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The terms ROG and VOC are often used interchangeably.

Local Ambient Air Quality

CARB monitors ambient air quality at approximately 250 air monitoring stations across the State. Air quality monitoring stations usually measure pollutant concentrations ten feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The project site is located within Source Receptor Area (SRA) 8, West San Gabriel Valley. The closest air monitoring station to the project site is the Pasadena-South Wilson Avenue Monitoring Station. Local air quality data from 2018 to 2020 is provided in Table 1, *Summary of Air Quality Data*. This table lists the monitored maximum concentrations and number of exceedances of Federal/State air quality standards for each year.

Table 1
Summary of Air Quality Data

Pollutant	California Standard	Federal Primary Standard	Year	Maximum Concentration[1]	Days (Samples) State/Federal Std. Exceeded
Ozone (O_3) (1-hour)[2]	0.09 ppm for 1 hour	NA[6]	2018 2019 2020	0.112 ppm 0.120 ppm 0.163 ppm	8 / 0 11 / 0 41 / 9
Ozone (O_3) (8-hour)[2]	0.070 ppm for 8 hours	0.070 ppm for 8 hours	2018 2019 2020	0.090 ppm 0.098 ppm 0.115 ppm	20 / 19 29 / 24 61 / 60
Carbon Monoxide (CO) (1-hour)[2]	20 ppm for 1 hour	35 ppm for 1 hour	2018 2019 2020	1.954 ppm 1.509 ppm 2.635 ppm	0 / 0 0 / 0 0 / 0
Nitrogen Dioxide (NO_2)[2]	0.180 ppm for 1 hour	0.100 ppm for 1 hour	2018 2019 2020	0.068 ppm 0.059 ppm 0.061 ppm	0 / 0 0 / 0 0 / 0
Fine Particulate Matter ($PM_{2.5}$)[2, 4]	No Separate Standard	35 $\mu g/m^3$ for 24 hours	2018 2019 2020	32.5 $\mu g/m^3$ 41.8 $\mu g/m^3$ 67.7 $\mu g/m^3$	0 / 0 0 / 1 0 / 2
Particulate Matter (PM_{10})[3, 4, 5]	50 $\mu g/m^3$ for 24 hours	150 $\mu g/m^3$ for 24 hours[6]	2018 2019 2020	81.2 $\mu g/m^3$ 93.9 $\mu g/m^3$ 185.2 $\mu g/m^3$	31 / 0 15 / 0 34 / 0

ppm = parts per million; PM_{10} = particulate matter 10 microns in diameter or less; $\mu g/m^3$ = micrograms per cubic meter; $PM_{2.5}$ = particulate matter 2.5 microns in diameter or less; NA = not applicable; * = insufficient data available to determine the value

Notes:
1. Maximum concentration is measured over the same period as the California standards.
2. Data collected from the Pasadena-South Wilson Avenue Monitoring Station located at 752 South Wilson Avenue, Pasadena CA 91702.
3. Data collected from the Los Angeles-North Main Street Monitoring Station located at 1630 North Main Street, Los Angeles, California 90012.
4. PM_{10} and $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.
5. PM_{10} exceedances are based on State thresholds established prior to amendments adopted on June 20, 2002.
6. The Federal standard for 1-hour ozone was revoked in June 2005.
7. The Federal standard for average PM_{10} was revoked in December 2006.

Sources:
California Air Resources Board, *ADAM Air Quality Data Statistics*, http://www.arb.ca.gov/adam/, accessed September 17, 2021.
California Air Resources Board, *AQMIS2: Air Quality Data*, https://www.arb.ca.gov/aqmis2/aqdselect.php, accessed September 17, 2021.

REGULATORY SETTING

South Coast Air Quality Management District

Air Quality Thresholds

Under the California Environmental Quality Act (CEQA), the South Coast Air Quality Management District (SCAQMD) is an expert commenting agency on air quality within its jurisdiction or impacting its jurisdiction. Under the Federal Clean Air Act, the SCAQMD has adopted Federal attainment plans for O_3 and PM_{10}. The SCAQMD provides guidance to lead agencies on how to evaluate project air quality impacts related to the following criteria: (1) cause or contribute to any new violation of any air quality standard; (2) increase the frequency or severity of any existing violation of any air quality standard; or (3) delay timely attainment of any air quality standard or any required interim emission reductions or other milestones of any Federal attainment plan.

The SCAQMD's *CEQA Air Quality Handbook* also provides significance thresholds for both construction and operation of projects within the SCAQMD jurisdictional boundaries. If the SCAQMD thresholds are exceeded, a potentially significant impact could result. However, ultimately the lead agency determines the thresholds of significance for impacts. If a project generates emissions in excess of the established mass daily emissions thresholds, as outlined in Table 2, *South Coast Air Quality Management District Mass Daily Emissions Thresholds*, a significant air quality impact may occur and additional analysis is warranted to fully assess the significance of impacts. In addition, SCAQMD establishes odor threshold, which identifies that project creating an odor nuisance pursuant to SCAQMD Rule 402 would cause a significant impact.

Table 2
South Coast Air Quality Management District Mass Daily Emissions Thresholds

Phase	Pollutant (lbs/day)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Construction	75	100	550	150	150	55
Operational	55	55	550	150	150	55
ROG = reactive organic gases; NO_X = nitrogen oxides; CO = carbon monoxide; SO_X = sulfur oxides; PM_{10} = particulate matter up to 10 microns; $PM_{2.5}$ = particulate matter up to 2.5 microns; lbs = pounds						
Source: South Coast Air Quality Management District, *CEQA Air Quality Handbook*, November 1993.						

Localized Significance Thresholds

Localized Significance Thresholds (LSTs) were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (dated July 2008) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with project-specific level proposed projects. The SCAQMD provides the LST lookup tables for one-, two-, and five-acre projects emitting CO, NO_X, PM_{10}, or $PM_{2.5}$. The LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources traveling over the roadways.

Cumulative Emissions Thresholds

The SCAQMD's *2016 Air Quality Management Plan* (2016 AQMP) was prepared to accommodate growth, meet State and Federal air quality standards, and minimize the fiscal impact that pollution control measures have on the local economy. According to the SCAQMD *CEQA Air Quality Handbook*, project-related emissions that fall below the established construction and operational thresholds should be considered less than significant unless there is pertinent information to the contrary. If a project exceeds these emission thresholds, the SCAQMD *CEQA Air Quality Handbook* states that the significance of a project's contribution to cumulative impacts should be determined based on whether the rate of growth in average daily trips exceeds the rate of growth in population.

City of Pasadena

General Plan Update

The *City of Pasadena General Plan Update Open Space and Conservation Element* (Pasadena Open Space and Conservation Element) outlines the goals and objectives for establishing Pasadena as a national and international leader on energy and water conservation and environmental stewardship efforts, including air quality protection, energy efficiency requirements, renewable energy standards, natural resource conservation, and greenhouse gas emission standards in the areas of energy, water, air and land.[3] The Pasadena Open Space and Conservation Element includes the following goals and objectives applicable to maintaining healthy air quality:

- Protect and conserve natural resources.
- Improve the quality of the natural environment through increased conservation and sustainable practices.
- Improve the quality of the urban environment through increased conservation and sustainable practices.
- Effectively manage environmental health and reduce solid waste utilizing best practices and the most current technologies.
- Increase public, private, and governmental awareness of the natural environment and environmental health.
- Develop criteria, prioritize and plan to acquire additional open space.
- Create additional open spaces through reclamation and restoration.

Green City Action Plan

The City adopted the Green City Action Plan[4] in 2006, which identifies means to conserve energy and water, reduce waste, address global warming, tailor urban design, protect natural habitats, improve

[3] City of Pasadena, *City of Pasadena General Plan Update Open Space and Conservation Element*, January 2012, https://www.cityofpasadena.net/wp-content/uploads/sites/30/General-Plan-Open-Space-and-Conservation-Element-2012.pdf?v=1598296728506, accessed September 24, 2021.

[4] City of Pasadena, *Green City Action Plan*, 2006, https://ww5.cityofpasadena.net/planning/wp-content/uploads/sites/56/2017/07/Green-City-Action-Plan.pdf, accessed September 24, 2021.

transportation options, and reduce risks to human health. The following actions help improve air quality and are applicable to the proposed project:

- **Action 8**: Adopt urban planning principles and practices that advance higher density, mixed use, walkable, bikeable and disabled accessible neighborhoods which coordinate land use and transportation with open space systems for recreation and ecological restoration.

THRESHOLDS OF SIGNIFICANCE

The environmental analysis in this memorandum is patterned after the Initial Study Checklist recommended by the *CEQA Guidelines*, as amended. The issues presented in the Initial Study Checklist have been utilized as thresholds of significance in this section. Accordingly, a project would have a significant environmental impact if it causes one or more of the following to occur:

- Conflict with or obstruct implementation of the applicable air quality plan (refer to Impact AQ-1);
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable Federal or State ambient air quality standard (refer to Impact AQ-2);
- Expose sensitive receptors to substantial pollutant concentrations (refer to Impact AQ-3); and/or
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people (refer to Impact AQ-4).

IMPACT ANALYSIS

Impact AQ-1: Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact. The City is located within the South Coast Air Basin. The SCAQMD has jurisdiction in the Basin, which has a history of recorded air quality violations and is an area where both State and Federal ambient air quality standards are exceeded. Areas that meet ambient air quality standards are classified as attainment areas, while areas that do not meet these standards are classified as nonattainment areas. The SCAQMD is required, pursuant to the Federal Clean Air Act, to reduce emissions of the air pollutants for which the Basin is in nonattainment.

In order to reduce emissions, the SCAQMD adopted the 2016 AQMP which establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving State and Federal air quality standards. The 2016 AQMP is a regional and multi-agency effort including the SCAQMD, CARB, the Southern California Association of Governments (SCAG), and the EPA.

The 2016 AQMP pollutant control strategies are based on the latest scientific and technical information and planning assumptions, including the *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS), updated emission inventory methodologies for various source categories, and SCAG's latest growth forecasts. SCAG's latest growth forecasts were defined in consultation with local governments and with reference to local general plans. The SCAQMD considers projects that are consistent with the AQMP, which is intended to bring the Basin into attainment for all

criteria pollutants, to also have less than significant cumulative impacts. While SCAG has recently adopted the *2020-2045 Regional Transportation Plan/Sustainable Communities Strategy* (2020-2045 RTP/SCS), SCAQMD has not released an updated AQMP that utilizes information from the 2020-2045 RTP/SCS. SCAQMD is planning to release the updated AQMP in 2022. As such, this consistency analysis is based off the 2016 AQMP and 2016-2040 RTP/SCS.

Criteria for determining consistency with the AQMP are defined by the following indicators:

Criterion 1:

With respect to the first criterion, SCAQMD methodologies require that an air quality analysis for a project include forecasts of project emissions in relation to contributing to air quality violations and delay of attainment.

a) *Would the project result in an increase in the frequency or severity of existing air quality violations?*

   Since the consistency criteria identified under the first criterion pertain to pollutant concentrations, rather than to total regional emissions, an analysis of a project's pollutant emissions relative to localized pollutant concentrations is used as the basis for evaluating project consistency. As discussed under Impact Statements AQ-2 and AQ-3, the project's short-term construction emissions, long-term operational emissions, and localized concentrations of CO, NO_X, PM_{10}, and $PM_{2.5}$ would result in less than significant impacts during project construction and operations. Therefore, the project would not result in an increase in the frequency or severity of existing air quality violations. Because VOCs are not a criteria pollutant, there is no ambient standard or localized threshold for VOCs. Due to the role VOC plays in O_3 formation, it is classified as a precursor pollutant and only a regional emissions threshold has been established. As such, the project would not cause or contribute to localized air quality violations or delay the attainment of air quality standard or interim emissions reductions specified in the 2016 AQMP.

b) *Would the project cause or contribute to new air quality violations?*

   As discussed below in Impact Statements AQ-2 and AQ-3, the proposed project would result in emissions that would be below the SCAQMD's thresholds for regional and localized emissions. Therefore, the proposed project would not have the potential to cause or contribute to a violation of the ambient air quality standards.

c) *Would the project delay timely attainment of air quality standards or the interim emissions reductions specified in the AQMP?*

   As discussed in Impact Statements AQ-2 and AQ-3, the proposed project would result in less than significant impacts with regard to localized concentrations during project construction and operation. As such, the proposed project would not delay the timely attainment of air quality standards or 2016 AQMP interim emissions reductions.

Criterion 2:

With respect to the second criterion for determining consistency with SCAQMD and SCAG air quality policies, it is important to recognize that air quality planning within the Basin focuses on attainment of

ambient air quality standards at the earliest feasible date. Projections for achieving air quality goals are based on assumptions regarding population, housing, and growth trends. Thus, the SCAQMD's second criterion for determining project consistency focuses on whether or not the proposed project exceeds the assumptions utilized in preparing the forecasts presented in the 2016 AQMP. Determining whether or not a project exceeds the assumptions reflected in the 2016 AQMP involves the evaluation of the three criteria outlined below. The following discussion provides an analysis of each of these criteria.

a) *Would the project be consistent with the population, housing, and employment growth projections utilized in the preparation of the AQMP?*

A project is consistent with the 2016 AQMP in part if it is consistent with the population, housing, and employment assumptions that were used in the development of the 2016 AQMP. In the case of the 2016 AQMP, four sources of data form the basis for the projections of air pollutant emissions: the City's General Plan, the *South Fair Oaks Specific Plan* (Specific Plan), SCAG's regional growth forecast, and the SCAG RTP/SCS. The RTP/SCS also provides socioeconomic forecast projections of regional population growth.

The project proposes the construction of an approximately 100,285 square foot mixed-use building on an approximately 1.27-acre site, which is an FAR of approximately 1.8. The project site is designated as High Mixed-Use with a maximum FAR of 3.0 by the General Plan and primary development opportunity by the Specific Plan with new developments authorized in the General Plan. The project would not differ from the General Plan or Specific Plan designations. Therefore, the proposed project is considered consistent with the General Plan, and is consistent with the types, intensity, and patterns of land use envisioned for the site vicinity.

The City's population estimate as of January 1, 2021 is 145,306 persons.[5] While the project does not involve residential development, the project would generate approximately 370 full-time equivalent jobs and could indirectly induce population growth if future employees move into the City to work at the proposed offices. While it is likely that future employees already live in the City or would commute in from neighboring jurisdictions, this analysis conservatively assumes all 370 future employees would move into the City for employment. Based on an average household size of 2.43, the project would result in an indirect population increase of approximately 899 persons.[6] SCAG growth forecasts estimate the City's population to reach 150,700 persons by 2040, representing a total increase of 10,400 persons between 2012 and 2040.[7] The project's potential indirect population growth (899 persons) represents 8.6 percent of the City's anticipated growth by 2040, and only 0.6 percent of the City's total projected 2040 population. Therefore, the project would not cause the City's General Plan buildout population forecast to be exceeded. The population, housing, and employment forecasts, which are adopted by SCAG's Regional Council, are based on the local plans and policies applicable to the City. Additionally, as the SCAQMD has incorporated these same projections into the 2016 AQMP, it can be concluded that the proposed project would be consistent with the projections.

[5] California Department of Finance, *Population and Housing Estimates for Cities, Counties, and the State, 2011-2019 with 2010 Census Benchmark*, http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/, accessed September 29, 2021.

[6] Ibid.

[7] Southern California Association of Governments, *2016-2040 RTP/SCS Final Growth Forecast by Jurisdiction*, http://www.scag.ca.gov/Documents/2016_2040RTPSCS_FinalGrowthForecastbyJurisdiction.pdf, accessed September 29, 2021.

b) *Would the project implement all feasible air quality mitigation measures?*

The proposed project would result in less than significant air quality impacts. Compliance with all feasible emission reduction rules and measures identified by the SCAQMD would be required as identified in Impact Statements AQ-2 and AQ-3. As such, the proposed project meets this 2016 AQMP consistency criterion.

c) *Would the project be consistent with the land use planning strategies set forth in the AQMP?*

Land use planning strategies set forth in the 2016 AQMP are primarily based on the 2016-2040 RTP/SCS. The project is an infill development and is located less than 0.2-mile from transit stations. Further, the project would provide bicycle parking spaces and electric vehicle charging stations on-site to promote alternative transportation options. Therefore, the project would be consistent with the actions and strategies of the 2016-2040 RTP/SCS. In addition, as discussed above, the project would be consistent with the General Plan and Specific Plan land use designation. Furthermore, project consistency with the SCAG RTP/SCS and the 2016 AQMP would promote the City's goal to protect air quality by incorporating Pasadena Open Space and Conservation Element policies and objectives. As such, the proposed project meets this AQMP consistency criterion.

In conclusion, the determination of 2016 AQMP consistency is primarily concerned with the long-term influence of a project on air quality in the Basin. The proposed project would not result in a long-term impact on the region's ability to meet State and Federal air quality standards. Also, the proposed project would be consistent with the goals and policies of the 2016 AQMP for control of fugitive dust; refer to Impact Statement AQ-2. As discussed above, the proposed project's long-term influence would also be consistent with the SCAQMD and SCAG's goals and policies and is, therefore, considered consistent with the 2016 AQMP.

Mitigation Measures: No mitigation is required.

Impact AQ-2: Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard?

Less Than Significant Impact.

Short-Term Construction

The project involves construction activities associated with demolition, grading, building construction, paving, and architectural coating applications. The project would be constructed over approximately 20 months. Exhaust emission factors for typical diesel-powered heavy equipment are based on the program defaults of the most recent version of the California Emissions Estimator Model (CalEEMod), version 2020.4.0. Variables factored into estimating the total construction emissions include the level of activity, length of construction period, number of pieces and types of equipment in use, site characteristics, weather conditions, number of construction personnel, and the amount of materials to be transported on- or off-site. The analysis of daily construction emissions has been prepared using CalEEMod. Refer to Appendix A, *Air Quality Emissions Data*, for the CalEEMod outputs and results. Table 4, *Short-Term Construction Emissions*, presents the anticipated daily short-term construction emissions.

Table 4
Short-Term Construction Emissions

Emissions Source	Maximum Daily Emissions (pounds/day)[1]					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Construction Related Emissions[2]						
Year 1	2.04	35.46	15.50	0.09	5.65	2.67
Year 2	1.78	13.01	15.15	0.03	1.45	0.76
Year 3	47.83	5.89	9.21	0.01	0.43	0.30
Maximum Daily Emissions	47.83	35.46	15.50	0.09	5.65	2.67
SCAQMD Thresholds	*75*	*100*	*550*	*150*	*150*	*55*
Is Threshold Exceeded?	*No*	*No*	*No*	*No*	*No*	*No*

Notes:
1. Emissions were calculated using CalEEMod, version 2020.4.0. Winter emissions represent the worst-case scenario.
2. Modeling assumptions include compliance with SCAQMD Rule 403 which requires: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces three times daily; cover stockpiles with tarps; water all haul roads twice daily; and limit speeds on unpaved roads to 15 miles per hour.

Source: Refer to Appendix A, for detailed model input/output data.

Fugitive Dust Emissions

Construction activities are a source of fugitive dust emissions that may have a substantial, temporary impact on local air quality. In addition, fugitive dust may be a nuisance to those living and working in the project area. Fugitive dust emissions are associated with land clearing, ground excavation, cut-and-fill, and truck travel on unpaved roadways. Fugitive dust emissions vary substantially from day to day, depending on the level of activity, specific operations, and weather conditions. Fugitive dust from demolition, grading, and construction is expected to be short-term and would cease upon project completion. It should be noted that most of this material is inert silicates, rather than the complex organic particulates released from combustion sources, which are more harmful to health.

Dust (larger than 10 microns) generated by such activities usually becomes more of a local nuisance than a serious health problem. Of particular health concern is the amount of PM_{10} generated as a part of fugitive dust emissions. PM_{10} poses a serious health hazard alone or in combination with other pollutants. $PM_{2.5}$ is mostly produced by mechanical processes. These include automobile tire wear, industrial processes such as cutting and grinding, and re-suspension of particles from the ground or road surfaces by wind and human activities such as construction or agriculture. $PM_{2.5}$ is mostly derived from combustion sources, such as automobiles, trucks, and other vehicle exhaust, as well as from stationary sources. These particles are either directly emitted or are formed in the atmosphere from the combustion of gases such as NO_X and SO_X combining with ammonia. $PM_{2.5}$ components from material in the earth's crust, such as dust, are also present, with the amount varying in different locations.

Construction activities would comply with SCAQMD Rule 403, which requires that excessive fugitive dust emissions be controlled by regular watering or other dust prevention measures. Adherence to SCAQMD Rule 403 would greatly reduce PM_{10} and $PM_{2.5}$ concentrations. It should be noted that these reductions were applied in CalEEMod. As depicted in Table 4, total PM_{10} and $PM_{2.5}$ emissions would not exceed the SCAQMD thresholds during construction. Thus, construction-related air quality impacts from fugitive dust emissions would be less than significant.

Construction Equipment and Worker Vehicle Exhaust

Exhaust emissions (e.g., NO_x and CO) from construction activities include emissions associated with the transport of machinery and supplies to and from the project site, emissions produced on-site as the equipment is used, and emissions from trucks transporting materials to/from the site. As presented in Table 4, construction equipment and worker vehicle exhaust emissions would be below the established SCAQMD thresholds. Therefore, air quality impacts from equipment and vehicle exhaust emission would be less than significant.

ROG Emissions

In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are O_3 precursors. As required, all architectural coatings for the proposed project structure would comply with SCAQMD *Regulation XI, Rule 1113 – Architectural Coating*. Rule 1113 provides specifications on painting practices as well as regulates the ROG content of paint. ROG emissions associated with the proposed project would be less than significant; refer to Table 4.

Total Daily Construction Emissions

In accordance with the SCAQMD Guidelines, CalEEMod was utilized to model construction emissions for ROG, NO_X, CO, SO_X, PM_{10}, and $PM_{2.5}$. As indicated in Table 4, criteria pollutant emissions during construction of the proposed project would not exceed the SCAQMD significance thresholds. Thus, total construction related air emissions would be less than significant.

Asbestos

Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by State, Federal, and international agencies and was identified as a toxic air contaminant by the CARB in 1986.

Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects, and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All of these activities may have the effect of releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed. According to the Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report*[8], serpentinite and ultramafic rocks are not known to occur within the project area. Thus, there would be no impact in this regard.

[8] Department of Conservation Division of Mines and Geology, *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report*, August 2000, https://ww3.arb.ca.gov/toxics/asbestos/ofr_2000-019.pdf, accessed September 29, 2021.

Long-Term (Operational) Emissions

Long-term air quality impacts would consist of mobile source emissions generated from project-related traffic, and emissions from stationary area and energy sources. Two CalEEMod models were conducted to calculate the long-term emissions from the operation of the existing retail building (i.e., existing conditions) and the proposed project, respectively. The net increase of total emissions represents the project-generated emissions. Emissions from each source and the net increase of total emissions are shown in Table 5, *Long-Term Operational Air Emissions* and discussed in more detail below.

Table 5
Long-Term Operational Air Emissions

Emissions Source	Maximum Daily Emissions (lbs/day)[1, 2]					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Existing Conditions Winter Emissions						
Area Source	0.41	<0.01	<0.01	<0.01	<0.01	<0.01
Energy Source	<0.01	0.01	0.01	<0.01	<0.01	<0.01
Mobile	2.92	3.43	24.82	0.05	4.70	1.29
Total Emissions	3.33	3.44	24.82	0.05	4.70	1.29
Proposed Project Winter Emissions						
Area Source[3]	2.15	<0.01	0.02	<0.01	<0.01	<0.01
Energy Source[4]	0.03	0.26	0.22	<0.01	0.02	0.02
Mobile	6.84	7.65	65.06	0.14	15.52	4.21
Total Emissions	9.02	7.91	65.30	0.14	15.54	4.23
Net Increase of Total Emissions	*5.69*	*4.47*	*40.48*	*0.10*	*10.84*	*2.94*
SCAQMD Regional Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	No	No	No	No	No	No
Existing Conditions Summer Emissions						
Area Source	0.41	<0.01	<0.01	<0.01	<0.01	<0.01
Energy Source	0.00	0.01	0.01	<0.01	<0.01	<0.01
Mobile	3.05	3.21	25.31	0.05	4.70	1.29
Total Emissions	3.46	3.22	25.31	0.05	4.70	1.29
Proposed Project Summer Emissions						
Area Source[3]	2.15	<0.01	0.02	<0.01	<0.01	<0.01
Energy Source[4]	0.03	0.26	0.22	<0.01	0.02	0.02
Mobile	7.13	7.12	66.91	0.15	15.52	4.21
Total Emissions	9.30	7.38	67.15	0.15	15.54	4.23
Net Increase of Total Emissions	*5.84*	*4.16*	*41.84*	*0.10*	*10.84*	*2.94*
SCAQMD Regional Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Threshold Exceeded?	No	No	No	No	No	No

Notes:
1. Emissions were calculated using CalEEMod, version 2020.4.0.
2. The numbers may be slightly off due to rounding.
3. Area source emissions account for the project design feature of using all electric landscape equipment.
4. Energy source emissions account for project design features, including 5 percent more energy efficient that 2019 Title 24 standards and using energy efficient appliances.

Source: Refer to Appendix A, for detailed model input/output data.

Area Source Emissions

Area source emissions would be generated from consumer products, architectural coating, and landscaping. The project would use all electric landscape equipment as a project design feature, which has been incorporated in CalEEMod. As shown in Table 5, area source emissions from the proposed project would not exceed SCAQMD thresholds for ROG, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$.

Energy Source Emissions

Energy source emissions would be generated as a result of electricity and natural gas (non-hearth) usage associated with the proposed project. The primary use of electricity and natural gas by the project would be for space heating and cooling, water heating, ventilation, lighting, appliances, and electronics. The project would include energy efficiency project design features, including 5 percent more efficient than 2019 Title 24 standards and installation of energy efficient appliances, which have been incorporated in CalEEMod. As shown in Table 5, energy source emissions from the proposed project would not exceed SCAQMD thresholds for ROG, NO_X, CO, SO_X, PM_{10}, or $PM_{2.5}$.

Mobile Source Emissions

Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Depending upon the pollutant being discussed, the potential air quality impact may be of either regional or local concern. For example, ROG, NO_X, SO_X, PM_{10}, and $PM_{2.5}$ are all pollutants of regional concern (NO_X and ROG react with sunlight to form O_3 [photochemical smog], and wind currents readily transport SO_X, PM_{10}, and $PM_{2.5}$); however, CO tends to be a localized pollutant, dispersing rapidly at the source.

Project-generated vehicle emissions were estimated using CalEEMod. Based on the *Huntington Medical Building Transportation Impact Analysis Outside CEQA Evaluation Final Report* (Transportation Impact Analysis), prepared by Iteris Incorporated (dated October 2021), the existing use on-site generates 1,158 daily trips, and the proposed project would generate 2,690 daily trips. Therefore, the project would generate a net increase of 1,532 average daily trips, including 163 trips during the a.m. peak hour and 146 trips during the p.m. peak hour. Table 5 presents the anticipated mobile source emissions. As shown in Table 5, emissions generated by vehicle traffic associated with the project would not exceed established SCAQMD thresholds. Impacts from mobile source air emissions would be less than significant.

Air Quality Health Impacts

Adverse health effects induced by criteria pollutant emissions are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, and the number and character of exposed individual [e.g., age, gender]). In particular, ozone precursors ROGs and NO_x affect air quality on a regional scale. Health effects related to ozone are therefore the product of emissions generated by numerous sources throughout a region. Existing models have limited sensitivity to small changes in criteria pollutant concentrations, and, as such, translating project-generated criteria pollutants to specific health effects or additional days of nonattainment would produce meaningless results. In other words, the project's less than significant increases in regional air pollution from criteria air pollutants would have nominal or negligible impacts on human health.

As noted in the Brief of Amicus Curiae by the SCAQMD,[9] the SCAQMD acknowledged that it would be extremely difficult, if not impossible to quantify health impacts of criteria pollutants for various reasons including modeling limitations as well as where in the atmosphere air pollutants interact and form. Further, as noted in the Brief of Amicus Curiae by the San Joaquin Valley Air Pollution Control District (SJVAPCD),[10] SJVAPCD has acknowledged that currently available modeling tools are not equipped to provide a meaningful analysis of the correlation between an individual development project's air emissions and specific human health impacts.

The SCAQMD acknowledges that health effects quantification from ozone, as an example is correlated with the increases in ambient level of ozone in the air (concentration) that an individual person breathes. SCAQMD's Brief of Amicus Curiae states that it would take a large amount of additional emissions to cause a modeled increase in ambient ozone levels over the entire region. The SCAQMD states that based on their own modeling in the SCAQMD's *2012 Air Quality Management Plan*, a reduction of 432 tons (864,000 pounds) per day of NO_X and a reduction of 187 tons (374,000 pounds) per day of VOCs would reduce ozone levels at highest monitored site by only nine parts per billion. As such, the SCAQMD concludes that it is not currently possible to accurately quantify ozone-related health impacts caused by NO_X or VOC emissions from relatively small projects (defined as projects with regional scope) due to photochemistry and regional model limitations. As such, for the purpose of this analysis, since the project would not exceed SCAQMD thresholds for construction and operational air emissions, the project would have a less than significant impact for air quality health impacts as well.

Cumulative Conclusion

With respect to the proposed project's air quality emissions and cumulative Basin-wide conditions, the SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the 2016 AQMP pursuant to Federal Clean Air Act mandates. As such, the proposed project would comply with SCAQMD Rule 403 requirements and the adopted 2016 AQMP emissions control measures. Rule 403 requires that fugitive dust be controlled with the best available control measures in order to reduce dust so that it does not remain visible in the atmosphere beyond the property line of the proposed project. Per SCAQMD rules and mandates, as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements (i.e., Rule 403 compliance, the implementation of all feasible mitigation measures, and compliance with adopted 2016 AQMP emissions control measures) would also be imposed on development projects throughout the Basin, which would include related projects.

According to the *SCAQMD CEQA Air Quality Handbook*, project-related emissions that fall below the established construction and operational thresholds should be considered less than significant unless there is pertinent information to the contrary. As discussed previously, the proposed project would not result in short- or long-term air quality impacts, as emissions would not exceed the SCAQMD adopted construction or operational thresholds. Additionally, adherence to SCAQMD rules and regulations would alleviate potential impacts related to cumulative conditions on a project-by-project basis. As a result, the proposed project would not contribute a cumulatively considerable net increase of any nonattainment

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[9] South Coast Air Quality Management District, *Application of the South Coast Air Quality Management District for Leave to File Brief of Amicus Curiae in Support of Neither Party and Brief of Amicus Curiae. In the Supreme Court of California. Sierra Club, Revive the San Joaquin, and League of Women Voters of Fresno v. County of Fresno*, 2014.

[10] San Joaquin Valley Air Pollution Control District, *Application for Leave to File Brief of Amicus Curiae Brief of San Joaquin Valley Unified Air Pollution Control District in Support of Defendant and Respondent, County of Fresno and Real Party In Interest and Respondent, Friant Ranch, L.P. In the Supreme Court of California. Sierra Club, Revive the San Joaquin, and League of Women Voters of Fresno v. County of Fresno*, 2014.

criteria pollutant. Therefore, the project's incremental construction and operational impacts would be less than cumulatively considerable and impacts in this regard are less than significant.

Mitigation Measures: No mitigation is required.

Impact AQ-3: Would the project expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

The closest sensitive receptor for the LST analysis is the nursing home located approximately 130 feet to the north of the project site. In order to identify impacts to sensitive receptors, the SCAQMD recommends addressing LSTs for construction and operations impacts (area sources only). The CO hotspot analysis, following the LST analysis, addresses localized mobile source impacts.

Localized Significance Thresholds

LSTs were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the Final Localized Significance Threshold Methodology (dated June 2003 [revised 2008])[11] for guidance. The LST methodology assists lead agencies in analyzing localized air quality impacts. The SCAQMD provides the LST screening lookup tables for one-, two-, and five-acre projects emitting CO, NO_X, $PM_{2.5}$, or PM_{10}. The LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources traveling over the roadways. The project is located in SRA 8 (West San Gabriel Valley).

Construction

The SCAQMD's guidance on applying CalEEMod to LSTs specifies the number of acres a particular piece of equipment would likely disturb per day. Based on default information provided by CalEEMod, the project is anticipated to disturb up to 48 acres during the grading phase. The grading phase would take approximately 48 days to complete. As such, the project would actively disturb an average of approximately one acre per day (48 acres divided by 48 days). Therefore, the LST thresholds for one acre was utilized for the construction LST analysis per SCAQMD guidance. The nearest sensitive use is the nursing home located approximately 130 feet (39.6 meters) to the north of the project site. Therefore, the LSTs for 25 meters were conservatively adopted. Table 6, *Localized Significance of Construction Emissions*, shows the localized construction-related emissions. It is noted that the localized emissions presented in Table 6 are less than those in Table 4 because localized emissions include only on-site emissions (i.e., from construction equipment and fugitive dust). As seen in Table 6, emissions would not exceed the LST mass rate screening thresholds for SRA 8. Construction LST impacts would be less than significant in this regard.

[11] South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, July 2008.

Table 6
Localized Significance of Construction Emissions

Maximum Emissions	Maximum Daily Emissions (pounds/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Year 1[1,4]	16.98	13.96	3.40	1.96
Year 2[2,4]	11.71	12.61	0.51	0.50
Year 3[3,4]	5.86	8.83	0.28	0.26
Maximum Daily Emissions	16.98	13.96	3.40	1.96
Localized Significance Threshold Mass Rate Screening Criteria[3]	69	535	4	3
Thresholds Exceeded?	*No*	*No*	*No*	*No*

Note:
1. Maximum on-site daily emissions occur during grading phase for NOx, PM_{10}, and $PM_{2.5}$, and during demolition phase for CO in Year 1.
2. Maximum on-site daily emissions occur during building construction phase for NOx, CO, PM_{10}, and $PM_{2.5}$ in Year 2.
3. Maximum on-site daily emissions occur during paving phase for NOx, CO, PM_{10}, and $PM_{2.5}$ in Year 3.
4. Modeling assumptions include compliance with SCAQMD Rule 403 which requires: properly maintain mobile and other construction equipment; replace ground cover in disturbed areas quickly; water exposed surfaces three times daily; cover stock piles with tarps; water all haul roads twice daily; and limit speeds on unpaved roads to 15 miles per hour.
5. The Localized Significance Threshold Mass Rate Screening Criteria was determined using Appendix C of the SCAQMD *Final Localized Significant Threshold Methodology* guidance document for pollutants NO_X, CO, PM_{10}, and $PM_{2.5}$. The Localized Significance Threshold Mass Rate Screening Threshold was based on the anticipated daily acreage disturbance for construction (one acre), the distance to sensitive receptors (25 meters), and the source receptor area (SRA 8).

Operations

According to SCAQMD localized significance threshold methodology, LSTs would apply to the operational phase of a proposed project if the project includes stationary sources or attracts mobile sources that may spend extended periods queuing and idling at the site (e.g., warehouse or transfer facilities). The proposed project does not include such uses. Thus, due to the lack of such emissions, no long-term localized significance threshold analysis is necessary. Operational LST impacts would be less than significant in this regard.

Carbon Monoxide Hotspots

CO emissions are a function of vehicle idling time, meteorological conditions, and traffic flow. Under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthful levels (i.e., adversely affecting residents, school children, hospital patients, the elderly, etc.).

The SCAQMD recommends a quantified assessment of CO hotspots when a project increases the volume-to-capacity ratio (also called the intersection capacity utilization) by 0.02 (two percent) for any intersection with an existing level of service (LOS) D or worse. Because traffic congestion is highest at intersections where vehicles queue and are subject to reduced speeds, these hot spots are typically produced at intersections.

The Basin is designated as an attainment/maintenance area for the Federal CO standards and an attainment area for State standards. There has been a decline in CO emissions even though vehicle miles traveled on U.S. urban and rural roads have increased. Nationwide estimated anthropogenic CO emissions have decreased 68 percent between 1990 and 2014. In 2014, mobile sources accounted for 82 percent of

the nation's total anthropogenic CO emissions.[12] CO emissions have continued to decline since this time. The Basin was re-designated as attainment in 2007 and CO is no longer addressed in the SCAQMD's AQMP. Three major control programs have contributed to the reduced per-vehicle CO emissions: exhaust standards, cleaner burning fuels, and motor vehicle inspection/maintenance programs.

A detailed CO analysis was conducted in the Federal Attainment Plan for Carbon Monoxide (CO Plan) for the SCAQMD's *2003 Air Quality Management Plan*, which is the most recent AQMP that addresses CO concentrations. The locations selected for microscale modeling in the CO Plan are worst-case intersections in the Basin and would likely experience the highest CO concentrations. Thus, CO analysis within the CO Plan is utilized in a comparison to the proposed project, since it represents a worst-case scenario with heavy traffic volumes within the Basin.

Of these locations, the Wilshire Boulevard/Veteran Avenue intersection in Los Angeles County experienced the highest CO concentration (4.6 parts per million [ppm]), which is well below the 35-ppm one-hour CO Federal standard. The Wilshire Boulevard/Veteran Avenue intersection is one of the most congested intersections in Southern California with an ADT volume of approximately 100,000 vehicles per day. As the CO hotspots were not experienced at the Wilshire Boulevard/Veteran Avenue intersection, it can be reasonably inferred that CO hotspots would not be experienced at any intersections within the City near the project site due to the comparatively low volume of traffic (a net increase of 1,532 average daily trips, including 163 trips during the a.m. peak hour and 146 trips during the p.m. peak hour) that would occur as a result of project implementation. Therefore, impacts would be less than significant in this regard.

Mitigation Measures: No mitigation is required.

Impact AQ-4: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less Than Significant Impact. According to the SCAQMD *CEQA Air Quality Handbook*, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. The proposed project does not include any uses identified by the SCAQMD as being associated with odors.

Construction activities associated with the project may generate detectable odors from heavy-duty equipment exhaust and architectural coatings. However, construction-related odors would be short-term in nature and cease upon project completion. In addition, the project would be required to comply with the California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485, which minimizes the idling time of construction equipment either by shutting it off when not in use or by reducing the time of idling to no more than five minutes. This would further reduce the detectable odors from heavy-duty equipment exhaust. The project would also comply with the SCAQMD Regulation XI, *Rule 1113 – Architectural Coating*, which would minimize odor impacts from ROG emissions during architectural coating. Any impacts to existing adjacent land uses would be short-term and are less than significant.

Mitigation Measures: No mitigation is required.

[12] United States Environmental Protection Agency, *Carbon Monoxide Emissions*, https://cfpub.epa.gov/roe/indicator_pdf.cfm?i=10, accessed September 29, 2021.

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Appendix A

Air Quality Emissions Data

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Huntington Hospital MOB

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Medical Office Building	80.29	1000sqft	1.27	80,285.00	0
General Office Building	20.00	1000sqft	0.00	20,000.00	0
Unenclosed Parking with Elevator	202.00	Space	0.00	80,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	12			**Operational Year**	2024
Utility Company	Pasadena Water and Power				
CO2 Intensity (lb/MWhr)	872.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site about 1.27 acres total

Construction Phase - per construction questionnaire; paving and coating duration is default

Grading -

Demolition - 148 ft*135 ft*16 ft*0.0046 [ton of waste/ft^3 building volume]

Architectural Coating - SCAQMD Rule 1113

Vehicle Trips - 2690 total project generated trips

Area Coating - SCAQMD Rule 1113

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Area Mitigation - all electric landscape equipment

Huntington Hospital MOB - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Energy Mitigation - Project design feature: 5% over Title 24, energy efficient appliances

Water Mitigation - water efficiency project design features

Waste Mitigation - AB 341

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Parking	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblAreaCoating	Area_EF_Parking	100	50
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	50	100
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	50	100
tblAreaMitigation	UseLowVOCPaintParkingValue	50	100
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	340.00
tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	4.00	48.00
tblConstructionPhase	PhaseEndDate	5/10/2023	1/26/2024
tblConstructionPhase	PhaseEndDate	4/12/2023	12/29/2023
tblConstructionPhase	PhaseEndDate	6/28/2022	7/5/2022
tblConstructionPhase	PhaseEndDate	7/6/2022	9/9/2022
tblConstructionPhase	PhaseEndDate	4/26/2023	1/12/2024
tblConstructionPhase	PhaseStartDate	4/27/2023	1/13/2024
tblConstructionPhase	PhaseStartDate	7/7/2022	9/10/2022
tblConstructionPhase	PhaseStartDate	7/1/2022	7/6/2022
tblConstructionPhase	PhaseStartDate	4/13/2023	12/30/2023
tblGrading	MaterialExported	0.00	43,500.00
tblLandUse	LotAcreage	1.84	1.27

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblLandUse	LotAcreage	0.46	0.00
tblLandUse	LotAcreage	1.82	0.00
tblVehicleTrips	ST_TR	2.21	26.83
tblVehicleTrips	ST_TR	8.57	26.83
tblVehicleTrips	SU_TR	0.70	26.83
tblVehicleTrips	SU_TR	1.42	26.83
tblVehicleTrips	WD_TR	9.74	26.83
tblVehicleTrips	WD_TR	34.80	26.83

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	2.0420	35.4627	15.4996	0.0901	9.2785	0.8910	10.1695	4.0131	0.8252	4.8383	0.0000	9,615.9454	9,615.9454	1.0513	1.1970	9,998.9243
2023	1.7776	13.0081	15.1545	0.0336	0.9298	0.5250	1.4548	0.2510	0.5068	0.7577	0.0000	3,213.8841	3,213.8841	0.4145	0.1012	3,253.4295
2024	47.8277	5.8879	9.2115	0.0147	0.1453	0.2818	0.4271	0.0385	0.2601	0.2987	0.0000	1,417.9343	1,417.9343	0.4143	2.9000e-003	1,429.1562
Maximum	**47.8277**	**35.4627**	**15.4996**	**0.0901**	**9.2785**	**0.8910**	**10.1695**	**4.0131**	**0.8252**	**4.8383**	**0.0000**	**9,615.9454**	**9,615.9454**	**1.0513**	**1.1970**	**9,998.9243**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	2.0420	35.4627	15.4996	0.0901	4.7555	0.8910	5.6465	1.8474	0.8252	2.6726	0.0000	9,615.9454	9,615.9454	1.0513	1.1970	9,998.9243
2023	1.7776	13.0081	15.1545	0.0336	0.9298	0.5250	1.4548	0.2510	0.5068	0.7577	0.0000	3,213.8841	3,213.8841	0.4145	0.1012	3,253.4295
2024	47.8277	5.8879	9.2115	0.0147	0.1453	0.2818	0.4271	0.0385	0.2601	0.2987	0.0000	1,417.9343	1,417.9343	0.4143	2.9000e-003	1,429.1562
Maximum	**47.8277**	**35.4627**	**15.4996**	**0.0901**	**4.7555**	**0.8910**	**5.6465**	**1.8474**	**0.8252**	**2.6726**	**0.0000**	**9,615.9454**	**9,615.9454**	**1.0513**	**1.1970**	**9,998.9243**

Huntington Hospital MOB - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**43.69**	**0.00**	**37.53**	**50.33**	**0.00**	**36.74**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.1475	2.8000e-004	0.0308	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0662	0.0662	1.7000e-004		0.0705
Energy	0.0306	0.2777	0.2333	1.6700e-003		0.0211	0.0211		0.0211	0.0211		333.2597	333.2597	6.3900e-003	6.1100e-003	335.2401
Mobile	6.8407	7.6453	65.0594	0.1409	15.4149	0.1059	15.5208	4.1078	0.0985	4.2063		14,602.9777	14,602.9777	0.9949	0.6669	14,826.5910
Total	**9.0188**	**7.9233**	**65.3235**	**0.1425**	**15.4149**	**0.1271**	**15.5420**	**4.1078**	**0.1197**	**4.2275**		**14,936.3036**	**14,936.3036**	**1.0015**	**0.6730**	**15,161.9016**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.1459	1.6000e-004	0.0179	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0357	0.0357	7.0000e-005		0.0375
Energy	0.0291	0.2644	0.2221	1.5900e-003		0.0201	0.0201		0.0201	0.0201		317.2271	317.2271	6.0800e-003	5.8200e-003	319.1122
Mobile	6.8407	7.6453	65.0594	0.1409	15.4149	0.1059	15.5208	4.1078	0.0985	4.2063		14,602.9777	14,602.9777	0.9949	0.6669	14,826.5910
Total	**9.0157**	**7.9098**	**65.2993**	**0.1424**	**15.4149**	**0.1261**	**15.5410**	**4.1078**	**0.1186**	**4.2264**		**14,920.2404**	**14,920.2404**	**1.0010**	**0.6727**	**15,145.7407**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.03**	**0.17**	**0.04**	**0.06**	**0.00**	**0.85**	**0.01**	**0.00**	**0.90**	**0.03**	**0.00**	**0.11**	**0.11**	**0.04**	**0.04**	**0.11**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2022	7/5/2022	5	25	
2	Grading	Grading	7/6/2022	9/9/2022	5	48	
3	Building Construction	Building Construction	9/10/2022	12/29/2023	5	340	
4	Paving	Paving	12/30/2023	1/12/2024	5	10	
5	Architectural Coating	Architectural Coating	1/13/2024	1/26/2024	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 48

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 150,428; Non-Residential Outdoor: 50,143; Striped Parking Area: 4,848 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

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	145.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	5,438.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	66.00	30.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2591	0.0000	1.2591	0.1906	0.0000	0.1906			0.0000			0.0000
Off-Road	1.6889	16.6217	13.9605	0.0241		0.8379	0.8379		0.7829	0.7829		2,323.4168	2,323.4168	0.5921		2,338.2191
Total	**1.6889**	**16.6217**	**13.9605**	**0.0241**	**1.2591**	**0.8379**	**2.0970**	**0.1906**	**0.7829**	**0.9735**		**2,323.4168**	**2,323.4168**	**0.5921**		**2,338.2191**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0238	0.9447	0.2203	3.5100e-003	0.1015	7.5800e-003	0.1090	0.0278	7.2500e-003	0.0351		385.1694	385.1694	0.0206	0.0612	403.9071
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
Worker	0.0471	0.0345	0.4486	1.2400e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		126.0097	126.0097	3.5200e-003	3.3700e-003	127.1033
Total	**0.0709**	**0.9792**	**0.6689**	**4.7500e-003**	**0.2468**	**8.4500e-003**	**0.2552**	**0.0664**	**8.0500e-003**	**0.0744**		**511.1791**	**511.1791**	**0.0242**	**0.0645**	**531.0103**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4665	0.0000	0.4665	0.0706	0.0000	0.0706			0.0000			0.0000
Off-Road	1.6889	16.6217	13.9605	0.0241		0.8379	0.8379		0.7829	0.7829	0.0000	2,323.4168	2,323.4168	0.5921		2,338.2191
Total	**1.6889**	**16.6217**	**13.9605**	**0.0241**	**0.4665**	**0.8379**	**1.3044**	**0.0706**	**0.7829**	**0.8535**	**0.0000**	**2,323.4168**	**2,323.4168**	**0.5921**		**2,338.2191**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0238	0.9447	0.2203	3.5100e-003	0.1015	7.5800e-003	0.1090	0.0278	7.2500e-003	0.0351		385.1694	385.1694	0.0206	0.0612	403.9071
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
Worker	0.0471	0.0345	0.4486	1.2400e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		126.0097	126.0097	3.5200e-003	3.3700e-003	127.1033
Total	**0.0709**	**0.9792**	**0.6689**	**4.7500e-003**	**0.2468**	**8.4500e-003**	**0.2552**	**0.0664**	**8.0500e-003**	**0.0744**		**511.1791**	**511.1791**	**0.0242**	**0.0645**	**531.0103**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1851	0.0000	7.1851	3.4403	0.0000	3.4403			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829		1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**7.1851**	**0.7423**	**7.9274**	**3.4403**	**0.6829**	**4.1232**		**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4655	18.4526	4.3037	0.0686	1.9817	0.1481	2.1297	0.5432	0.1417	0.6849		7,523.5324	7,523.5324	0.4033	1.1944	7,889.5356
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
Worker	0.0362	0.0265	0.3451	9.5000e-004	0.1118	6.7000e-004	0.1124	0.0296	6.1000e-004	0.0303		96.9305	96.9305	2.7000e-003	2.6000e-003	97.7717
Total	**0.5017**	**18.4791**	**4.6487**	**0.0695**	**2.0935**	**0.1487**	**2.2422**	**0.5728**	**0.1423**	**0.7151**		**7,620.4629**	**7,620.4629**	**0.4060**	**1.1970**	**7,987.3073**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6621	0.0000	2.6621	1.2746	0.0000	1.2746			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829	0.0000	1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**2.6621**	**0.7423**	**3.4044**	**1.2746**	**0.6829**	**1.9575**	**0.0000**	**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4655	18.4526	4.3037	0.0686	1.9817	0.1481	2.1297	0.5432	0.1417	0.6849		7,523.5324	7,523.5324	0.4033	1.1944	7,889.5356
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
Worker	0.0362	0.0265	0.3451	9.5000e-004	0.1118	6.7000e-004	0.1124	0.0296	6.1000e-004	0.0303		96.9305	96.9305	2.7000e-003	2.6000e-003	97.7717
Total	**0.5017**	**18.4791**	**4.6487**	**0.0695**	**2.0935**	**0.1487**	**2.2422**	**0.5728**	**0.1423**	**0.7151**		**7,620.4629**	**7,620.4629**	**0.4060**	**1.1970**	**7,987.3073**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689		2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**		**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0537	1.4569	0.4958	5.7400e-003	0.1921	0.0147	0.2067	0.0553	0.0140	0.0693		617.3169	617.3169	0.0206	0.0896	644.5238
Worker	0.2391	0.1749	2.2774	6.2900e-003	0.7377	4.4100e-003	0.7421	0.1957	4.0600e-003	0.1997		639.7416	639.7416	0.0179	0.0171	645.2934
Total	**0.2929**	**1.6318**	**2.7732**	**0.0120**	**0.9298**	**0.0191**	**0.9489**	**0.2510**	**0.0181**	**0.2690**		**1,257.0585**	**1,257.0585**	**0.0385**	**0.1067**	**1,289.8172**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689	0.0000	2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**	**0.0000**	**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0537	1.4569	0.4958	5.7400e-003	0.1921	0.0147	0.2067	0.0553	0.0140	0.0693		617.3169	617.3169	0.0206	0.0896	644.5238
Worker	0.2391	0.1749	2.2774	6.2900e-003	0.7377	4.4100e-003	0.7421	0.1957	4.0600e-003	0.1997		639.7416	639.7416	0.0179	0.0171	645.2934
Total	**0.2929**	**1.6318**	**2.7732**	**0.0120**	**0.9298**	**0.0191**	**0.9489**	**0.2510**	**0.0181**	**0.2690**		**1,257.0585**	**1,257.0585**	**0.0385**	**0.1067**	**1,289.8172**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**		**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0318	1.1430	0.4426	5.4700e-003	0.1921	6.3700e-003	0.1985	0.0553	6.1000e-003	0.0614		589.1561	589.1561	0.0197	0.0854	615.0869
Worker	0.2226	0.1547	2.1008	6.0900e-003	0.7377	4.1500e-003	0.7419	0.1957	3.8200e-003	0.1995		622.9403	622.9403	0.0161	0.0158	628.0569
Total	**0.2543**	**1.2978**	**2.5434**	**0.0116**	**0.9298**	**0.0105**	**0.9404**	**0.2510**	**9.9200e-003**	**0.2609**		**1,212.0964**	**1,212.0964**	**0.0357**	**0.1012**	**1,243.1438**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**	**0.0000**	**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0318	1.1430	0.4426	5.4700e-003	0.1921	6.3700e-003	0.1985	0.0553	6.1000e-003	0.0614		589.1561	589.1561	0.0197	0.0854	615.0869
Worker	0.2226	0.1547	2.1008	6.0900e-003	0.7377	4.1500e-003	0.7419	0.1957	3.8200e-003	0.1995		622.9403	622.9403	0.0161	0.0158	628.0569
Total	**0.2543**	**1.2978**	**2.5434**	**0.0116**	**0.9298**	**0.0105**	**0.9404**	**0.2510**	**9.9200e-003**	**0.2609**		**1,212.0964**	**1,212.0964**	**0.0357**	**0.1012**	**1,243.1438**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6446**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**		**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0438	0.0305	0.4138	1.2000e-003	0.1453	8.2000e-004	0.1461	0.0385	7.5000e-004	0.0393		122.7004	122.7004	3.1600e-003	3.1200e-003	123.7082
Total	**0.0438**	**0.0305**	**0.4138**	**1.2000e-003**	**0.1453**	**8.2000e-004**	**0.1461**	**0.0385**	**7.5000e-004**	**0.0393**		**122.7004**	**122.7004**	**3.1600e-003**	**3.1200e-003**	**123.7082**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6446**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**	**0.0000**	**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0438	0.0305	0.4138	1.2000e-003	0.1453	8.2000e-004	0.1461	0.0385	7.5000e-004	0.0393		122.7004	122.7004	3.1600e-003	3.1200e-003	123.7082
Total	**0.0438**	**0.0305**	**0.4138**	**1.2000e-003**	**0.1453**	**8.2000e-004**	**0.1461**	**0.0385**	**7.5000e-004**	**0.0393**		**122.7004**	**122.7004**	**3.1600e-003**	**3.1200e-003**	**123.7082**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6180	5.8607	8.8253	0.0136		0.2810	0.2810		0.2594	0.2594		1,297.8688	1,297.8688	0.4114		1,308.1547
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6180**	**5.8607**	**8.8253**	**0.0136**		**0.2810**	**0.2810**		**0.2594**	**0.2594**		**1,297.8688**	**1,297.8688**	**0.4114**		**1,308.1547**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0411	0.0272	0.3862	1.1600e-003	0.1453	7.8000e-004	0.1461	0.0385	7.2000e-004	0.0393		120.0655	120.0655	2.8700e-003	2.9000e-003	121.0015
Total	**0.0411**	**0.0272**	**0.3862**	**1.1600e-003**	**0.1453**	**7.8000e-004**	**0.1461**	**0.0385**	**7.2000e-004**	**0.0393**		**120.0655**	**120.0655**	**2.8700e-003**	**2.9000e-003**	**121.0015**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6180	5.8607	8.8253	0.0136		0.2810	0.2810		0.2594	0.2594	0.0000	1,297.8688	1,297.8688	0.4114		1,308.1547
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6180**	**5.8607**	**8.8253**	**0.0136**		**0.2810**	**0.2810**		**0.2594**	**0.2594**	**0.0000**	**1,297.8688**	**1,297.8688**	**0.4114**		**1,308.1547**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0411	0.0272	0.3862	1.1600e-003	0.1453	7.8000e-004	0.1461	0.0385	7.2000e-004	0.0393		120.0655	120.0655	2.8700e-003	2.9000e-003	121.0015
Total	**0.0411**	**0.0272**	**0.3862**	**1.1600e-003**	**0.1453**	**7.8000e-004**	**0.1461**	**0.0385**	**7.2000e-004**	**0.0393**		**120.0655**	**120.0655**	**2.8700e-003**	**2.9000e-003**	**121.0015**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.6059					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**47.7866**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0411	0.0272	0.3862	1.1600e-003	0.1453	7.8000e-004	0.1461	0.0385	7.2000e-004	0.0393		120.0655	120.0655	2.8700e-003	2.9000e-003	121.0015
Total	**0.0411**	**0.0272**	**0.3862**	**1.1600e-003**	**0.1453**	**7.8000e-004**	**0.1461**	**0.0385**	**7.2000e-004**	**0.0393**		**120.0655**	**120.0655**	**2.8700e-003**	**2.9000e-003**	**121.0015**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.6059					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**47.7866**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0411	0.0272	0.3862	1.1600e-003	0.1453	7.8000e-004	0.1461	0.0385	7.2000e-004	0.0393		120.0655	120.0655	2.8700e-003	2.9000e-003	121.0015
Total	**0.0411**	**0.0272**	**0.3862**	**1.1600e-003**	**0.1453**	**7.8000e-004**	**0.1461**	**0.0385**	**7.2000e-004**	**0.0393**		**120.0655**	**120.0655**	**2.8700e-003**	**2.9000e-003**	**121.0015**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	lb/day										lb/day					
Mitigated	6.8407	7.6453	65.0594	0.1409	15.4149	0.1059	15.5208	4.1078	0.0985	4.2063		14,602.9777	14,602.9777	0.9949	0.6669	14,826.5910
Unmitigated	6.8407	7.6453	65.0594	0.1409	15.4149	0.1059	15.5208	4.1078	0.0985	4.2063		14,602.9777	14,602.9777	0.9949	0.6669	14,826.5910

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	536.60	536.60	536.60	1,728,636	1,728,636
Medical Office Building	2,154.05	2,154.05	2154.05	5,587,292	5,587,292
Unenclosed Parking with Elevator	0.00	0.00	0.00		
Total	2,690.65	2,690.65	2,690.65	7,315,928	7,315,928

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Medical Office Building	16.60	8.40	6.90	29.60	51.40	19.00	60	30	10
Unenclosed Parking with	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721
Medical Office Building	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721
Unenclosed Parking with Elevator	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0291	0.2644	0.2221	1.5900e-003		0.0201	0.0201		0.0201	0.0201		317.2271	317.2271	6.0800e-003	5.8200e-003	319.1122
NaturalGas Unmitigated	0.0306	0.2777	0.2333	1.6700e-003		0.0211	0.0211		0.0211	0.0211		333.2597	333.2597	6.3900e-003	6.1100e-003	335.2401

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	564.932	6.0900e-003	0.0554	0.0465	3.3000e-004		4.2100e-003	4.2100e-003		4.2100e-003	4.2100e-003		66.4625	66.4625	1.2700e-003	1.2200e-003	66.8575
Medical Office Building	2267.78	0.0245	0.2223	0.1868	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.7972	266.7972	5.1100e-003	4.8900e-003	268.3827
Unenclosed 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
Total		**0.0306**	**0.2777**	**0.2333**	**1.6600e-003**		**0.0211**	**0.0211**		**0.0211**	**0.0211**		**333.2597**	**333.2597**	**6.3800e-003**	**6.1100e-003**	**335.2401**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	0.537753	5.8000e-003	0.0527	0.0443	3.2000e-004		4.0100e-003	4.0100e-003		4.0100e-003	4.0100e-003		63.2651	63.2651	1.2100e-003	1.1600e-003	63.6411
Medical Office Building	2.15868	0.0233	0.2116	0.1778	1.2700e-003		0.0161	0.0161		0.0161	0.0161		253.9620	253.9620	4.8700e-003	4.6600e-003	255.4711
Unenclosed 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
Total		**0.0291**	**0.2644**	**0.2221**	**1.5900e-003**		**0.0201**	**0.0201**		**0.0201**	**0.0201**		**317.2271**	**317.2271**	**6.0800e-003**	**5.8200e-003**	**319.1122**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.1459	1.6000e-004	0.0179	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0357	0.0357	7.0000e-005		0.0375
Unmitigated	2.1475	2.8000e-004	0.0308	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0662	0.0662	1.7000e-004		0.0705

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1304					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.0143					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8400e-003	2.8000e-004	0.0308	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0662	0.0662	1.7000e-004		0.0705
Total	**2.1475**	**2.8000e-004**	**0.0308**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**		**0.0662**	**0.0662**	**1.7000e-004**		**0.0705**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1304					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.0143					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2100e-003	1.6000e-004	0.0179	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0357	0.0357	7.0000e-005		0.0375
Total	**2.1459**	**1.6000e-004**	**0.0179**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0357**	**0.0357**	**7.0000e-005**		**0.0375**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Huntington Hospital MOB

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Medical Office Building	80.29	1000sqft	1.27	80,285.00	0
General Office Building	20.00	1000sqft	0.00	20,000.00	0
Unenclosed Parking with Elevator	202.00	Space	0.00	80,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	12			**Operational Year**	2024
Utility Company	Pasadena Water and Power				
CO2 Intensity (lb/MWhr)	872.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site about 1.27 acres total

Construction Phase - per construction questionnaire; paving and coating duration is default

Grading -

Demolition - 148 ft*135 ft*16 ft*0.0046 [ton of waste/ft^3 building volume]

Architectural Coating - SCAQMD Rule 1113

Vehicle Trips - 2690 total project generated trips

Area Coating - SCAQMD Rule 1113

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Area Mitigation - all electric landscape equipment

Huntington Hospital MOB - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Energy Mitigation - Project design feature: 5% over Title 24, energy efficient appliances

Water Mitigation - water efficiency project design features

Waste Mitigation - AB 341

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Parking	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblAreaCoating	Area_EF_Parking	100	50
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	50	100
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	50	100
tblAreaMitigation	UseLowVOCPaintParkingValue	50	100
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	340.00
tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	4.00	48.00
tblConstructionPhase	PhaseEndDate	5/10/2023	1/26/2024
tblConstructionPhase	PhaseEndDate	4/12/2023	12/29/2023
tblConstructionPhase	PhaseEndDate	6/28/2022	7/5/2022
tblConstructionPhase	PhaseEndDate	7/6/2022	9/9/2022
tblConstructionPhase	PhaseEndDate	4/26/2023	1/12/2024
tblConstructionPhase	PhaseStartDate	4/27/2023	1/13/2024
tblConstructionPhase	PhaseStartDate	7/7/2022	9/10/2022
tblConstructionPhase	PhaseStartDate	7/1/2022	7/6/2022
tblConstructionPhase	PhaseStartDate	4/13/2023	12/30/2023
tblGrading	MaterialExported	0.00	43,500.00
tblLandUse	LotAcreage	1.84	1.27

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblLandUse	LotAcreage	0.46	0.00
tblLandUse	LotAcreage	1.82	0.00
tblVehicleTrips	ST_TR	2.21	26.83
tblVehicleTrips	ST_TR	8.57	26.83
tblVehicleTrips	SU_TR	0.70	26.83
tblVehicleTrips	SU_TR	1.42	26.83
tblVehicleTrips	WD_TR	9.74	26.83
tblVehicleTrips	WD_TR	34.80	26.83

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	2.0535	34.6838	15.7243	0.0902	9.2785	0.8907	10.1693	4.0131	0.8249	4.8380	0.0000	9,619.1592	9,619.1592	1.0520	1.1964	10,001.9716
2023	1.7673	12.9409	15.3612	0.0340	0.9298	0.5250	1.4548	0.2510	0.5067	0.7577	0.0000	3,251.1999	3,251.1999	0.4145	0.1001	3,290.4044
2024	47.8254	5.8856	9.2518	0.0148	0.1453	0.2818	0.4271	0.0385	0.2601	0.2987	0.0000	1,425.3267	1,425.3267	0.4143	2.7400e-003	1,436.4985
Maximum	**47.8254**	**34.6838**	**15.7243**	**0.0902**	**9.2785**	**0.8907**	**10.1693**	**4.0131**	**0.8249**	**4.8380**	**0.0000**	**9,619.1592**	**9,619.1592**	**1.0520**	**1.1964**	**10,001.9716**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	2.0535	34.6838	15.7243	0.0902	4.7555	0.8907	5.6463	1.8474	0.8249	2.6724	0.0000	9,619.1592	9,619.1592	1.0520	1.1964	10,001.9715
2023	1.7673	12.9409	15.3612	0.0340	0.9298	0.5250	1.4548	0.2510	0.5067	0.7577	0.0000	3,251.1999	3,251.1999	0.4145	0.1001	3,290.4044
2024	47.8254	5.8856	9.2518	0.0148	0.1453	0.2818	0.4271	0.0385	0.2601	0.2987	0.0000	1,425.3267	1,425.3267	0.4143	2.7400e-003	1,436.4985
Maximum	**47.8254**	**34.6838**	**15.7243**	**0.0902**	**4.7555**	**0.8907**	**5.6463**	**1.8474**	**0.8249**	**2.6724**	**0.0000**	**9,619.1592**	**9,619.1592**	**1.0520**	**1.1964**	**10,001.9715**

Huntington Hospital MOB - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**43.69**	**0.00**	**37.53**	**50.33**	**0.00**	**36.74**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.1475	2.8000e-004	0.0308	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0662	0.0662	1.7000e-004		0.0705
Energy	0.0306	0.2777	0.2333	1.6700e-003		0.0211	0.0211		0.0211	0.0211		333.2597	333.2597	6.3900e-003	6.1100e-003	335.2401
Mobile	7.1292	7.1151	66.9112	0.1477	15.4149	0.1059	15.5208	4.1078	0.0984	4.2062		15,309.4305	15,309.4305	0.9623	0.6414	15,524.6149
Total	**9.3073**	**7.3931**	**67.1753**	**0.1494**	**15.4149**	**0.1271**	**15.5420**	**4.1078**	**0.1197**	**4.2274**		**15,642.7564**	**15,642.7564**	**0.9689**	**0.6475**	**15,859.9255**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.1459	1.6000e-004	0.0179	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0357	0.0357	7.0000e-005		0.0375
Energy	0.0291	0.2644	0.2221	1.5900e-003		0.0201	0.0201		0.0201	0.0201		317.2271	317.2271	6.0800e-003	5.8200e-003	319.1122
Mobile	7.1292	7.1151	66.9112	0.1477	15.4149	0.1059	15.5208	4.1078	0.0984	4.2062		15,309.4305	15,309.4305	0.9623	0.6414	15,524.6149
Total	**9.3042**	**7.3796**	**67.1511**	**0.1493**	**15.4149**	**0.1260**	**15.5409**	**4.1078**	**0.1186**	**4.2263**		**15,626.6932**	**15,626.6932**	**0.9684**	**0.6472**	**15,843.7646**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.03**	**0.18**	**0.04**	**0.05**	**0.00**	**0.85**	**0.01**	**0.00**	**0.90**	**0.03**	**0.00**	**0.10**	**0.10**	**0.04**	**0.04**	**0.10**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2022	7/5/2022	5	25	
2	Grading	Grading	7/6/2022	9/9/2022	5	48	
3	Building Construction	Building Construction	9/10/2022	12/29/2023	5	340	
4	Paving	Paving	12/30/2023	1/12/2024	5	10	
5	Architectural Coating	Architectural Coating	1/13/2024	1/26/2024	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 48

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 150,428; Non-Residential Outdoor: 50,143; Striped Parking Area: 4,848 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

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	145.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	5,438.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	66.00	30.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2591	0.0000	1.2591	0.1906	0.0000	0.1906			0.0000			0.0000
Off-Road	1.6889	16.6217	13.9605	0.0241		0.8379	0.8379		0.7829	0.7829		2,323.4168	2,323.4168	0.5921		2,338.2191
Total	**1.6889**	**16.6217**	**13.9605**	**0.0241**	**1.2591**	**0.8379**	**2.0970**	**0.1906**	**0.7829**	**0.9735**		**2,323.4168**	**2,323.4168**	**0.5921**		**2,338.2191**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0245	0.9049	0.2163	3.5100e-003	0.1015	7.5700e-003	0.1090	0.0278	7.2400e-003	0.0351		385.0276	385.0276	0.0207	0.0611	403.7591
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
Worker	0.0448	0.0315	0.4962	1.3200e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		133.7891	133.7891	3.4800e-003	3.1800e-003	134.8237
Total	**0.0693**	**0.9364**	**0.7125**	**4.8300e-003**	**0.2468**	**8.4400e-003**	**0.2552**	**0.0664**	**8.0400e-003**	**0.0744**		**518.8167**	**518.8167**	**0.0242**	**0.0643**	**538.5828**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4665	0.0000	0.4665	0.0706	0.0000	0.0706			0.0000			0.0000
Off-Road	1.6889	16.6217	13.9605	0.0241		0.8379	0.8379		0.7829	0.7829	0.0000	2,323.4168	2,323.4168	0.5921		2,338.2191
Total	**1.6889**	**16.6217**	**13.9605**	**0.0241**	**0.4665**	**0.8379**	**1.3044**	**0.0706**	**0.7829**	**0.8535**	**0.0000**	**2,323.4168**	**2,323.4168**	**0.5921**		**2,338.2191**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0245	0.9049	0.2163	3.5100e-003	0.1015	7.5700e-003	0.1090	0.0278	7.2400e-003	0.0351		385.0276	385.0276	0.0207	0.0611	403.7591
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
Worker	0.0448	0.0315	0.4962	1.3200e-003	0.1453	8.7000e-004	0.1462	0.0385	8.0000e-004	0.0393		133.7891	133.7891	3.4800e-003	3.1800e-003	134.8237
Total	**0.0693**	**0.9364**	**0.7125**	**4.8300e-003**	**0.2468**	**8.4400e-003**	**0.2552**	**0.0664**	**8.0400e-003**	**0.0744**		**518.8167**	**518.8167**	**0.0242**	**0.0643**	**538.5828**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1851	0.0000	7.1851	3.4403	0.0000	3.4403			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829		1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**7.1851**	**0.7423**	**7.9274**	**3.4403**	**0.6829**	**4.1232**		**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4787	17.6759	4.2243	0.0686	1.9817	0.1478	2.1295	0.5432	0.1414	0.6846		7,520.7621	7,520.7621	0.4040	1.1939	7,886.6440
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
Worker	0.0344	0.0242	0.3817	1.0100e-003	0.1118	6.7000e-004	0.1124	0.0296	6.1000e-004	0.0303		102.9147	102.9147	2.6700e-003	2.4500e-003	103.7106
Total	**0.5131**	**17.7002**	**4.6060**	**0.0696**	**2.0935**	**0.1485**	**2.2419**	**0.5728**	**0.1420**	**0.7149**		**7,623.6768**	**7,623.6768**	**0.4066**	**1.1964**	**7,990.3546**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6621	0.0000	2.6621	1.2746	0.0000	1.2746			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829	0.0000	1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**2.6621**	**0.7423**	**3.4044**	**1.2746**	**0.6829**	**1.9575**	**0.0000**	**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4787	17.6759	4.2243	0.0686	1.9817	0.1478	2.1295	0.5432	0.1414	0.6846		7,520.7621	7,520.7621	0.4040	1.1939	7,886.6440
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
Worker	0.0344	0.0242	0.3817	1.0100e-003	0.1118	6.7000e-004	0.1124	0.0296	6.1000e-004	0.0303		102.9147	102.9147	2.6700e-003	2.4500e-003	103.7106
Total	**0.5131**	**17.7002**	**4.6060**	**0.0696**	**2.0935**	**0.1485**	**2.2419**	**0.5728**	**0.1420**	**0.7149**		**7,623.6768**	**7,623.6768**	**0.4066**	**1.1964**	**7,990.3546**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689		2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**		**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0547	1.3960	0.4786	5.7400e-003	0.1921	0.0146	0.2067	0.0553	0.0140	0.0693		617.0080	617.0080	0.0207	0.0895	644.1820
Worker	0.2273	0.1599	2.5192	6.6800e-003	0.7377	4.4100e-003	0.7421	0.1957	4.0600e-003	0.1997		679.2371	679.2371	0.0176	0.0162	684.4897
Total	**0.2820**	**1.5559**	**2.9978**	**0.0124**	**0.9298**	**0.0190**	**0.9488**	**0.2510**	**0.0180**	**0.2690**		**1,296.2452**	**1,296.2452**	**0.0383**	**0.1056**	**1,328.6717**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6487	12.5031	12.7264	0.0221		0.5889	0.5889		0.5689	0.5689	0.0000	2,001.5429	2,001.5429	0.3486		2,010.2581
Total	**1.6487**	**12.5031**	**12.7264**	**0.0221**		**0.5889**	**0.5889**		**0.5689**	**0.5689**	**0.0000**	**2,001.5429**	**2,001.5429**	**0.3486**		**2,010.2581**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0547	1.3960	0.4786	5.7400e-003	0.1921	0.0146	0.2067	0.0553	0.0140	0.0693		617.0080	617.0080	0.0207	0.0895	644.1820
Worker	0.2273	0.1599	2.5192	6.6800e-003	0.7377	4.4100e-003	0.7421	0.1957	4.0600e-003	0.1997		679.2371	679.2371	0.0176	0.0162	684.4897
Total	**0.2820**	**1.5559**	**2.9978**	**0.0124**	**0.9298**	**0.0190**	**0.9488**	**0.2510**	**0.0180**	**0.2690**		**1,296.2452**	**1,296.2452**	**0.0383**	**0.1056**	**1,328.6717**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968		2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**		**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0332	1.0890	0.4287	5.4600e-003	0.1921	6.3400e-003	0.1984	0.0553	6.0700e-003	0.0614		588.0928	588.0928	0.0198	0.0851	613.9579
Worker	0.2108	0.1415	2.3214	6.4600e-003	0.7377	4.1500e-003	0.7419	0.1957	3.8200e-003	0.1995		661.3194	661.3194	0.0158	0.0149	666.1607
Total	**0.2440**	**1.2305**	**2.7502**	**0.0119**	**0.9298**	**0.0105**	**0.9403**	**0.2510**	**9.8900e-003**	**0.2608**		**1,249.4122**	**1,249.4122**	**0.0356**	**0.1001**	**1,280.1186**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5233	11.7104	12.6111	0.0221		0.5145	0.5145		0.4968	0.4968	0.0000	2,001.7877	2,001.7877	0.3399		2,010.2858
Total	**1.5233**	**11.7104**	**12.6111**	**0.0221**		**0.5145**	**0.5145**		**0.4968**	**0.4968**	**0.0000**	**2,001.7877**	**2,001.7877**	**0.3399**		**2,010.2858**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0332	1.0890	0.4287	5.4600e-003	0.1921	6.3400e-003	0.1984	0.0553	6.0700e-003	0.0614		588.0928	588.0928	0.0198	0.0851	613.9579
Worker	0.2108	0.1415	2.3214	6.4600e-003	0.7377	4.1500e-003	0.7419	0.1957	3.8200e-003	0.1995		661.3194	661.3194	0.0158	0.0149	666.1607
Total	**0.2440**	**1.2305**	**2.7502**	**0.0119**	**0.9298**	**0.0105**	**0.9403**	**0.2510**	**9.8900e-003**	**0.2608**		**1,249.4122**	**1,249.4122**	**0.0356**	**0.1001**	**1,280.1186**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846		1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6446**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**		**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0415	0.0279	0.4573	1.2700e-003	0.1453	8.2000e-004	0.1461	0.0385	7.5000e-004	0.0393		130.2599	130.2599	3.1200e-003	2.9400e-003	131.2135
Total	**0.0415**	**0.0279**	**0.4573**	**1.2700e-003**	**0.1453**	**8.2000e-004**	**0.1461**	**0.0385**	**7.5000e-004**	**0.0393**		**130.2599**	**130.2599**	**3.1200e-003**	**2.9400e-003**	**131.2135**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6446	6.2357	8.8024	0.0136		0.3084	0.3084		0.2846	0.2846	0.0000	1,297.6880	1,297.6880	0.4114		1,307.9725
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6446**	**6.2357**	**8.8024**	**0.0136**		**0.3084**	**0.3084**		**0.2846**	**0.2846**	**0.0000**	**1,297.6880**	**1,297.6880**	**0.4114**		**1,307.9725**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0415	0.0279	0.4573	1.2700e-003	0.1453	8.2000e-004	0.1461	0.0385	7.5000e-004	0.0393		130.2599	130.2599	3.1200e-003	2.9400e-003	131.2135
Total	**0.0415**	**0.0279**	**0.4573**	**1.2700e-003**	**0.1453**	**8.2000e-004**	**0.1461**	**0.0385**	**7.5000e-004**	**0.0393**		**130.2599**	**130.2599**	**3.1200e-003**	**2.9400e-003**	**131.2135**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6180	5.8607	8.8253	0.0136		0.2810	0.2810		0.2594	0.2594		1,297.8688	1,297.8688	0.4114		1,308.1547
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6180**	**5.8607**	**8.8253**	**0.0136**		**0.2810**	**0.2810**		**0.2594**	**0.2594**		**1,297.8688**	**1,297.8688**	**0.4114**		**1,308.1547**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0388	0.0249	0.4266	1.2400e-003	0.1453	7.8000e-004	0.1461	0.0385	7.2000e-004	0.0393		127.4579	127.4579	2.8200e-003	2.7400e-003	128.3437
Total	**0.0388**	**0.0249**	**0.4266**	**1.2400e-003**	**0.1453**	**7.8000e-004**	**0.1461**	**0.0385**	**7.2000e-004**	**0.0393**		**127.4579**	**127.4579**	**2.8200e-003**	**2.7400e-003**	**128.3437**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6180	5.8607	8.8253	0.0136		0.2810	0.2810		0.2594	0.2594	0.0000	1,297.8688	1,297.8688	0.4114		1,308.1547
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6180**	**5.8607**	**8.8253**	**0.0136**		**0.2810**	**0.2810**		**0.2594**	**0.2594**	**0.0000**	**1,297.8688**	**1,297.8688**	**0.4114**		**1,308.1547**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0388	0.0249	0.4266	1.2400e-003	0.1453	7.8000e-004	0.1461	0.0385	7.2000e-004	0.0393		127.4579	127.4579	2.8200e-003	2.7400e-003	128.3437
Total	**0.0388**	**0.0249**	**0.4266**	**1.2400e-003**	**0.1453**	**7.8000e-004**	**0.1461**	**0.0385**	**7.2000e-004**	**0.0393**		**127.4579**	**127.4579**	**2.8200e-003**	**2.7400e-003**	**128.3437**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.6059					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**47.7866**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0388	0.0249	0.4266	1.2400e-003	0.1453	7.8000e-004	0.1461	0.0385	7.2000e-004	0.0393		127.4579	127.4579	2.8200e-003	2.7400e-003	128.3437
Total	**0.0388**	**0.0249**	**0.4266**	**1.2400e-003**	**0.1453**	**7.8000e-004**	**0.1461**	**0.0385**	**7.2000e-004**	**0.0393**		**127.4579**	**127.4579**	**2.8200e-003**	**2.7400e-003**	**128.3437**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.6059					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**47.7866**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0388	0.0249	0.4266	1.2400e-003	0.1453	7.8000e-004	0.1461	0.0385	7.2000e-004	0.0393		127.4579	127.4579	2.8200e-003	2.7400e-003	128.3437
Total	**0.0388**	**0.0249**	**0.4266**	**1.2400e-003**	**0.1453**	**7.8000e-004**	**0.1461**	**0.0385**	**7.2000e-004**	**0.0393**		**127.4579**	**127.4579**	**2.8200e-003**	**2.7400e-003**	**128.3437**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	lb/day										lb/day					
Mitigated	7.1292	7.1151	66.9112	0.1477	15.4149	0.1059	15.5208	4.1078	0.0984	4.2062		15,309.4305	15,309.4305	0.9623	0.6414	15,524.6149
Unmitigated	7.1292	7.1151	66.9112	0.1477	15.4149	0.1059	15.5208	4.1078	0.0984	4.2062		15,309.4305	15,309.4305	0.9623	0.6414	15,524.6149

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	536.60	536.60	536.60	1,728,636	1,728,636
Medical Office Building	2,154.05	2,154.05	2154.05	5,587,292	5,587,292
Unenclosed Parking with Elevator	0.00	0.00	0.00		
Total	2,690.65	2,690.65	2,690.65	7,315,928	7,315,928

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Medical Office Building	16.60	8.40	6.90	29.60	51.40	19.00	60	30	10
Unenclosed Parking with	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721
Medical Office Building	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721
Unenclosed Parking with Elevator	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0291	0.2644	0.2221	1.5900e-003		0.0201	0.0201		0.0201	0.0201		317.2271	317.2271	6.0800e-003	5.8200e-003	319.1122
NaturalGas Unmitigated	0.0306	0.2777	0.2333	1.6700e-003		0.0211	0.0211		0.0211	0.0211		333.2597	333.2597	6.3900e-003	6.1100e-003	335.2401

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	564.932	6.0900e-003	0.0554	0.0465	3.3000e-004		4.2100e-003	4.2100e-003		4.2100e-003	4.2100e-003		66.4625	66.4625	1.2700e-003	1.2200e-003	66.8575
Medical Office Building	2267.78	0.0245	0.2223	0.1868	1.3300e-003		0.0169	0.0169		0.0169	0.0169		266.7972	266.7972	5.1100e-003	4.8900e-003	268.3827
Unenclosed 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
Total		**0.0306**	**0.2777**	**0.2333**	**1.6600e-003**		**0.0211**	**0.0211**		**0.0211**	**0.0211**		**333.2597**	**333.2597**	**6.3800e-003**	**6.1100e-003**	**335.2401**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Office Building	0.537753	5.8000e-003	0.0527	0.0443	3.2000e-004		4.0100e-003	4.0100e-003		4.0100e-003	4.0100e-003		63.2651	63.2651	1.2100e-003	1.1600e-003	63.6411
Medical Office Building	2.15868	0.0233	0.2116	0.1778	1.2700e-003		0.0161	0.0161		0.0161	0.0161		253.9620	253.9620	4.8700e-003	4.6600e-003	255.4711
Unenclosed 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
Total		**0.0291**	**0.2644**	**0.2221**	**1.5900e-003**		**0.0201**	**0.0201**		**0.0201**	**0.0201**		**317.2271**	**317.2271**	**6.0800e-003**	**5.8200e-003**	**319.1122**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.1459	1.6000e-004	0.0179	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0357	0.0357	7.0000e-005		0.0375
Unmitigated	2.1475	2.8000e-004	0.0308	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0662	0.0662	1.7000e-004		0.0705

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1304					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.0143					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8400e-003	2.8000e-004	0.0308	0.0000		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004		0.0662	0.0662	1.7000e-004		0.0705
Total	**2.1475**	**2.8000e-004**	**0.0308**	**0.0000**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**		**0.0662**	**0.0662**	**1.7000e-004**		**0.0705**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1304					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.0143					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2100e-003	1.6000e-004	0.0179	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0357	0.0357	7.0000e-005		0.0375
Total	**2.1459**	**1.6000e-004**	**0.0179**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0357**	**0.0357**	**7.0000e-005**		**0.0375**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Existing Conditions

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Discount Club	18.25	1000sqft	1.27	18,250.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	12			**Operational Year**	2021
Utility Company	Pasadena Water and Power				
CO2 Intensity (lb/MWhr)	872.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site about 1.27 acres total

Construction Phase - operations only

Grading -

Demolition -

Architectural Coating -

Vehicle Trips - 1158 total existing daily trips

Area Coating -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Waste Mitigation -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	0.42	1.27
tblVehicleTrips	ST_TR	53.75	63.46
tblVehicleTrips	SU_TR	33.67	63.46
tblVehicleTrips	WD_TR	41.80	63.46

2.0 Emissions Summary

Existing Conditions - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.8661	20.2436	10.1367	0.0216	7.1944	0.9165	8.1108	3.4544	0.8432	4.2975	0.0000	2,095.2333	2,095.2333	0.6484	2.8200e-003	2,112.2860
Maximum	**1.8661**	**20.2436**	**10.1367**	**0.0216**	**7.1944**	**0.9165**	**8.1108**	**3.4544**	**0.8432**	**4.2975**	**0.0000**	**2,095.2333**	**2,095.2333**	**0.6484**	**2.8200e-003**	**2,112.2860**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.8661	20.2436	10.1367	0.0216	7.1944	0.9165	8.1108	3.4544	0.8432	4.2975	0.0000	2,095.2333	2,095.2333	0.6484	2.8200e-003	2,112.2860
Maximum	**1.8661**	**20.2436**	**10.1367**	**0.0216**	**7.1944**	**0.9165**	**8.1108**	**3.4544**	**0.8432**	**4.2975**	**0.0000**	**2,095.2333**	**2,095.2333**	**0.6484**	**2.8200e-003**	**2,112.2860**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Existing Conditions - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4079	2.0000e-005	1.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9900e-003	3.9900e-003	1.0000e-005		4.2600e-003
Energy	8.8000e-004	7.9900e-003	6.7100e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004		9.5882	9.5882	1.8000e-004	1.8000e-004	9.6452
Mobile	2.9183	3.4349	24.8157	0.0471	4.6475	0.0513	4.6987	1.2386	0.0480	1.2866		4,813.5106	4,813.5106	0.3933	0.2542	4,899.0821
Total	**3.3271**	**3.4429**	**24.8242**	**0.0472**	**4.6475**	**0.0519**	**4.6993**	**1.2386**	**0.0486**	**1.2872**		**4,823.1028**	**4,823.1028**	**0.3935**	**0.2543**	**4,908.7316**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4079	2.0000e-005	1.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9900e-003	3.9900e-003	1.0000e-005		4.2600e-003
Energy	8.8000e-004	7.9900e-003	6.7100e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004		9.5882	9.5882	1.8000e-004	1.8000e-004	9.6452
Mobile	2.9183	3.4349	24.8157	0.0471	4.6475	0.0513	4.6987	1.2386	0.0480	1.2866		4,813.5106	4,813.5106	0.3933	0.2542	4,899.0821
Total	**3.3271**	**3.4429**	**24.8242**	**0.0472**	**4.6475**	**0.0519**	**4.6993**	**1.2386**	**0.0486**	**1.2872**		**4,823.1028**	**4,823.1028**	**0.3935**	**0.2543**	**4,908.7316**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	9/29/2021	10/4/2021	5	4	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425		1,995.6114	1,995.6114	0.6454		2,011.7470
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**7.0826**	**0.9158**	**7.9983**	**3.4247**	**0.8425**	**4.2672**		**1,995.6114**	**1,995.6114**	**0.6454**		**2,011.7470**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0391	0.0301	0.3763	9.8000e-004	0.1118	7.1000e-004	0.1125	0.0296	6.6000e-004	0.0303		99.6218	99.6218	3.0200e-003	2.8200e-003	100.5391
Total	**0.0391**	**0.0301**	**0.3763**	**9.8000e-004**	**0.1118**	**7.1000e-004**	**0.1125**	**0.0296**	**6.6000e-004**	**0.0303**		**99.6218**	**99.6218**	**3.0200e-003**	**2.8200e-003**	**100.5391**

Existing Conditions - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425	0.0000	1,995.6114	1,995.6114	0.6454		2,011.7470
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**7.0826**	**0.9158**	**7.9983**	**3.4247**	**0.8425**	**4.2672**	**0.0000**	**1,995.6114**	**1,995.6114**	**0.6454**		**2,011.7470**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0391	0.0301	0.3763	9.8000e-004	0.1118	7.1000e-004	0.1125	0.0296	6.6000e-004	0.0303		99.6218	99.6218	3.0200e-003	2.8200e-003	100.5391
Total	**0.0391**	**0.0301**	**0.3763**	**9.8000e-004**	**0.1118**	**7.1000e-004**	**0.1125**	**0.0296**	**6.6000e-004**	**0.0303**		**99.6218**	**99.6218**	**3.0200e-003**	**2.8200e-003**	**100.5391**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	lb/day										lb/day					
Mitigated	2.9183	3.4349	24.8157	0.0471	4.6475	0.0513	4.6987	1.2386	0.0480	1.2866		4,813.5106	4,813.5106	0.3933	0.2542	4,899.0821
Unmitigated	2.9183	3.4349	24.8157	0.0471	4.6475	0.0513	4.6987	1.2386	0.0480	1.2866		4,813.5106	4,813.5106	0.3933	0.2542	4,899.0821

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Discount Club	1,158.15	1,158.15	1158.15	2,205,382	2,205,382
Total	1,158.15	1,158.15	1,158.15	2,205,382	2,205,382

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Discount Club	16.60	8.40	6.90	16.70	64.30	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Discount Club	0.543593	0.059173	0.184074	0.132247	0.023864	0.006129	0.012170	0.009151	0.000841	0.000521	0.023543	0.000746	0.003947

Existing Conditions - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	8.8000e-004	7.9900e-003	6.7100e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004		9.5882	9.5882	1.8000e-004	1.8000e-004	9.6452
NaturalGas Unmitigated	8.8000e-004	7.9900e-003	6.7100e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004		9.5882	9.5882	1.8000e-004	1.8000e-004	9.6452

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Discount Club	81.5	8.8000e-004	7.9900e-003	6.7100e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004		9.5882	9.5882	1.8000e-004	1.8000e-004	9.6452
Total		**8.8000e-004**	**7.9900e-003**	**6.7100e-003**	**5.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**		**9.5882**	**9.5882**	**1.8000e-004**	**1.8000e-004**	**9.6452**

Existing Conditions - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Discount Club	0.0815	8.8000e-004	7.9900e-003	6.7100e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004		9.5882	9.5882	1.8000e-004	1.8000e-004	9.6452
Total		**8.8000e-004**	**7.9900e-003**	**6.7100e-003**	**5.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**		**9.5882**	**9.5882**	**1.8000e-004**	**1.8000e-004**	**9.6452**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4079	2.0000e-005	1.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9900e-003	3.9900e-003	1.0000e-005		4.2600e-003
Unmitigated	0.4079	2.0000e-005	1.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9900e-003	3.9900e-003	1.0000e-005		4.2600e-003

Existing Conditions - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0464					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3614					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.7000e-004	2.0000e-005	1.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9900e-003	3.9900e-003	1.0000e-005		4.2600e-003
Total	**0.4079**	**2.0000e-005**	**1.8700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.9900e-003**	**3.9900e-003**	**1.0000e-005**		**4.2600e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0464					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3614					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.7000e-004	2.0000e-005	1.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9900e-003	3.9900e-003	1.0000e-005		4.2600e-003
Total	**0.4079**	**2.0000e-005**	**1.8700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.9900e-003**	**3.9900e-003**	**1.0000e-005**		**4.2600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Existing Conditions

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Discount Club	18.25	1000sqft	1.27	18,250.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	12			**Operational Year**	2021
Utility Company	Pasadena Water and Power				
CO2 Intensity (lb/MWhr)	872.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site about 1.27 acres total

Construction Phase - operations only

Grading -

Demolition -

Architectural Coating -

Vehicle Trips - 1158 total existing daily trips

Area Coating -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Waste Mitigation -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	0.42	1.27
tblVehicleTrips	ST_TR	53.75	63.46
tblVehicleTrips	SU_TR	33.67	63.46
tblVehicleTrips	WD_TR	41.80	63.46

2.0 Emissions Summary

Existing Conditions - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.8643	20.2410	10.1772	0.0216	7.1944	0.9165	8.1108	3.4544	0.8432	4.2975	0.0000	2,101.3978	2,101.3978	0.6484	2.6600e-003	2,118.4010
Maximum	**1.8643**	**20.2410**	**10.1772**	**0.0216**	**7.1944**	**0.9165**	**8.1108**	**3.4544**	**0.8432**	**4.2975**	**0.0000**	**2,101.3978**	**2,101.3978**	**0.6484**	**2.6600e-003**	**2,118.4010**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.8643	20.2410	10.1772	0.0216	7.1944	0.9165	8.1108	3.4544	0.8432	4.2975	0.0000	2,101.3978	2,101.3978	0.6484	2.6600e-003	2,118.4010
Maximum	**1.8643**	**20.2410**	**10.1772**	**0.0216**	**7.1944**	**0.9165**	**8.1108**	**3.4544**	**0.8432**	**4.2975**	**0.0000**	**2,101.3978**	**2,101.3978**	**0.6484**	**2.6600e-003**	**2,118.4010**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Existing Conditions - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4079	2.0000e-005	1.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9900e-003	3.9900e-003	1.0000e-005		4.2600e-003
Energy	8.8000e-004	7.9900e-003	6.7100e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004		9.5882	9.5882	1.8000e-004	1.8000e-004	9.6452
Mobile	3.0526	3.2097	25.3054	0.0494	4.6475	0.0512	4.6986	1.2386	0.0480	1.2865		5,045.6345	5,045.6345	0.3756	0.2437	5,127.6589
Total	**3.4614**	**3.2177**	**25.3140**	**0.0495**	**4.6475**	**0.0518**	**4.6993**	**1.2386**	**0.0486**	**1.2871**		**5,055.2267**	**5,055.2267**	**0.3757**	**0.2439**	**5,137.3084**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4079	2.0000e-005	1.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9900e-003	3.9900e-003	1.0000e-005		4.2600e-003
Energy	8.8000e-004	7.9900e-003	6.7100e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004		9.5882	9.5882	1.8000e-004	1.8000e-004	9.6452
Mobile	3.0526	3.2097	25.3054	0.0494	4.6475	0.0512	4.6986	1.2386	0.0480	1.2865		5,045.6345	5,045.6345	0.3756	0.2437	5,127.6589
Total	**3.4614**	**3.2177**	**25.3140**	**0.0495**	**4.6475**	**0.0518**	**4.6993**	**1.2386**	**0.0486**	**1.2871**		**5,055.2267**	**5,055.2267**	**0.3757**	**0.2439**	**5,137.3084**

Existing Conditions - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	9/29/2021	10/4/2021	5	4	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Existing Conditions - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425		1,995.6114	1,995.6114	0.6454		2,011.7470
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**7.0826**	**0.9158**	**7.9983**	**3.4247**	**0.8425**	**4.2672**		**1,995.6114**	**1,995.6114**	**0.6454**		**2,011.7470**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0373	0.0275	0.4168	1.0400e-003	0.1118	7.1000e-004	0.1125	0.0296	6.6000e-004	0.0303		105.7863	105.7863	2.9900e-003	2.6600e-003	106.6540
Total	**0.0373**	**0.0275**	**0.4168**	**1.0400e-003**	**0.1118**	**7.1000e-004**	**0.1125**	**0.0296**	**6.6000e-004**	**0.0303**		**105.7863**	**105.7863**	**2.9900e-003**	**2.6600e-003**	**106.6540**

Existing Conditions - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425	0.0000	1,995.6114	1,995.6114	0.6454		2,011.7470
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**7.0826**	**0.9158**	**7.9983**	**3.4247**	**0.8425**	**4.2672**	**0.0000**	**1,995.6114**	**1,995.6114**	**0.6454**		**2,011.7470**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	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
Worker	0.0373	0.0275	0.4168	1.0400e-003	0.1118	7.1000e-004	0.1125	0.0296	6.6000e-004	0.0303		105.7863	105.7863	2.9900e-003	2.6600e-003	106.6540
Total	**0.0373**	**0.0275**	**0.4168**	**1.0400e-003**	**0.1118**	**7.1000e-004**	**0.1125**	**0.0296**	**6.6000e-004**	**0.0303**		**105.7863**	**105.7863**	**2.9900e-003**	**2.6600e-003**	**106.6540**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	lb/day										lb/day					
Mitigated	3.0526	3.2097	25.3054	0.0494	4.6475	0.0512	4.6986	1.2386	0.0480	1.2865		5,045.6345	5,045.6345	0.3756	0.2437	5,127.6589
Unmitigated	3.0526	3.2097	25.3054	0.0494	4.6475	0.0512	4.6986	1.2386	0.0480	1.2865		5,045.6345	5,045.6345	0.3756	0.2437	5,127.6589

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Discount Club	1,158.15	1,158.15	1158.15	2,205,382	2,205,382
Total	1,158.15	1,158.15	1,158.15	2,205,382	2,205,382

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Discount Club	16.60	8.40	6.90	16.70	64.30	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Discount Club	0.543593	0.059173	0.184074	0.132247	0.023864	0.006129	0.012170	0.009151	0.000841	0.000521	0.023543	0.000746	0.003947

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	8.8000e-004	7.9900e-003	6.7100e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004		9.5882	9.5882	1.8000e-004	1.8000e-004	9.6452
NaturalGas Unmitigated	8.8000e-004	7.9900e-003	6.7100e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004		9.5882	9.5882	1.8000e-004	1.8000e-004	9.6452

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Discount Club	81.5	8.8000e-004	7.9900e-003	6.7100e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004		9.5882	9.5882	1.8000e-004	1.8000e-004	9.6452
Total		**8.8000e-004**	**7.9900e-003**	**6.7100e-003**	**5.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**		**9.5882**	**9.5882**	**1.8000e-004**	**1.8000e-004**	**9.6452**

Existing Conditions - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Discount Club	0.0815	8.8000e-004	7.9900e-003	6.7100e-003	5.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004		9.5882	9.5882	1.8000e-004	1.8000e-004	9.6452
Total		**8.8000e-004**	**7.9900e-003**	**6.7100e-003**	**5.0000e-005**		**6.1000e-004**	**6.1000e-004**		**6.1000e-004**	**6.1000e-004**		**9.5882**	**9.5882**	**1.8000e-004**	**1.8000e-004**	**9.6452**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4079	2.0000e-005	1.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9900e-003	3.9900e-003	1.0000e-005		4.2600e-003
Unmitigated	0.4079	2.0000e-005	1.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9900e-003	3.9900e-003	1.0000e-005		4.2600e-003

Existing Conditions - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0464					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3614					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.7000e-004	2.0000e-005	1.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9900e-003	3.9900e-003	1.0000e-005		4.2600e-003
Total	**0.4079**	**2.0000e-005**	**1.8700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.9900e-003**	**3.9900e-003**	**1.0000e-005**		**4.2600e-003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0464					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3614					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.7000e-004	2.0000e-005	1.8700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		3.9900e-003	3.9900e-003	1.0000e-005		4.2600e-003
Total	**0.4079**	**2.0000e-005**	**1.8700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**3.9900e-003**	**3.9900e-003**	**1.0000e-005**		**4.2600e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX C.2:

GREENHOUSE GAS TECHNICAL MEMORANDUM

Michael Baker INTERNATIONAL

We Make a Difference

MEMORANDUM

To: Beilin Yu, Senior Planner, City of Pasadena

From: Zhe Chen, Michael Baker International

Date: November 4, 2021

Subject: Huntington Hospital Project – Greenhouse Gas Emissions Technical Memorandum

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PURPOSE

The purpose of this technical memorandum is to evaluate potential greenhouse gas (GHG) impacts resulting from the construction and operation of the proposed Huntington Hospital Medical Office Building Project (project), located in the City of Pasadena (City), California.

PROJECT LOCATION

The project is located at 758 South Fair Oaks Avenue and 766 South Fair Oaks Avenue in the City, bounded by Fair Oaks Avenue to the west, Fillmore Street to the north, and Edmondson Alley to the east. Regional access to the site is available via Interstate 110 (I-110) approximately 0.13 mile to the east of the site and Interstate 710 (I-710) approximately 0.37 miles to the northwest of the site. Local access to the site is provided via Fillmore Street.

EXISTING SITE CONDITIONS

The project site is approximately 1.27 acres and currently is occupied by a retail store (Huntington Collection) with a surface parking lot.

The project site is currently designated High Mixed-Use with a maximum Floor Area Ratio (FAR) of 3.0 and a maximum of 87 dwelling units per acre[1] in the *City of Pasadena General Plan* (General Plan). The project site is located within the South Fair Oaks Specific Plan Area and is designated for primary development opportunity[2]. The parcels in the primary development opportunity zone are likely to provide the sites for the majority of new development authorized in the General Plan. However, owners of these sites may elect to undertake rehabilitation and adaptive re-use of existing structures, or not to undertake any changes.

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[1] City of Pasadena, *City of Pasadena Land Use Diagram*, November 14, 2016, https://www.cityofpasadena.net/wp-content/uploads/sites/30/Land-Use-Diagram-2016-11-14.pdf?v=1584653610006, accessed September 27, 2021.

[2] City of Pasadena, *South Fair Oaks Specific Plan, Private Realm Urban Design Framework Plan*, June 23, 2016. https://www.cityofpasadena.net/planning/wp-content/uploads/sites/30/South-Fair-Oaks-Specific-Plan-Updated-6232016.pdf?v=1632768097460, accessed September 27, 2021.

5 Hutton Centre Drive, Suite 500, Santa Ana, CA 92707

Office: 949.472.3505 | Fax: 949.472.8373

PROJECT DESCRIPTION

The project would involve demolition of the existing retail store building and construction of a four-story high-density mixed-use building. The proposed building would be approximately 100,285 square feet, consisting of approximately 80,285 square feet of medical office use and approximately 20,000 square feet of general office use. There would be two and half levels of subterranean parking.

Project construction would occur over approximately 20 months, beginning in June 2022. Construction of the project would require approximately 43,500 cubic yards of soil export and include the following phases: demolition, grading, building construction, paving, and architectural coating. It is anticipated that the project would be completed and operational in 2024.

GLOBAL CLIMATE CHANGE

California is a substantial contributor of global greenhouse gases (GHGs), emitting over 418 million metric tons of carbon dioxide equivalent ($MTCO_2e$) per year.[3] Methane (CH_4) is also an important GHG that potentially contributes to global climate change. GHGs are global in their effect, which is to increase the earth's ability to absorb heat in the atmosphere. As primary GHGs have a long lifetime in the atmosphere, accumulate over time, and are generally well-mixed, their impact on the atmosphere is mostly independent of the point of emission. Every nation emits GHGs and as a result makes an incremental cumulative contribution to global climate change; therefore, global cooperation will be required to reduce the rate of GHG emissions enough to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

The impact of human activities on global climate change is apparent in the observational record. Air trapped by ice has been extracted from core samples taken from polar ice sheets to determine the global atmospheric variation of CO_2, CH_4, and nitrous oxide (N_2O) from before the start of industrialization (approximately 1750), to over 650,000 years ago. For that period, it was found that CO_2 concentrations ranged from 180 to 300 parts per million (ppm). For the period from approximately 1750 to the present, global CO_2 concentrations increased from a pre-industrialization period concentration of 280 to 379 ppm in 2005, with the 2005 value far exceeding the upper end of the pre-industrial period range. As of September 2021, the highest monthly average concentration of CO_2 in the atmosphere was recorded at 419 ppm.[4]

The Intergovernmental Panel on Climate Change (IPCC) constructed several emission trajectories of GHGs needed to stabilize global temperatures and climate change impacts. It concluded that a stabilization of GHGs at 400 to 450 ppm carbon dioxide equivalent (CO_2e)[5] concentration is required to keep global mean warming below 2 degrees Celsius (°C), which in turn is assumed to be necessary to avoid dangerous climate change.

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[3] California Air Resources Board, *California Greenhouse Gas Emissions for 2000 to 2019,* https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2019/ghg_inventory_trends_00-19.pdf, accessed September 17, 2021.

[4] Scripps Institution of Oceanography, *Carbon Dioxide Concentration at Mauna Loa Observatory*, https://scripps.ucsd.edu/programs/keelingcurve/, accessed September 17, 2021.

[5] Carbon Dioxide Equivalent (CO_2e) – A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential.

REGULATORY SETTING

Federal

To date, no national standards have been established for nationwide GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level. Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

Energy Independence and Security Act of 2007. The Energy Independence and Security Act of 2007 (December 2007), among other key measures, requires the following, which would aid in the reduction of national GHG emissions:

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.

- Set a target of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020 and direct the National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.

- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

U.S. Environmental Protection Agency Endangerment Finding. The U.S. Environmental Protection Agency's (EPA) authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, the EPA finalized an endangerment finding in December 2009. Based on scientific evidence it found that six GHGs (CO_2, CH_4, N_2O, hydrofluorocarbons [HFCs], perfluorocarbons [PFCs], and sulfur hexafluoride [SF_6]) constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and the EPA's assessment of the scientific evidence that form the basis for the EPA's regulatory actions.

Presidential Executive Order 13783. Presidential Executive Order 13783, Promoting Energy Independence and Economic Growth (March 28, 2017), orders all federal agencies to apply cost-benefit analyses to regulations of GHG emissions and evaluations of the social cost of carbon, nitrous oxide, and methane.

State

The State of California has adopted various administrative initiatives and legislation relating to climate change, much of which set aggressive goals for GHG emissions reductions statewide. Although lead agencies must evaluate climate change and GHG emissions of projects subject to California Environmental Quality Act (CEQA), the CEQA Guidelines do not require or suggest specific methodologies for performing an assessment or specific thresholds of significance and do not specify GHG reduction mitigation

measures. Instead, the guidelines allow lead agencies to choose methodologies and make significance determinations based on substantial evidence, as discussed in further detail below. No State agency has promulgated binding regulations for analyzing GHG emissions, determining their significance, or mitigating significant effects in CEQA documents. Thus, lead agencies exercise their discretion in determining how to analyze GHGs.

California Global Warming Solutions Act (Assembly Bill 32). The primary act that has driven GHG regulation and analysis in California include the California Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32) (Health and Safety Code Sections 38500, 38501, 28510, 38530, 38550, 38560, 38561–38565, 38570, 38571, 38574, 38580, 38590, 38592–38599), which instructs the California Air Resources Board (CARB) to develop and enforce regulations for the reporting and verifying of statewide GHG emissions. The act directed CARB to set a GHG emissions limit based on 1990 levels, to be achieved by 2020. The bill set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner. The heart of the bill is the requirement that statewide GHG emissions be reduced to 1990 levels by 2020, which has been achieved.

Senate Bill 32 (SB 32). Signed into law on September 2016, SB 32 codifies the 2030 GHG reduction target in Executive Order B-30-15 (40 percent below 1990 levels by 2030). The bill authorizes CARB to adopt an interim GHG emissions level target to be achieved by 2030. CARB also must adopt rules and regulations in an open public process to achieve the maximum, technologically feasible, and cost-effective GHG reductions.

Executive Order S-3-05. Executive Order (EO) S-3-05 set forth a series of target dates by which statewide emissions of GHGs would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

Senate Bill 100 (SB 100). SB 100 (Chapter 312, Statutes of 2018) requires that retail sellers and local publicly owned electric utilities procure a minimum quantity of electricity products from eligible renewable energy resources so that the total kilowatt-hours (kWh) of those products sold to their retail end-use customers achieve 44 percent of retail sales by December 31, 2024, 52 percent by December 31, 2027, 60 percent by December 31, 2030, and 100 percent by December 31, 2045. The bill would require the California Public Utilities Commission (CPUC), CEC, state board, and all other state agencies to incorporate that policy into all relevant planning. In addition, SB 100 would require the CPUC, CEC, and state board to utilize programs authorized under existing statutes to achieve that policy and, as part of a public process, issue a joint report to the Legislature by January 1, 2021, and every four years thereafter, that includes specified information relating to the implementation of the policy.

CARB Scoping Plan. On December 11, 2008, CARB adopted its Scoping Plan, which functioned as a roadmap to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. CARB's Scoping Plan contained the main strategies California would implement to reduce GHG emissions by 174 $MMTCO_2e$, or approximately 30 percent, from the State's projected 2020 emissions level of 596 $MMTCO_2e$ under a business-as-usual (BAU)[6] scenario. This was a reduction of 42 $MMTCO_2e$,

[6] "Business-as-Usual" refers to emissions that would be expected to occur in the absence of GHG reductions. See http://www.arb.ca.gov/cc/inventory/data/bau.htm. Note that there is significant controversy as to what BAU means. In

or almost ten percent, from 2002 to 2004 average emissions, but required the reductions in the face of population and economic growth through 2020.

CARB's Scoping Plan calculated 2020 BAU emissions as the emissions that would be expected to occur in the absence of any GHG reduction measures. The 2020 BAU emissions estimate was derived by projecting emissions from a past baseline year using growth factors specific to each of the different economic sectors (e.g., transportation, electrical power, commercial and residential, industrial, etc.). CARB used three-year average emissions, by sector, for 2002 to 2004 to forecast emissions to 2020. The measures described in CARB's Scoping Plan were intended to reduce the projected 2020 BAU to 1990 levels, as required by AB 32.

AB 32 requires CARB to update the Scoping Plan at least once every five years. CARB adopted the first major update to the Scoping Plan on May 22, 2014. The 2014 Scoping Plan provided updated science related to climate change, including anticipated impacts to California and the levels of GHG reduction necessary to likely avoid risking irreparable damage. It identified the actions California has already taken to reduce GHG emissions and focused on areas where further reductions could be achieved to help meet the 2020 target established by AB 32. The 2014 Scoping Plan also looked beyond 2020 toward the 2050 goal, established in Executive Order S-3-05, and observes that "a mid-term statewide emission limit will ensure that the State stays on course to meet our long-term goal." The 2014 Scoping Plan did not establish or propose any specific post-2020 goals, but identified such goals adopted by other governments or recommended by various scientific and policy organizations.

In December 2017, CARB approved the *California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target*. This update focuses on implementation of a 40 percent reduction in GHGs by 2030 compared to 1990 levels, established in SB 32. To achieve this the updated Scoping Plan draws on a decade of successful programs that addresses the major sources of climate changing gases in every sector of the economy:

- *More Clean Cars and Trucks:* The plan sets out far-reaching programs to incentivize the sale of millions of zero-emission vehicles, drive the deployment of zero-emission trucks, and shift to a cleaner system of handling freight statewide.

- *Increased Renewable Energy:* California's electric utilities are ahead of schedule meeting the requirement that 33 percent of electricity come from renewable sources by 2020. The Scoping Plan guides utilities to 50 percent renewables, as required under Senate Bill (SB) 350.

- *Slashing Super-Pollutants:* The plan calls for a significant cut in super-pollutants such as methane and HFC refrigerants, which are responsible for as much as 40 percent of global warming.

- *Cleaner Industry and Electricity:* California's renewed cap-and-trade program extends the declining cap on emissions from utilities and industries and the carbon allowance auctions. The auctions will continue to fund investments in clean energy and efficiency, particularly in disadvantaged communities.

determining the GHG 2020 limit, CARB used the above as the "definition." It is broad enough to allow for design features to be counted as reductions.

- *Cleaner Fuels:* The Low Carbon Fuel Standard will drive further development of cleaner, renewable transportation fuels to replace fossil fuels.

- *Smart Community Planning:* Local communities will continue developing plans which will further link transportation and housing policies to create sustainable communities.

- *Improved Agriculture and Forests:* The Scoping Plan also outlines innovative programs to account for and reduce emissions from agriculture, as well as forests and other natural lands.

Achieving the 2030 target under the updated Scoping Plan will also spur the transformation of the California economy and fix its course securely on achieving an 80 percent reduction in GHG emissions by 2050 (compared to 1990 levels), consistent with the global consensus of the scale of reductions needed to stabilize atmospheric GHG concentrations at 450 ppm CO_2 and reduce the likelihood of catastrophic climate change. Currently, global levels are at just above 419 ppm.[7] Table 1, *California State Climate Change Legislation*, provides a brief overview of other California legislation relating to climate change that may affect emissions associated with the proposed project.

[7] Scripps Institution of Oceanography, *Carbon Dioxide Concentration at Mauna Loa Observatory*, https://scripps.ucsd.edu/programs/keelingcurve/, accessed August 31, 2021.

Table 1
California State Climate Change Legislation

Legislation	Description
Assembly Bill 1493 and Advanced Clean Cars Program	AB 1493 ("the Pavley Standard") (Health and Safety Code Sections 42823 and 43018.5) aims to reduce GHG emissions from noncommercial passenger vehicles and light-duty trucks of model years 2009 to 2016. By 2025, when all rules will be fully implemented, new automobiles of model years beyond 2016 will emit 34 percent fewer CO_2e emissions and 75 percent fewer smog-forming emissions.
Low Carbon Fuel Standard	Executive Order S-01-07 (2007) requires a 10 percent or greater reduction in the average fuel carbon intensity for transportation fuels in California. The regulation took effect in 2010 and is codified at Title 17, California Code of Regulations (CCR), Sections 95480–95490. The LCFS will reduce GHG emissions by reducing the carbon intensity of transportation fuels used in California by at least 10 percent by 2020.
Renewables Portfolio Standard (Senate Bill X1-2, Senate Bill 350, and Senate Bill 100)	California's Renewables Portfolio Standard (RPS) requires retail sellers of electric services to increase procurement from eligible renewable energy resources to 33-percent of total retail sales by 2020. The 33 percent standard is consistent with the RPS goal established in the Scoping Plan. The passage of SB 350 in 2015 updates the RPS to require the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources to be increased to 50 percent by December 31, 2030. SB 350 will make other revisions to the RPS program and to certain other requirements on public utilities and publicly owned electric utilities. The passage of SB 100 in 2018 further requires achieving 60-percent renewable energy resources target by 2030, and 100-percent renewable energy resources target by 2045.
Senate Bill 375*	SB 375 took effect in 2008 and provides a new planning process to coordinate land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction goals established in AB 32. SB 375 requires metropolitan planning organizations (MPOs) to incorporate a sustainable communities' strategy in their regional transportation plans that will achieve GHG emissions reduction targets by reducing vehicle miles (VMT) traveled from light-duty vehicles through the development of more compact, complete, and efficient communities. SB 375 requires CARB to periodically update the targets, no later than every 8 years. CARB has increased the stringency of 2035 SCS targets in the 2017 Scoping Plan.
California Building Energy Efficiency Standards	In general, the California Building Energy Efficiency Standards require the design of building shells and building components to conserve energy. The California Energy Commission updates the Building Energy Efficiency Standards every three years by working with stakeholders in a public and transparent process. The 2019 Building Energy Efficiency Standards contained in the CCR, Title 24, Part 6 (also known as the California Energy Code) took effect on January 1, 2019. The 2019 Building Energy Efficiency Standards are 7 percent more efficient than previous standards for residential construction and once rooftop solar electricity generation is factored in, homes built under the 2019 standards will use about 53 percent less energy than those under the 2016 standards. Nonresidential buildings built under the 2019 standards will use about 30-percent less energy than those under the 2016 standards.
California Green Building Standards	The California Green Building Standards Code (CCR Title 24, Part 11), commonly referred to as the CALGreen Code, is a Statewide mandatory construction code developed and adopted by the California Building Standards Commission and the Department of Housing and Community Development. The CALGreen Code requires new residential and commercial buildings to comply with mandatory measures under the topics of planning and design, energy efficiency, water efficiency/conservation, material conservation and resource efficiency, and environmental quality. The CALGreen Code also provides voluntary tiers and measures that local governments may adopt that encourage or require additional measures in the five green building topics. The most recent update to the CALGreen Code went into effect January 1, 2020.
Senate Bill 32 (Amendments to California Global Warming Solutions Act of 2006: Emission Limit)	Signed into law in September 2016, SB 32 codifies the 2030 target of 40-percent below 1990 levels in the recent Executive Order B-30-15. SB 32 authorizes CARB to adopt an interim GHG emissions level target to be achieved by 2030. SB 32 states that the intent is for the legislature and appropriate agencies to adopt complementary policies which ensure that the long-term emissions reductions advance specified criteria. In December 2017, CARB approved the *California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target* that provides guidance for compliance with SB 32. This plan is described above.

*Senate Bill 375 is codified at Government Code Sections 65080, 65400, 65583, 65584.01, 65584.02, 65584.04, 65587, 65588, 14522.1, 14522.2, and 65080.01, as well as at Public Resources Code (PRC) Sections 21061.3 and 21159.28 and Chapter 4.2.

Local

Pasadena Climate Action Plan

The City adopted the Pasadena Climate Action Plan (CAP)[8] in March 2018, which aims to reduce community-wide GHG emissions and combat climate change, and it is the latest initiative in the City's on-going commitment to confronting the issue of climate change. The CAP is a long-range qualified GHG reduction plan that provides a strategy to reduce GHG emissions from community-wide activities and municipal operations in the City to support the California's efforts under EO S-3-05, AB 32, and Senate Bill (SB) 32. The CAP builds on the goals and policies of the City of Pasadena General Plan Update (General Plan) and complements the State's objectives to address climate change. Specifically, the CAP identifies climate action measures and implementation actions to reduce GHG emissions to achieve the following reduction goals:

- 27% below 2009 levels by 2020 (equivalent to 14% below 1990 levels, exceeding AB 32 target);
- 49% below 2009 levels by 2030 (equivalent to 40% below 1990 levels, consistent with SB 32);
- 59% below 2009 levels by 2035 (equivalent to 52% below 1990 levels); and
- 83% below 2009 levels by 2050 (equivalent to 80% below 1990 levels, consistent with EO S-3-05).

The strategy for achieving the goals outlined in the CAP builds on the City's overall success to date, proposing to strengthen existing programs that have contributed to this success, and integrating new efforts to reduce GHG emissions. The CAP identifies five climate strategies, 27 measures, and 142 actions to reduce the City's GHG emissions. Collectively, they have the potential to reduce emissions and contribute to the state-wide efforts to combat climate change. The climate strategy is summarized below:

- **Energy Conservation and Efficiency** – reduce energy demand, utilize energy more efficiently, and switch to carbon neutral sources
- **Sustainable Mobility and Land Use** – improve pedestrian and bicycle infrastructure, enhance carpool and public transportation services, and expand the use of electric vehicles and related infrastructure
- **Water Conservation** – increase access to and use of recycled water and improve storm water infiltration
- **Waste Reduction** – promote reuse, recycling, and composting
- **Urban Greening** – maintain a healthy and expand existing urban forest

In accordance with the CAP, the City also developed a CAP Consistency Checklist as a tool for new development projects to demonstrate consistency with the CAP. To demonstrate consistency with the

[8] City of Pasadena, *Pasadena Climate Action Plan*, March 2018, https://www.cityofpasadena.net/planning/wp-content/uploads/sites/30/Final-Pasadena-Climate-Action-Plan_3.5.2018.pdf?v=1633630417212, accessed October 7, 2021.

CAP, a project needs to be consistent with the City's General Plan Land Use Element land use designation, and fulfill one of the options below:

- Option A: Sustainable Development Actions – Demonstrate that the proposed project is consistent with the Pasadena CAP by incorporating applicable actions intended to ensure that the project contributes its fair share to the City's cumulative GHG reduction goals;

- Option B: GHG Efficiency – Demonstrate that the proposed project is consistent with Pasadena's per person GHG efficiency thresholds; or

- Option C: Net Zero GHG Emissions – Demonstrate that the proposed project would not result in a net increase in GHG emissions.

IMPACT ANALYSIS

Project-Related Sources of Greenhouse Gases

The proposed project would result in direct emissions of CO_2, N_2O, and CH_4, and would not result in other GHGs that would facilitate a meaningful analysis. Therefore, this analysis focuses on these three forms of GHG emissions. Direct project-related GHG emissions would include emissions from construction activities, area sources, and mobile sources, while indirect sources include emissions from electricity consumption, water demand, and solid waste generation. The most recent version of the California Emissions Estimator Model (CalEEMod), version 2020.4.0, was used to calculate project-related GHG emissions. Two CalEEMod models were conducted to calculate the long-term emissions from the operation of the existing retail building (i.e., existing conditions) and the proposed project, respectively. The net increase of total emissions represents the project-generated emissions. Table 2, *Estimated Greenhouse Gas Emissions*, presents the estimated CO_2, N_2O, and CH_4 emissions of the existing conditions and the proposed project. CalEEMod outputs are contained within Appendix A, *Greenhouse Gas Emissions Data*.

Direct Project-Related Source of Greenhouse Gases

Construction Emissions. Construction GHG emissions are amortized (i.e., total construction emissions divided by the lifetime of the project, assumed to be 30 years),[9] then added to the operational emissions. As seen in Table 2, construction of the proposed project would result in a total of 25.45 $MTCO_2e$/year (amortized over 30 years).

Area Source. The project would result in nominal area source emissions; refer to Table 2. Area source emissions would be generated due to an increased demand for consumer products, architectural coating, and landscaping equipment associated with the development of the proposed project. The project would use all electric landscape equipment as a project design feature, which has been incorporated in CalEEMod.

[9] In accordance with the SCAQMD guidance, projected GHGs from construction have been quantified and amortized over 30 years, which is the number of years considered to represent the life of the project. The amortized construction emissions are added to the annual average operational emissions.

Table 2
Estimated Greenhouse Gas Emissions

Source	CO_2	CH_4		N_2O		Total Metric Tons of CO_2e[2,3]
	Metric tons/year[1]	Metric tons/year[1]	Metric tons of CO_2e[1,3]	Metric tons/year[1]	Metric tons of CO_2e[1,3]	
Existing Conditions						
Direct Emissions						
Area Source	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mobile Source	803.31	0.06	1.61	0.04	12.55	817.47
Total Direct Emissions[2]	*803.31*	*0.06*	*1.61*	*0.04*	*12.55*	*817.47*
Indirect Emissions						
Energy	96.04	<0.01	0.09	<0.01	0.14	96.27
Water Demand	11.04	0.04	1.11	<0.01	0.32	12.48
Solid Waste	15.93	0.94	23.54	<0.01	<0.01	39.47
Total Indirect Emissions[2]	*123.02*	*0.99*	*24.74*	<0.01	*0.46*	*148.22*
Total Existing-Related Emissions[2]	*965.69 $MTCO_2e$/year*					
Proposed Project						
Direct Emissions						
Construction (amortized over 30 years)[4]	24.95	<0.01	0.08	<0.01	0.42	25.45
Area Source[5]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mobile Source	2,436.97	0.16	4.08	0.11	32.99	2,474.03
Project Total Direct Emissions[2]	*2,461.92*	*0.17*	*4.16*	*0.11*	*33.41*	*2,499.48*
Indirect Emissions						
Energy[6]	589.07	0.02	0.53	<0.01	1.02	590.62
Water Demand[7]	76.60	0.36	8.95	0.01	2.60	88.15
Solid Waste	89.89	5.31	132.80	<0.01	<0.01	222.69
Total Indirect Emissions[2]	*755.56*	*5.69*	*142.29*	*0.01*	*3.62*	*901.46*
Total Project-Related Emissions[2]	*3,400.95 $MTCO_2e$/year*					
Net Project-Related Emissions[2]	*2,435.25 $MTCO_2e$/year*					
Net Project-Related Emissions Per Service Population[2,8]	*6.58 $MTCO_2e$/year/capita*					

Notes:
Carbon dioxide equivalent = CO_2e; metric tons of carbon dioxide equivalent per year = $MTCO_2e$ per year
1. Project emissions were calculated using CalEEMod version 2020.4.0, as recommended by the SCAQMD.
2. Totals may be slightly off due to rounding.
3. Carbon dioxide equivalent values calculated using the U.S. Environmental Protection Agency Website, *Greenhouse Gas Equivalencies Calculator*, http://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator, accessed September 30, 2021.
4. Total project construction GHG emissions equate to 763.43 $MTCO_2e$. Value shown is amortized over the lifetime of the project (assumed to be 30 years).
5. Area source emissions account for the project design feature of all electric landscape equipment.
6. Energy source emissions account for project design features, including five percent more energy efficient that 2019 Title 24 standards and using energy efficient appliances.
7. Water demand emissions account for project design features, including low-flow water fixtures and water efficient irrigation system.
8. Per service population emissions were calculated based on 370 full-time employees generated by the project.

Refer to Appendix A, *Greenhouse Gas Emissions Data*, for detailed model input/output data.

Mobile Source Emissions. According to the *Huntington Medical Building Transportation Impact Analysis Outside CEQA Evaluation Final Report* (Transportation Impact Analysis), prepared by Iteris Incorporated (dated October 2021), the existing use on-site would generate 1,158 daily trips, resulting in approximately 817.47 $MTCO_2e$/year of GHG emissions. The proposed project would generate 2,690 daily trips, resulting in approximately 2,474.03 $MTCO_2e$/year of GHG emissions. Therefore, the proposed project would generate a net increase of 1,532 daily trips compared to the existing conditions, which would result in a net increase of approximately 1,656.56 $MTCO_2e$/year of mobile source generated GHG emissions; refer to Table 2.

Indirect Project-Related Source of Greenhouse Gases

Energy Consumption. Energy consumption emissions were calculated using the CalEEMod model and project-specific land use data. Electricity would be provided to the project site by Pasadena Water and Power. The project would include energy efficiency project design features, including five percent more efficient than 2019 Title 24 standards and installation of energy efficient appliances, which have been incorporated in CalEEMod. Compared to existing conditions, the project would indirectly result in a net increase of 494.35 $MTCO_2e$/year (590.62 $MTCO_2e$/year – 96.27 $MTCO_2e$/year) of GHG emissions due to energy consumption; refer to Table 2.

Water Demand. The project would include water efficiency project design features, including low-flow water fixtures and water efficient irrigation system. Compared to existing conditions, the project operations would result in an increased demand of approximately 12.6 million gallons of water per year, resulting in a net increase of 75.67 $MTCO_2e$/year (88.15 $MTCO_2e$/year – 12.48 $MTCO_2e$/year) of GHG emissions from indirect energy impacts due to water supply; refer to Table 2.

Solid Waste. Compared to existing conditions, the project operations would result in a net increase of 183.22 $MTCO_2e$/year (222.69 $MTCO_2e$/year – 39.47 $MTCO_2e$/year) of GHG emissions from solid waste generation associated with operations of the proposed project; refer to Table 2.

Total Project-Related Sources of Greenhouse Gases

As shown in Table 2, the total net amount of proposed project-related GHG emissions from direct and indirect sources combined would be 2,435.25 $MTCO_2e$/year. As the project would generate approximately 370 full-time equivalent jobs, the project's efficiency GHG emissions would be approximately 6.58 $MTCO_2e$/year/service population.

The project's first operational year would be 2024. According to the City's CAP Consistency Checklist *Option B: GHG Efficiency*, GHG emissions of projects with first operational year between 2021 and 2025 need to be less than or equal to 4.56 $MTCO_2e$/year/service person to be considered consistent with the CAP. Therefore, the project is not consistent with CAP Consistency Checklist Option B. In addition, the project would cause a net increase of GHG emissions, and therefore would not be consistent with CAP Consistency Checklist *Option C: Net Zero GHG Emissions*. As such, the project would need to demonstrate consistency with CAP Consistency Checklist *Option A: Sustainable Development Actions* to be considered consistent with the City's CAP.

Sustainable Development Actions

In order to demonstrate consistency with CAP Consistency Checklist *Option A: Sustainable Development Actions*, a proposed project must incorporate applicable Sustainable Development Actions to the satisfaction of the applicable City Departments. Incorporating these actions would ensure that the project would reduce its fair share of GHG emissions and support the achievement of the City's overall GHG emissions reduction goals. Provided in Table 3, *Consistency with Sustainable Development Actions*, is an evaluation of applicable actions to determine how the project would be consistent with or exceed the actions outlined in the CAP. The detailed checklist is provided in Appendix B, *Climate Action Plan Consistency Checklist*. As shown in Table 3, the project would be consistent with all six Mandatory Actions, one Energy Efficiency and Conservation action, two Sustainable Mobility and Land Use actions, and two

Urban Greening actions. This would result in 11 actions being implemented, which would be consistent with the requirement of at least 11 actions selected.

Table 3
Consistency with Sustainable Development Actions

GHG Reduction Strategy (**Measure in Pasadena's** CAP)	Sustainable Development Actions	Project Consistency Analysis
Mandatory Actions		
T-1.2: Continue to improve bicycle and pedestrian safety	Bicycle Storage: Does the project provide bicycle storage lockers, racks, or other bicycle storage facilities for residents/employees?	Consistent. The project would provide bicycle parking spaces on-site for employees and visitors.
T-3.1: Decrease annual commuter miles traveled by single occupancy vehicles	Transportation Demand Management (TDM): Does the project include a TDM plan? A TDM plan is required for the following projects: multifamily residential development that are 100 or more units; mixed-use developments with 50 or more residential units or 50,000 square feet or more of non-residential development; or non-residential projects which exceed 75,000 square feet.	Consistent. The project would include more than 75,000 square feet of non-residential development and therefore is subject to this action. A TDM is required prior to the issuance of a Certificate of Occupancy, after the construction of the project per the City's Municipal Code. Therefore, the project would be consistent with this action.
T-4.1: Expand the availability and use of alternative fuel vehicles and fueling infrastructure	Alternative Vehicle Fueling Wiring: For projects with more than three parking spaces, does the project provide wiring for at least one 240V Type II electric car charger?	Consistent. The project would provide two electric vehicle charging stations on-site, including Type II chargers.
E-1.2: Encourage the use of energy conservation devices and passive design concepts that make use of the natural climate to increase energy efficiency	Passive Design Features: Does the project utilize passive design techniques such as awnings or overhangs on the east, west, and south facing windows which block the high summer sun but allow in lower winter sun?	Consistent. The project would utilize passive design techniques that make use of the natural climate to increase energy efficiency, including overhangs on the west side of the building.
WC-1.1: Reduce potable water usage throughout Pasadena	Irrigation Efficiency: Will the project utilize drought tolerant landscaping and/or drip irrigation and/or weather controllers to reduce outdoor water use?	Consistent. The project would utilize drought tolerant landscaping and water efficient irrigation system.
WR-1.1: Continue to reduce solid waste and landfill GHG emissions	Facilitate Recycling: Does the project include a space for separate trash and recycling bins as well as provide informational signage/handouts for residents/employees outlining materials to be recycled?	Consistent. The project would include space for separate trash and recycling bins and provide informational signage for employees and visitors outlining materials to be recycled.
Energy Efficiency and Conservation		
E-1.1: Increase energy efficiency requirements of new buildings to perform better than 2016 Title 24 Standards	Energy Efficiency (Exceed 2016 Title 24): Does the project exceed the 2016 Title 24 Efficiency Standards by at least 5%?	Consistent. The project would exceed 2019 Title 24 standards by five percent. In addition, 2019 Title standards are 30 percent more efficient than 2016 Title 24 standards for non-residential buildings.
Sustainable Mobility and Land Use		
T-3.1: Decrease annual commuter miles traveled by single occupancy vehicles	Car Sharing: Does the project provide/facilitate car sharing by providing a designated car share space on or within the immediate vicinity of the project site? Examples of car share options include ZipCar, PitCarz, and Getaround.	Consistent. The project would provide vanpooling/carpooling and car share parking spaces on-site.
T-5.1: Facilitate high density, mixed-use, transit-oriented, and	Transit Oriented Development: Is the project located within 0.25 mile of a major	Consistent. The project site is located within 0.25 mile of multiple bus stops and

infill development	transit stop as defined in the Zoning Code.	transit stations. The closest major transit stop is Fillmore Station served by Metro Gold Line, approximately 500 feet to the northeast of the project site.
Urban Greening		
UG-1.1: Continue to preserve, enhance, and acquire additional green space throughout Pasadena to improve carbon sequestration, reduce the urban heat-island effect, and increase opportunities for active recreation	Greenspace: Does the project include at least 500 sq. ft. of public use greenspace (landscaped yards, parklets, rooftop garden, etc.)? At a minimum, 50% of the required greenspace must include softscape landscaping (e.g., trees, plants, grass, etc.).	Consistent. The project would include an approximately 1,240 square foot outdoor plaza on the ground level that would be accessible by the public. More than 50 percent of the outdoor plaza area would be trees, shrubs, and groundcover.
UG-2.1: Continue to protect existing trees and plant new ones to improve and ensure viability of Pasadena's urban forest	Trees: Does the project result in a net gain of trees?	Consistent. There are no existing trees on the project site. The project would plant multiple trees along Fillmore Street and Fair Oaks Avenue, and on the project site.
Source: City of Pasadena, Pasadena Climate Action Plan, Appendix D: Climate Action Plan Consistency Checklist, March 2018.		

Conclusion

In summary, the plan consistency analysis provided above demonstrates that the proposed project complies with or exceeds the sustainable development actions of the City's CAP Consistency Checklist Option A. In addition, the project would be consistent with the land use designation of the City's General Plan Land Use Element. Therefore, the project would be consistent with the City's CAP, and the project-specific impacts with regard to climate change would be less than significant.

Mitigation Measures: No mitigation is required.

REFERENCES

Documents

1. California Air Resources Board, *California Greenhouse Gas Emissions for 2000 to 2019,* https://ww3.arb.ca.gov/cc/inventory/pubs/reports/2000_2019/ghg_inventory_trends_00-19.pdf, accessed September 17, 2021.

2. California Air Resources Board, *2017 Scoping Plan*, November 2017.

3. California Building Standards Commission, *2019 California Building Standards Code*, July 1, 2019.

4. City of Pasadena, *City of Pasadena Land Use Diagram*, November 14, 2016, https://www.cityofpasadena.net/wp-content/uploads/sites/30/Land-Use-Diagram-2016-11-14.pdf?v=1584653610006, accessed September 27, 2021.

5. City of Pasadena, *South Fair Oaks Specific Plan, Private Realm Urban Design Framework Plan*, June 23, 2016. https://www.cityofpasadena.net/planning/wp-content/uploads/sites/30/South-Fair-Oaks-Specific-Plan-Updated-6232016.pdf?v=1632768097460, accessed September 27, 2021.

6. City of Pasadena, *Pasadena Climate Action Plan*, March 2018, https://www.cityofpasadena.net/planning/wp-content/uploads/sites/30/Final-Pasadena-Climate-Action-Plan_3.5.2018.pdf?v=1633630417212, accessed October 7, 2021.

7. Iteris Incorporated, *Huntington Medical Building Transportation Impact Analysis Outside CEQA Evaluation Final Report*, October 2021.

8. Scripps Institution of Oceanography, Carbon Dioxide Concentration at Mauna Loa Observatory, https://scripps.ucsd.edu/programs/keelingcurve/, accessed September 17, 2021.

9. U.S. Environmental Protection Agency Website, *Greenhouse Gas Equivalencies Calculator*, http://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator, accessed September 30, 2021.

Websites / Programs

1. Google Earth, 2021.

2. South Coast Air Quality Management District, California Emissions Estimator Model (CalEEMod), version 2020.4.0.

Appendix A

Greenhouse Gas Emissions Data

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Huntington Hospital MOB

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Medical Office Building	80.29	1000sqft	1.27	80,285.00	0
General Office Building	20.00	1000sqft	0.00	20,000.00	0
Unenclosed Parking with Elevator	202.00	Space	0.00	80,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	12			**Operational Year**	2024
Utility Company	Pasadena Water and Power				
CO2 Intensity (lb/MWhr)	872.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site about 1.27 acres total

Construction Phase - per construction questionnaire; paving and coating duration is default

Grading -

Demolition - 148 ft*135 ft*16 ft*0.0046 [ton of waste/ft^3 building volume]

Architectural Coating - SCAQMD Rule 1113

Vehicle Trips - 2690 total project generated trips

Area Coating - SCAQMD Rule 1113

Construction Off-road Equipment Mitigation - SCAQMD Rule 403

Area Mitigation - all electric landscape equipment

Huntington Hospital MOB - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Energy Mitigation - Project design feature: 5% over Title 24, energy efficient appliances

Water Mitigation - water efficiency project design features

Waste Mitigation - AB 341

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	100.00	50.00
tblArchitecturalCoating	EF_Nonresidential_Interior	100.00	50.00
tblArchitecturalCoating	EF_Parking	100.00	50.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	100	50
tblAreaCoating	Area_EF_Nonresidential_Interior	100	50
tblAreaCoating	Area_EF_Parking	100	50
tblAreaMitigation	UseLowVOCPaintNonresidentialExteriorValue	50	100
tblAreaMitigation	UseLowVOCPaintNonresidentialInteriorValue	50	100
tblAreaMitigation	UseLowVOCPaintParkingValue	50	100
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	340.00
tblConstructionPhase	NumDays	20.00	25.00
tblConstructionPhase	NumDays	4.00	48.00
tblConstructionPhase	PhaseEndDate	5/10/2023	1/26/2024
tblConstructionPhase	PhaseEndDate	4/12/2023	12/29/2023
tblConstructionPhase	PhaseEndDate	6/28/2022	7/5/2022
tblConstructionPhase	PhaseEndDate	7/6/2022	9/9/2022
tblConstructionPhase	PhaseEndDate	4/26/2023	1/12/2024
tblConstructionPhase	PhaseStartDate	4/27/2023	1/13/2024
tblConstructionPhase	PhaseStartDate	7/7/2022	9/10/2022
tblConstructionPhase	PhaseStartDate	7/1/2022	7/6/2022
tblConstructionPhase	PhaseStartDate	4/13/2023	12/30/2023
tblGrading	MaterialExported	0.00	43,500.00
tblLandUse	LotAcreage	1.84	1.27

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblLandUse	LotAcreage	0.46	0.00
tblLandUse	LotAcreage	1.82	0.00
tblVehicleTrips	ST_TR	2.21	26.83
tblVehicleTrips	ST_TR	8.57	26.83
tblVehicleTrips	SU_TR	0.70	26.83
tblVehicleTrips	SU_TR	1.42	26.83
tblVehicleTrips	WD_TR	9.74	26.83
tblVehicleTrips	WD_TR	34.80	26.83

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
2022	0.1481	1.6412	1.1371	3.8900e-003	0.2772	0.0563	0.3335	0.1092	0.0532	0.1624	0.0000	360.1206	360.1206	0.0439	0.0307	370.3585
2023	0.2290	1.6915	1.9767	4.3800e-003	0.1187	0.0683	0.1870	0.0321	0.0659	0.0980	0.0000	380.0780	380.0780	0.0443	0.0120	384.7474
2024	0.2424	0.0357	0.0572	9.0000e-005	1.4300e-003	1.7200e-003	3.1400e-003	3.8000e-004	1.6100e-003	1.9900e-003	0.0000	8.2695	8.2695	1.9600e-003	3.0000e-005	8.3266
Maximum	**0.2424**	**1.6915**	**1.9767**	**4.3800e-003**	**0.2772**	**0.0683**	**0.3335**	**0.1092**	**0.0659**	**0.1624**	**0.0000**	**380.0780**	**380.0780**	**0.0443**	**0.0307**	**384.7474**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1481	1.6412	1.1371	3.8900e-003	0.1587	0.0563	0.2150	0.0557	0.0532	0.1089	0.0000	360.1204	360.1204	0.0439	0.0307	370.3583
2023	0.2290	1.6915	1.9767	4.3800e-003	0.1187	0.0683	0.1870	0.0321	0.0659	0.0980	0.0000	380.0777	380.0777	0.0443	0.0120	384.7472
2024	0.2424	0.0357	0.0572	9.0000e-005	1.4300e-003	1.7200e-003	3.1400e-003	3.8000e-004	1.6100e-003	1.9900e-003	0.0000	8.2695	8.2695	1.9600e-003	3.0000e-005	8.3266
Maximum	**0.2424**	**1.6915**	**1.9767**	**4.3800e-003**	**0.1587**	**0.0683**	**0.2150**	**0.0557**	**0.0659**	**0.1089**	**0.0000**	**380.0777**	**380.0777**	**0.0443**	**0.0307**	**384.7472**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**29.81**	**0.00**	**22.63**	**37.75**	**0.00**	**20.38**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**6-1-2022**	**8-31-2022**	0.9893	0.9893
2	**9-1-2022**	**11-30-2022**	0.5882	0.5882
3	**12-1-2022**	**2-28-2023**	0.4895	0.4895
4	**3-1-2023**	**5-31-2023**	0.4841	0.4841
5	**6-1-2023**	**8-31-2023**	0.4833	0.4833
6	**9-1-2023**	**11-30-2023**	0.4797	0.4797
7	**12-1-2023**	**2-29-2024**	0.4315	0.4315
		Highest	0.9893	0.9893

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3918	3.0000e-005	3.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.5000e-003	7.5000e-003	2.0000e-005	0.0000	7.9900e-003
Energy	5.5800e-003	0.0507	0.0426	3.0000e-004		3.8500e-003	3.8500e-003		3.8500e-003	3.8500e-003	0.0000	613.6271	613.6271	0.0222	3.5700e-003	615.2453
Mobile	1.2251	1.4072	11.9586	0.0259	2.7542	0.0193	2.7734	0.7350	0.0179	0.7529	0.0000	2,436.9718	2,436.9718	0.1633	0.1107	2,474.0311
Waste						0.0000	0.0000		0.0000	0.0000	179.7729	0.0000	179.7729	10.6243	0.0000	445.3796
Water						0.0000	0.0000		0.0000	0.0000	4.3236	88.2934	92.6171	0.4474	0.0109	107.0477
Total	**1.6224**	**1.4580**	**12.0050**	**0.0262**	**2.7542**	**0.0231**	**2.7773**	**0.7350**	**0.0218**	**0.7568**	**184.0965**	**3,138.8999**	**3,322.9963**	**11.2572**	**0.1251**	**3,641.7116**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3916	2.0000e-005	2.2300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0400e-003	4.0400e-003	1.0000e-005	0.0000	4.2500e-003
Energy	5.3100e-003	0.0482	0.0405	2.9000e-004		3.6700e-003	3.6700e-003		3.6700e-003	3.6700e-003	0.0000	589.0724	589.0724	0.0213	3.4200e-003	590.6242
Mobile	1.2251	1.4072	11.9586	0.0259	2.7542	0.0193	2.7734	0.7350	0.0179	0.7529	0.0000	2,436.9718	2,436.9718	0.1633	0.1107	2,474.0311
Waste						0.0000	0.0000		0.0000	0.0000	89.8864	0.0000	89.8864	5.3121	0.0000	222.6898
Water						0.0000	0.0000		0.0000	0.0000	3.4589	73.1404	76.5992	0.3580	8.7200e-003	88.1495
Total	**1.6220**	**1.4555**	**12.0014**	**0.0262**	**2.7542**	**0.0229**	**2.7771**	**0.7350**	**0.0216**	**0.7566**	**93.3453**	**3,099.1886**	**3,192.5339**	**5.8548**	**0.1228**	**3,375.4989**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.03**	**0.17**	**0.03**	**0.04**	**0.00**	**0.78**	**0.01**	**0.00**	**0.83**	**0.02**	**49.30**	**1.27**	**3.93**	**47.99**	**1.85**	**7.31**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2022	7/5/2022	5	25	
2	Grading	Grading	7/6/2022	9/9/2022	5	48	
3	Building Construction	Building Construction	9/10/2022	12/29/2023	5	340	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Paving	Paving	12/30/2023	1/12/2024	5	10	
5	Architectural Coating	Architectural Coating	1/13/2024	1/26/2024	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 48

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 150,428; Non-Residential Outdoor: 50,143; Striped Parking Area: 4,848 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	145.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	5,438.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	66.00	30.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0157	0.0000	0.0157	2.3800e-003	0.0000	2.3800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0211	0.2078	0.1745	3.0000e-004		0.0105	0.0105		9.7900e-003	9.7900e-003	0.0000	26.3471	26.3471	6.7100e-003	0.0000	26.5150
Total	**0.0211**	**0.2078**	**0.1745**	**3.0000e-004**	**0.0157**	**0.0105**	**0.0262**	**2.3800e-003**	**9.7900e-003**	**0.0122**	**0.0000**	**26.3471**	**26.3471**	**6.7100e-003**	**0.0000**	**26.5150**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

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	3.0000e-004	0.0119	2.7200e-003	4.0000e-005	1.2500e-003	9.0000e-005	1.3400e-003	3.4000e-004	9.0000e-005	4.3000e-004	0.0000	4.3668	4.3668	2.3000e-004	6.9000e-004	4.5793
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	5.5000e-004	4.4000e-004	5.7700e-003	2.0000e-005	1.7800e-003	1.0000e-005	1.7900e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.4509	1.4509	4.0000e-005	4.0000e-005	1.4634
Total	**8.5000e-004**	**0.0124**	**8.4900e-003**	**6.0000e-005**	**3.0300e-003**	**1.0000e-004**	**3.1300e-003**	**8.1000e-004**	**1.0000e-004**	**9.1000e-004**	**0.0000**	**5.8177**	**5.8177**	**2.7000e-004**	**7.3000e-004**	**6.0427**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8300e-003	0.0000	5.8300e-003	8.8000e-004	0.0000	8.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0211	0.2078	0.1745	3.0000e-004		0.0105	0.0105		9.7900e-003	9.7900e-003	0.0000	26.3471	26.3471	6.7100e-003	0.0000	26.5149
Total	**0.0211**	**0.2078**	**0.1745**	**3.0000e-004**	**5.8300e-003**	**0.0105**	**0.0163**	**8.8000e-004**	**9.7900e-003**	**0.0107**	**0.0000**	**26.3471**	**26.3471**	**6.7100e-003**	**0.0000**	**26.5149**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-004	0.0119	2.7200e-003	4.0000e-005	1.2500e-003	9.0000e-005	1.3400e-003	3.4000e-004	9.0000e-005	4.3000e-004	0.0000	4.3668	4.3668	2.3000e-004	6.9000e-004	4.5793
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	5.5000e-004	4.4000e-004	5.7700e-003	2.0000e-005	1.7800e-003	1.0000e-005	1.7900e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.4509	1.4509	4.0000e-005	4.0000e-005	1.4634
Total	**8.5000e-004**	**0.0124**	**8.4900e-003**	**6.0000e-005**	**3.0300e-003**	**1.0000e-004**	**3.1300e-003**	**8.1000e-004**	**1.0000e-004**	**9.1000e-004**	**0.0000**	**5.8177**	**5.8177**	**2.7000e-004**	**7.3000e-004**	**6.0427**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1724	0.0000	0.1724	0.0826	0.0000	0.0826	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0370	0.4076	0.2213	4.9000e-004		0.0178	0.0178		0.0164	0.0164	0.0000	43.4465	43.4465	0.0141	0.0000	43.7978
Total	**0.0370**	**0.4076**	**0.2213**	**4.9000e-004**	**0.1724**	**0.0178**	**0.1903**	**0.0826**	**0.0164**	**0.0990**	**0.0000**	**43.4465**	**43.4465**	**0.0141**	**0.0000**	**43.7978**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

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	0.0114	0.4469	0.1022	1.6500e-003	0.0468	3.5500e-003	0.0504	0.0129	3.4000e-003	0.0163	0.0000	163.7706	163.7706	8.7900e-003	0.0260	171.7380
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	8.1000e-004	6.5000e-004	8.5100e-003	2.0000e-005	2.6300e-003	2.0000e-005	2.6500e-003	7.0000e-004	1.0000e-005	7.1000e-004	0.0000	2.1428	2.1428	6.0000e-005	6.0000e-005	2.1614
Total	**0.0122**	**0.4475**	**0.1107**	**1.6700e-003**	**0.0494**	**3.5700e-003**	**0.0530**	**0.0136**	**3.4100e-003**	**0.0170**	**0.0000**	**165.9134**	**165.9134**	**8.8500e-003**	**0.0261**	**173.8994**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0639	0.0000	0.0639	0.0306	0.0000	0.0306	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0370	0.4076	0.2213	4.9000e-004		0.0178	0.0178		0.0164	0.0164	0.0000	43.4465	43.4465	0.0141	0.0000	43.7977
Total	**0.0370**	**0.4076**	**0.2213**	**4.9000e-004**	**0.0639**	**0.0178**	**0.0817**	**0.0306**	**0.0164**	**0.0470**	**0.0000**	**43.4465**	**43.4465**	**0.0141**	**0.0000**	**43.7977**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0114	0.4469	0.1022	1.6500e-003	0.0468	3.5500e-003	0.0504	0.0129	3.4000e-003	0.0163	0.0000	163.7706	163.7706	8.7900e-003	0.0260	171.7380
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	8.1000e-004	6.5000e-004	8.5100e-003	2.0000e-005	2.6300e-003	2.0000e-005	2.6500e-003	7.0000e-004	1.0000e-005	7.1000e-004	0.0000	2.1428	2.1428	6.0000e-005	6.0000e-005	2.1614
Total	**0.0122**	**0.4475**	**0.1107**	**1.6700e-003**	**0.0494**	**3.5700e-003**	**0.0530**	**0.0136**	**3.4100e-003**	**0.0170**	**0.0000**	**165.9134**	**165.9134**	**8.8500e-003**	**0.0261**	**173.8994**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0660	0.5001	0.5091	8.8000e-004		0.0236	0.0236		0.0228	0.0228	0.0000	72.6308	72.6308	0.0127	0.0000	72.9470
Total	**0.0660**	**0.5001**	**0.5091**	**8.8000e-004**		**0.0236**	**0.0236**		**0.0228**	**0.0228**	**0.0000**	**72.6308**	**72.6308**	**0.0127**	**0.0000**	**72.9470**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1600e-003	0.0586	0.0195	2.3000e-004	7.5700e-003	5.8000e-004	8.1500e-003	2.1800e-003	5.6000e-004	2.7400e-003	0.0000	22.3944	22.3944	7.5000e-004	3.2500e-003	23.3814
Worker	8.8700e-003	7.1600e-003	0.0937	2.6000e-004	0.0290	1.8000e-004	0.0291	7.6900e-003	1.6000e-004	7.8500e-003	0.0000	23.5708	23.5708	6.5000e-004	6.3000e-004	23.7752
Total	**0.0110**	**0.0658**	**0.1131**	**4.9000e-004**	**0.0365**	**7.6000e-004**	**0.0373**	**9.8700e-003**	**7.2000e-004**	**0.0106**	**0.0000**	**45.9651**	**45.9651**	**1.4000e-003**	**3.8800e-003**	**47.1566**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0660	0.5001	0.5091	8.8000e-004		0.0236	0.0236		0.0228	0.0228	0.0000	72.6307	72.6307	0.0127	0.0000	72.9469
Total	**0.0660**	**0.5001**	**0.5091**	**8.8000e-004**		**0.0236**	**0.0236**		**0.0228**	**0.0228**	**0.0000**	**72.6307**	**72.6307**	**0.0127**	**0.0000**	**72.9469**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1600e-003	0.0586	0.0195	2.3000e-004	7.5700e-003	5.8000e-004	8.1500e-003	2.1800e-003	5.6000e-004	2.7400e-003	0.0000	22.3944	22.3944	7.5000e-004	3.2500e-003	23.3814
Worker	8.8700e-003	7.1600e-003	0.0937	2.6000e-004	0.0290	1.8000e-004	0.0291	7.6900e-003	1.6000e-004	7.8500e-003	0.0000	23.5708	23.5708	6.5000e-004	6.3000e-004	23.7752
Total	**0.0110**	**0.0658**	**0.1131**	**4.9000e-004**	**0.0365**	**7.6000e-004**	**0.0373**	**9.8700e-003**	**7.2000e-004**	**0.0106**	**0.0000**	**45.9651**	**45.9651**	**1.4000e-003**	**3.8800e-003**	**47.1566**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1980	1.5224	1.6394	2.8700e-003		0.0669	0.0669		0.0646	0.0646	0.0000	236.0789	236.0789	0.0401	0.0000	237.0811
Total	**0.1980**	**1.5224**	**1.6394**	**2.8700e-003**		**0.0669**	**0.0669**		**0.0646**	**0.0646**	**0.0000**	**236.0789**	**236.0789**	**0.0401**	**0.0000**	**237.0811**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2200e-003	0.1486	0.0566	7.1000e-004	0.0246	8.3000e-004	0.0254	7.1000e-003	7.9000e-004	7.8900e-003	0.0000	69.4089	69.4089	2.3300e-003	0.0101	72.4640
Worker	0.0268	0.0206	0.2807	8.0000e-004	0.0941	5.4000e-004	0.0947	0.0250	5.0000e-004	0.0255	0.0000	74.5902	74.5902	1.8900e-003	1.9000e-003	75.2023
Total	**0.0310**	**0.1691**	**0.3373**	**1.5100e-003**	**0.1187**	**1.3700e-003**	**0.1201**	**0.0321**	**1.2900e-003**	**0.0334**	**0.0000**	**143.9991**	**143.9991**	**4.2200e-003**	**0.0120**	**147.6664**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1980	1.5224	1.6394	2.8700e-003		0.0669	0.0669		0.0646	0.0646	0.0000	236.0786	236.0786	0.0401	0.0000	237.0808
Total	**0.1980**	**1.5224**	**1.6394**	**2.8700e-003**		**0.0669**	**0.0669**		**0.0646**	**0.0646**	**0.0000**	**236.0786**	**236.0786**	**0.0401**	**0.0000**	**237.0808**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.2200e-003	0.1486	0.0566	7.1000e-004	0.0246	8.3000e-004	0.0254	7.1000e-003	7.9000e-004	7.8900e-003	0.0000	69.4089	69.4089	2.3300e-003	0.0101	72.4640
Worker	0.0268	0.0206	0.2807	8.0000e-004	0.0941	5.4000e-004	0.0947	0.0250	5.0000e-004	0.0255	0.0000	74.5902	74.5902	1.8900e-003	1.9000e-003	75.2023
Total	**0.0310**	**0.1691**	**0.3373**	**1.5100e-003**	**0.1187**	**1.3700e-003**	**0.1201**	**0.0321**	**1.2900e-003**	**0.0334**	**0.0000**	**143.9991**	**143.9991**	**4.2200e-003**	**0.0120**	**147.6664**

3.5 Paving - 2023

Unmitigated Construction On-Site

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Mitigated Construction Off-Site

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

3.5 Paving - 2024

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	3.0900e-003	0.0293	0.0441	7.0000e-005		1.4100e-003	1.4100e-003		1.3000e-003	1.3000e-003	0.0000	5.8870	5.8870	1.8700e-003	0.0000	5.9337
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.0900e-003**	**0.0293**	**0.0441**	**7.0000e-005**		**1.4100e-003**	**1.4100e-003**		**1.3000e-003**	**1.3000e-003**	**0.0000**	**5.8870**	**5.8870**	**1.8700e-003**	**0.0000**	**5.9337**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

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	1.9000e-004	1.4000e-004	1.9800e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5529	0.5529	1.0000e-005	1.0000e-005	0.5572
Total	**1.9000e-004**	**1.4000e-004**	**1.9800e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5529**	**0.5529**	**1.0000e-005**	**1.0000e-005**	**0.5572**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.0900e-003	0.0293	0.0441	7.0000e-005		1.4100e-003	1.4100e-003		1.3000e-003	1.3000e-003	0.0000	5.8870	5.8870	1.8700e-003	0.0000	5.9337
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.0900e-003**	**0.0293**	**0.0441**	**7.0000e-005**		**1.4100e-003**	**1.4100e-003**		**1.3000e-003**	**1.3000e-003**	**0.0000**	**5.8870**	**5.8870**	**1.8700e-003**	**0.0000**	**5.9337**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	1.4000e-004	1.9800e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5529	0.5529	1.0000e-005	1.0000e-005	0.5572
Total	**1.9000e-004**	**1.4000e-004**	**1.9800e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5529**	**0.5529**	**1.0000e-005**	**1.0000e-005**	**0.5572**

3.6 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2380					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.0000e-004	6.0900e-003	9.0500e-003	1.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	1.2766	1.2766	7.0000e-005	0.0000	1.2784
Total	**0.2389**	**6.0900e-003**	**9.0500e-003**	**1.0000e-005**		**3.0000e-004**	**3.0000e-004**		**3.0000e-004**	**3.0000e-004**	**0.0000**	**1.2766**	**1.2766**	**7.0000e-005**	**0.0000**	**1.2784**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2024

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	1.9000e-004	1.4000e-004	1.9800e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5529	0.5529	1.0000e-005	1.0000e-005	0.5572
Total	**1.9000e-004**	**1.4000e-004**	**1.9800e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5529**	**0.5529**	**1.0000e-005**	**1.0000e-005**	**0.5572**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2380					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.0000e-004	6.0900e-003	9.0500e-003	1.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	1.2766	1.2766	7.0000e-005	0.0000	1.2784
Total	**0.2389**	**6.0900e-003**	**9.0500e-003**	**1.0000e-005**		**3.0000e-004**	**3.0000e-004**		**3.0000e-004**	**3.0000e-004**	**0.0000**	**1.2766**	**1.2766**	**7.0000e-005**	**0.0000**	**1.2784**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9000e-004	1.4000e-004	1.9800e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5529	0.5529	1.0000e-005	1.0000e-005	0.5572
Total	**1.9000e-004**	**1.4000e-004**	**1.9800e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5529**	**0.5529**	**1.0000e-005**	**1.0000e-005**	**0.5572**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.2251	1.4072	11.9586	0.0259	2.7542	0.0193	2.7734	0.7350	0.0179	0.7529	0.0000	2,436.9718	2,436.9718	0.1633	0.1107	2,474.0311
Unmitigated	1.2251	1.4072	11.9586	0.0259	2.7542	0.0193	2.7734	0.7350	0.0179	0.7529	0.0000	2,436.9718	2,436.9718	0.1633	0.1107	2,474.0311

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Office Building	536.60	536.60	536.60	1,728,636	1,728,636
Medical Office Building	2,154.05	2,154.05	2154.05	5,587,292	5,587,292
Unenclosed Parking with Elevator	0.00	0.00	0.00		
Total	2,690.65	2,690.65	2,690.65	7,315,928	7,315,928

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Office Building	16.60	8.40	6.90	33.00	48.00	19.00	77	19	4
Medical Office Building	16.60	8.40	6.90	29.60	51.40	19.00	60	30	10
Unenclosed Parking with	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Office Building	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721
Medical Office Building	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unenclosed Parking with Elevator	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	536.5519	536.5519	0.0203	2.4600e-003	537.7916
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	558.4522	558.4522	0.0211	2.5600e-003	559.7425
NaturalGas Mitigated	5.3100e-003	0.0482	0.0405	2.9000e-004		3.6700e-003	3.6700e-003		3.6700e-003	3.6700e-003	0.0000	52.5205	52.5205	1.0100e-003	9.6000e-004	52.8326
NaturalGas Unmitigated	5.5800e-003	0.0507	0.0426	3.0000e-004		3.8500e-003	3.8500e-003		3.8500e-003	3.8500e-003	0.0000	55.1749	55.1749	1.0600e-003	1.0100e-003	55.5028

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
General Office Building	206200	1.1100e-003	0.0101	8.4900e-003	6.0000e-005		7.7000e-004	7.7000e-004		7.7000e-004	7.7000e-004	0.0000	11.0036	11.0036	2.1000e-004	2.0000e-004	11.0690
Medical Office Building	827738	4.4600e-003	0.0406	0.0341	2.4000e-004		3.0800e-003	3.0800e-003		3.0800e-003	3.0800e-003	0.0000	44.1713	44.1713	8.5000e-004	8.1000e-004	44.4338
Unenclosed 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
Total		**5.5700e-003**	**0.0507**	**0.0426**	**3.0000e-004**		**3.8500e-003**	**3.8500e-003**		**3.8500e-003**	**3.8500e-003**	**0.0000**	**55.1749**	**55.1749**	**1.0600e-003**	**1.0100e-003**	**55.5028**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Office Building	196280	1.0600e-003	9.6200e-003	8.0800e-003	6.0000e-005		7.3000e-004	7.3000e-004		7.3000e-004	7.3000e-004	0.0000	10.4743	10.4743	2.0000e-004	1.9000e-004	10.5365
Medical Office Building	787917	4.2500e-003	0.0386	0.0324	2.3000e-004		2.9400e-003	2.9400e-003		2.9400e-003	2.9400e-003	0.0000	42.0463	42.0463	8.1000e-004	7.7000e-004	42.2961
Unenclosed 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
Total		**5.3100e-003**	**0.0482**	**0.0405**	**2.9000e-004**		**3.6700e-003**	**3.6700e-003**		**3.6700e-003**	**3.6700e-003**	**0.0000**	**52.5205**	**52.5205**	**1.0100e-003**	**9.6000e-004**	**52.8326**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	250000	98.9943	3.7400e-003	4.5000e-004	99.2230
Medical Office Building	1.00356e+006	397.3877	0.0150	1.8200e-003	398.3059
Unenclosed Parking with Elevator	156752	62.0702	2.3500e-003	2.8000e-004	62.2136
Total		**558.4522**	**0.0211**	**2.5500e-003**	**559.7425**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Office Building	240380	95.1850	3.6000e-003	4.4000e-004	95.4049
Medical Office Building	964945	382.0963	0.0144	1.7500e-003	382.9791
Unenclosed Parking with Elevator	149682	59.2706	2.2400e-003	2.7000e-004	59.4076
Total		**536.5519**	**0.0203**	**2.4600e-003**	**537.7916**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3916	2.0000e-005	2.2300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0400e-003	4.0400e-003	1.0000e-005	0.0000	4.2500e-003
Unmitigated	0.3918	3.0000e-005	3.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.5000e-003	7.5000e-003	2.0000e-005	0.0000	7.9900e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0238					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3676					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.6000e-004	3.0000e-005	3.8500e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	7.5000e-003	7.5000e-003	2.0000e-005	0.0000	7.9900e-003
Total	**0.3918**	**3.0000e-005**	**3.8500e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**7.5000e-003**	**7.5000e-003**	**2.0000e-005**	**0.0000**	**7.9900e-003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0238					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3676					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.5000e-004	2.0000e-005	2.2300e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	4.0400e-003	4.0400e-003	1.0000e-005	0.0000	4.2500e-003
Total	**0.3916**	**2.0000e-005**	**2.2300e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**4.0400e-003**	**4.0400e-003**	**1.0000e-005**	**0.0000**	**4.2500e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	76.5992	0.3580	8.7200e-003	88.1495
Unmitigated	92.6171	0.4474	0.0109	107.0477

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	3.55467 / 2.17867	29.0403	0.1169	2.8600e-003	32.8156
Medical Office Building	10.0736 / 1.91878	63.5767	0.3305	8.0300e-003	74.2321
Unenclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**92.6171**	**0.4474**	**0.0109**	**107.0477**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Office Building	2.84374 / 2.04577	24.5645	0.0936	2.3000e-003	27.5878
Medical Office Building	8.05886 / 1.80173	52.0347	0.2645	6.4300e-003	60.5617
Unenclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**76.5992**	**0.3580**	**8.7300e-003**	**88.1495**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	89.8864	5.3121	0.0000	222.6898
Unmitigated	179.7729	10.6243	0.0000	445.3796

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	18.6	3.7756	0.2231	0.0000	9.3540
Medical Office Building	867.02	175.9972	10.4011	0.0000	436.0257
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**179.7729**	**10.6243**	**0.0000**	**445.3796**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Office Building	9.3	1.8878	0.1116	0.0000	4.6770
Medical Office Building	433.51	87.9986	5.2006	0.0000	218.0128
Unenclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Total		**89.8864**	**5.3121**	**0.0000**	**222.6898**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Existing Conditions

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Discount Club	18.25	1000sqft	1.27	18,250.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	12			**Operational Year**	2021
Utility Company	Pasadena Water and Power				
CO2 Intensity (lb/MWhr)	872.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site about 1.27 acres total

Construction Phase - operations only

Grading -

Demolition -

Architectural Coating -

Vehicle Trips - 1158 total existing daily trips

Area Coating -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Waste Mitigation -

Trips and VMT -

Table Name	Column Name	Default Value	New Value
tblLandUse	LotAcreage	0.42	1.27
tblVehicleTrips	ST_TR	53.75	63.46
tblVehicleTrips	SU_TR	33.67	63.46
tblVehicleTrips	WD_TR	41.80	63.46

2.0 Emissions Summary

Existing Conditions - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	3.7300e-003	0.0405	0.0203	4.0000e-005	0.0144	1.8300e-003	0.0162	6.9100e-003	1.6900e-003	8.5900e-003	0.0000	3.8043	3.8043	1.1800e-003	1.0000e-005	3.8353
Maximum	**3.7300e-003**	**0.0405**	**0.0203**	**4.0000e-005**	**0.0144**	**1.8300e-003**	**0.0162**	**6.9100e-003**	**1.6900e-003**	**8.5900e-003**	**0.0000**	**3.8043**	**3.8043**	**1.1800e-003**	**1.0000e-005**	**3.8353**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	3.7300e-003	0.0405	0.0203	4.0000e-005	0.0144	1.8300e-003	0.0162	6.9100e-003	1.6900e-003	8.5900e-003	0.0000	3.8043	3.8043	1.1800e-003	1.0000e-005	3.8353
Maximum	**3.7300e-003**	**0.0405**	**0.0203**	**4.0000e-005**	**0.0144**	**1.8300e-003**	**0.0162**	**6.9100e-003**	**1.6900e-003**	**8.5900e-003**	**0.0000**	**3.8043**	**3.8043**	**1.1800e-003**	**1.0000e-005**	**3.8353**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Existing Conditions - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-1-2021**	**9-30-2021**	0.0158	0.0158
		Highest	0.0158	0.0158

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0744	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.5000e-004	4.5000e-004	0.0000	0.0000	4.8000e-004
Energy	1.6000e-004	1.4600e-003	1.2200e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	96.0389	96.0389	3.6000e-003	4.6000e-004	96.2665
Mobile	0.5206	0.6323	4.5539	8.6700e-003	0.8304	9.3100e-003	0.8397	0.2216	8.7200e-003	0.2303	0.0000	803.3114	803.3114	0.0644	0.0421	817.4742
Waste						0.0000	0.0000		0.0000	0.0000	15.9328	0.0000	15.9328	0.9416	0.0000	39.4727
Water						0.0000	0.0000		0.0000	0.0000	0.4289	10.6150	11.0439	0.0445	1.0900e-003	12.4796
Total	**0.5952**	**0.6337**	**4.5554**	**8.6800e-003**	**0.8304**	**9.4200e-003**	**0.8398**	**0.2216**	**8.8300e-003**	**0.2305**	**16.3616**	**909.9658**	**926.3274**	**1.0541**	**0.0437**	**965.6935**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0744	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.5000e-004	4.5000e-004	0.0000	0.0000	4.8000e-004
Energy	1.6000e-004	1.4600e-003	1.2200e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	96.0389	96.0389	3.6000e-003	4.6000e-004	96.2665
Mobile	0.5206	0.6323	4.5539	8.6700e-003	0.8304	9.3100e-003	0.8397	0.2216	8.7200e-003	0.2303	0.0000	803.3114	803.3114	0.0644	0.0421	817.4742
Waste						0.0000	0.0000		0.0000	0.0000	15.9328	0.0000	15.9328	0.9416	0.0000	39.4727
Water						0.0000	0.0000		0.0000	0.0000	0.4289	10.6150	11.0439	0.0445	1.0900e-003	12.4796
Total	**0.5952**	**0.6337**	**4.5554**	**8.6800e-003**	**0.8304**	**9.4200e-003**	**0.8398**	**0.2216**	**8.8300e-003**	**0.2305**	**16.3616**	**909.9658**	**926.3274**	**1.0541**	**0.0437**	**965.6935**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	9/29/2021	10/4/2021	5	4	

Acres of Grading (Site Preparation Phase): 0

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0142	0.0000	0.0142	6.8500e-003	0.0000	6.8500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6500e-003	0.0404	0.0195	4.0000e-005		1.8300e-003	1.8300e-003		1.6800e-003	1.6800e-003	0.0000	3.6208	3.6208	1.1700e-003	0.0000	3.6501
Total	**3.6500e-003**	**0.0404**	**0.0195**	**4.0000e-005**	**0.0142**	**1.8300e-003**	**0.0160**	**6.8500e-003**	**1.6800e-003**	**8.5300e-003**	**0.0000**	**3.6208**	**3.6208**	**1.1700e-003**	**0.0000**	**3.6501**

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	7.0000e-005	6.0000e-005	7.7000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1835	0.1835	1.0000e-005	1.0000e-005	0.1852
Total	**7.0000e-005**	**6.0000e-005**	**7.7000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1835**	**0.1835**	**1.0000e-005**	**1.0000e-005**	**0.1852**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0142	0.0000	0.0142	6.8500e-003	0.0000	6.8500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6500e-003	0.0404	0.0195	4.0000e-005		1.8300e-003	1.8300e-003		1.6800e-003	1.6800e-003	0.0000	3.6208	3.6208	1.1700e-003	0.0000	3.6501
Total	**3.6500e-003**	**0.0404**	**0.0195**	**4.0000e-005**	**0.0142**	**1.8300e-003**	**0.0160**	**6.8500e-003**	**1.6800e-003**	**8.5300e-003**	**0.0000**	**3.6208**	**3.6208**	**1.1700e-003**	**0.0000**	**3.6501**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	6.0000e-005	7.7000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1835	0.1835	1.0000e-005	1.0000e-005	0.1852
Total	**7.0000e-005**	**6.0000e-005**	**7.7000e-004**	**0.0000**	**2.2000e-004**	**0.0000**	**2.2000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.1835**	**0.1835**	**1.0000e-005**	**1.0000e-005**	**0.1852**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5206	0.6323	4.5539	8.6700e-003	0.8304	9.3100e-003	0.8397	0.2216	8.7200e-003	0.2303	0.0000	803.3114	803.3114	0.0644	0.0421	817.4742
Unmitigated	0.5206	0.6323	4.5539	8.6700e-003	0.8304	9.3100e-003	0.8397	0.2216	8.7200e-003	0.2303	0.0000	803.3114	803.3114	0.0644	0.0421	817.4742

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Discount Club	1,158.15	1,158.15	1158.15	2,205,382	2,205,382
Total	1,158.15	1,158.15	1,158.15	2,205,382	2,205,382

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Discount Club	16.60	8.40	6.90	16.70	64.30	19.00	45	40	15

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Discount Club	0.543593	0.059173	0.184074	0.132247	0.023864	0.006129	0.012170	0.009151	0.000841	0.000521	0.023543	0.000746	0.003947

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	94.4514	94.4514	3.5700e-003	4.3000e-004	94.6697
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	94.4514	94.4514	3.5700e-003	4.3000e-004	94.6697
NaturalGas Mitigated	1.6000e-004	1.4600e-003	1.2200e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.5874	1.5874	3.0000e-005	3.0000e-005	1.5969
NaturalGas Unmitigated	1.6000e-004	1.4600e-003	1.2200e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.5874	1.5874	3.0000e-005	3.0000e-005	1.5969

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
Discount Club	29747.5	1.6000e-004	1.4600e-003	1.2200e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.5874	1.5874	3.0000e-005	3.0000e-005	1.5969
Total		**1.6000e-004**	**1.4600e-003**	**1.2200e-003**	**1.0000e-005**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**1.5874**	**1.5874**	**3.0000e-005**	**3.0000e-005**	**1.5969**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Discount Club	29747.5	1.6000e-004	1.4600e-003	1.2200e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.5874	1.5874	3.0000e-005	3.0000e-005	1.5969
Total		**1.6000e-004**	**1.4600e-003**	**1.2200e-003**	**1.0000e-005**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**1.5874**	**1.5874**	**3.0000e-005**	**3.0000e-005**	**1.5969**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Discount Club	238528	94.4514	3.5700e-003	4.3000e-004	94.6697
Total		**94.4514**	**3.5700e-003**	**4.3000e-004**	**94.6697**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Discount Club	238528	94.4514	3.5700e-003	4.3000e-004	94.6697
Total		**94.4514**	**3.5700e-003**	**4.3000e-004**	**94.6697**

6.0 Area Detail

6.1 Mitigation Measures Area

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0744	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.5000e-004	4.5000e-004	0.0000	0.0000	4.8000e-004
Unmitigated	0.0744	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.5000e-004	4.5000e-004	0.0000	0.0000	4.8000e-004

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	8.4600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0660					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.5000e-004	4.5000e-004	0.0000	0.0000	4.8000e-004
Total	**0.0744**	**0.0000**	**2.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.5000e-004**	**4.5000e-004**	**0.0000**	**0.0000**	**4.8000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	8.4600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0660					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.5000e-004	4.5000e-004	0.0000	0.0000	4.8000e-004
Total	**0.0744**	**0.0000**	**2.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.5000e-004**	**4.5000e-004**	**0.0000**	**0.0000**	**4.8000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	11.0439	0.0445	1.0900e-003	12.4796
Unmitigated	11.0439	0.0445	1.0900e-003	12.4796

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Discount Club	1.35182 / 0.828537	11.0439	0.0445	1.0900e-003	12.4796
Total		**11.0439**	**0.0445**	**1.0900e-003**	**12.4796**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Discount Club	1.35182 / 0.828537	11.0439	0.0445	1.0900e-003	12.4796
Total		**11.0439**	**0.0445**	**1.0900e-003**	**12.4796**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	15.9328	0.9416	0.0000	39.4727
Unmitigated	15.9328	0.9416	0.0000	39.4727

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Discount Club	78.49	15.9328	0.9416	0.0000	39.4727
Total		**15.9328**	**0.9416**	**0.0000**	**39.4727**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Discount Club	78.49	15.9328	0.9416	0.0000	39.4727
Total		**15.9328**	**0.9416**	**0.0000**	**39.4727**

9.0 Operational Offroad

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B

Climate Action Plan Consistency Checklist

APPENDIX D

CLIMATE ACTION PLAN CONSISTENCY CHECKLIST

Climate Action Plan Consistency Checklist Introduction

The Climate Action Plan Consistency Checklist (Checklist) is intended to be a tool for new development projects to demonstrate consistency with Pasadena's Climate Action Plan (CAP), which is a qualified greenhouse gas (GHG) emissions reduction plan in accordance with California Environmental Quality Act (CEQA) Guidelines Section 15183.5. This Checklist has been developed as part of the CAP implementation and monitoring process and will support the achievement of individual CAP measures as well as Pasadena's overall GHG reduction goals. In addition, this Checklist will further Pasadena's sustainability goals and policies that encourage sustainable development and aim to conserve and reduce the consumption of resources, such as energy and water, among others.

CEQA Guidelines Section 15183.5 allows lead agencies to analyze the impacts associated with GHG emissions at a programmatic level in plan-level documents such as CAPs, so that project-level environmental documents may tier from the programmatic review. Projects that meet the requirements of this Checklist will be deemed to be consistent with Pasadena's CAP and will be found to have a less than significant contribution to cumulative GHG (i.e., the project's incremental contribution to cumulative GHG effects is not cumulatively considerable), pursuant to CEQA Guidelines Sections 15064(h)(3), 15130(d), and 15183(b). Projects that do not meet the requirements in this Checklist will be deemed to be inconsistent with Pasadena's CAP and must prepare a project-specific analysis of GHG emissions, including quantification of existing and projected GHG emissions and incorporation of the measures in this Checklist to the extent feasible.

Applicability

This Checklist is only required for discretionary projects[1] that are subject to and not exempt from CEQA. Projects that are exempt from CEQA are deemed to be consistent with Pasadena's CAP, and no further review is necessary, with the exception of the Class 32 "In-Fill Development Projects" categorical exemption (CEQA Guidelines Section 15332), for which Projects are required to demonstrate consistency with the CAP through this Checklist.

[1] In this context a project is any action that meets the definition of a "Project" in Section 15378 of the State CEQA Guidelines.

Climate Action Plan Consistency Checklist Application Form

When required, the Checklist must be included in the project submittal package. The requirements in the Checklist will be included in the project's conditions of approval. The applicant is required to provide supporting documentation on how the proposed project will implement the measures identified in the Checklist to the satisfaction of the Planning & Community Development Department.

Step 1: Complete a Master Land Use Application Form (separate attachment)

Step 2: Demonstrate consistency with the Land Use Element of the General Plan

The growth projections outlined in the 2015 General Plan Land Use Element were used in Pasadena's CAP to estimate community-wide GHG emissions over time. Therefore, new development projects must be consistent with the Land Use Element to be consistent with Pasadena's CAP. In order for City staff to determine a project's consistency with the Land Use Element, please answer the following question and provide explanation with supporting documentation for each response.

Is the proposed project consistent with the existing land use designation of the Land Use Element?

☒ Yes ☐ No

If "Yes," proceed and complete Step 3 of the Checklist.

If "No," the proposed project may not tier from this document and must prepare a comprehensive project-specific analysis of GHG emissions and incorporate the measures in this Checklist to the extent feasible.

Step 3: Demonstrate consistency with Pasadena's CAP

Proposed projects which complete one of the following three options will be deemed to be consistent with Pasadena's CAP and will be found to have a less than significant contribution to cumulative GHG emissions (i.e., the project's incremental contribution to cumulative GHG effects is not cumulatively considerable), pursuant to CEQA Guidelines Sections 15064(h)(3), 15130(d), and 15183(b).

Please select one of the following options:

- [x] Option A: Sustainable Development Actions – Demonstrate that the proposed project is consistent with the Pasadena CAP by incorporating applicable actions intended to ensure that the project contributes its fair share to the City's cumulative GHG reduction goals

- [ ] Option B: GHG Efficiency - Demonstrate that the proposed project is consistent with Pasadena's per person GHG efficiency thresholds

- [ ] Option C: Net Zero GHG Emissions – Demonstrate that the proposed project would not result in a net increase in GHG emissions

Huntington Hospital MOB
758-766 S. Fair Oaks Ave.

Option A: Sustainable Development Actions

In order to complete this option, a proposed project must incorporate applicable Sustainable Development Actions to the satisfaction of the applicable City Departments. Incorporating these actions will ensure that the project is reducing its fair share of GHG emissions and support the achievement of Pasadena's overall GHG emissions reduction goals. For each action selected, please submit the requested documentation. If a mandatory action is not applicable to the project, please provide a description as to why that action cannot be implemented.

Mandatory Actions (all of the actions below are required)

GHG Reduction Strategy (Measure in Pasadena's CAP)	Sustainable Development Actions	Yes	N/A
		Check the appropriate box and provide explanation	
T-1.2: Continue to improve bicycle and pedestrian safety	**Bicycle Storage:** Does the project provide bicycle storage lockers, racks, or other bicycle storage facilities for residents/employees? Check "N/A" only if the project does not include residents or employees.	X	
T-3.1: Decrease annual commuter miles traveled by single occupancy vehicles	**Transportation Demand Management (TDM):** Does the project include a TDM plan? A TDM plan is required for the following projects: multifamily residential development that are 100 or more units; mixed-use developments with 50 or more residential units or 50,000 square feet or more of non-residential development; or non-residential projects which exceed 75,000 square feet. If applicable, please submit the TDM plan for review.	X	
T-4.1: Expand the availability and use of alternative fuel vehicles and fueling infrastructure	**Alternative Vehicle Fueling Wiring:** For projects with more than three parking spaces, does the project provide wiring for at least one 240V Type II electric car charger? Please include specifications on the project plans. Check "N/A" only if the project does not include more than three parking spaces.	X	
E-1.2: Encourage the use of energy conservation devices and passive design concepts that make use of the natural climate to increase energy efficiency	**Passive Design Features:** Does the project utilize passive design techniques such as awnings or overhangs on the east, west, and south facing windows which block the high summer sun but allow in lower winter sun? Please include specifications on the project plans.	X	
WC-1.1: Reduce potable water usage throughout Pasadena	**Irrigation Efficiency:** Will the project utilize drought tolerant landscaping and/or drip irrigation and/or weather controllers to reduce outdoor water use? Please include specifications on the project plans. Check "N/A" only if the project does not include any landscaping.	X	
WR-1.1: Continue to reduce solid waste and landfill GHG emissions	**Facilitate Recycling:** Does the project include a space for separate trash and recycling bins as well as provide informational signage/handouts for residents/employees outlining materials to be recycled? Please include specifications on the project plans.	X	

Selective Actions

In addition the mandatory actions, the proposed project must implement the following:

- One additional action in the Energy Efficiency and Conservation category
- One additional action in the Sustainable Mobility and Land Use category
- Three additional actions from any category

Energy Efficiency and Conservation (select a minimum of one action)

GHG Reduction Strategy (Measure in Pasadena's CAP)	Sustainable Development Actions	Yes	No
E-1.1: Increase energy efficiency requirements of new buildings to perform better than 2016 Title 24 Standards	**Zero-Net Energy (ZNE):** Does the project generate 100% of electricity required on site? ZNE calculations must be provided.		X
E-1.1: Increase energy efficiency requirements of new buildings to perform better than 2016 Title 24 Standards	**Energy Efficiency (Exceed 2016 Title 24):** Does the project exceed the 2016 Title 24 Efficiency Standards by at least 5%? Please include Title 24 energy model.	X	
E-4.1: Increase city-wide use of carbon-neutral energy by encouraging and/or supporting carbon-neutral technologies	**Renewable Energy:** Does the project generate at least 60% of the building's projected electricity needs through renewable energy? Please include specifications on the project plans.		X

Sustainable Mobility and Land Use (select a minimum of one action)

GHG Reduction Strategy (Measure in Pasadena's CAP)	Sustainable Development Action	Yes	No
T-1.1: Continue to expand Pasadena's bicycle and pedestrian network	**End-of-Trip Bicycle Facilities (Commercial Development):** Does the project provide at least one shower for every 50 employees? Please include these specifications on the project plans.		X
T-1.1: Continue to expand Pasadena's bicycle and pedestrian network	**Bike Share:** Does the project include a bike share station? Please include these specifications on the project plans.		X
T-3.1: Decrease annual commuter miles traveled by single occupancy vehicles	**Car Sharing:** Does the project provide/facilitate car sharing by providing a designated car share space on or within the immediate vicinity of the project site? Examples of car share options include ZipCar, PitCarz, and Getaround. Please include these specifications on the project plans.	X	
T-3.1: Decrease annual commuter miles traveled by single occupancy vehiclesT-3.1	**Parking De-Coupling:** Does the project separate the cost of parking from the cost of commercial space and/or residential housing by charging for each individually? Please include these specifications on the project plans.		X
T-3.1: Decrease annual commuter miles traveled by single occupancy vehicles	**Transportation Demand Management (TDM):** Does the project include a TDM plan? Please submit the TDM plan for review (Note: this measure cannot be combined with the mandatory measure that requires a TDM plan for projects that meet certain size thresholds.)		X
T-4.1: Expand the availability and use of alternative fuel vehicles and fueling infrastructure	**Alternative Vehicle Fueling Infrastructure:** Does the proposed project include functioning 240V Type II electric car chargers at 3% of parking spaces (at least one charger) AND conduit to allow for future charger installation to 25% of spaces?		X
T-5.1: Facilitate high density, mixed-use, transit-oriented, and infill development	**Transit Oriented Development:** Is the project located within 0.25 mile of a major transit stop as defined in the Zoning Code. Please include a map outlining the nearest transit stop.	X	
T-6.1: Reduce GHG emissions from heavy-duty construction equipment and vehicles	**Reduce GHG emissions from heavy-construction equipment:** Will the project utilize at least 30% alternative fueled construction equipment (by pieces of equipment) and implement an equipment idling limit of 3 minutes? Please provide idling limit plan including implementation strategies along with the total pieces of equipment and those utilizing alternative fuels.		X

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Water Conservation

GHG Reduction Strategy (Measure in Pasadena's CAP)	Sustainable Development Action	Yes	No
WC-1.1: Reduce potable water use throughout Pasadena	**Indoor Water Efficiency:** Will the project achieve at least a 35% reduction in indoor water use per the LEED V4 Indoor Water Use Reduction Calculator? Please attach the calculator output.		X
WC-2.1: Increase access to and use of non-potable water	**Rainwater Capture and Reuse:** Does the project utilize a rainwater capture and reuse system to reduce the amount of potable water consumed on site? Please include these specifications on the project plans.		X
WC-2.1: Increase access to and use of non-potable water	**Indoor & Outdoor Recycled Water:** Will the project be plumbed to utilize recycled water for either indoor or outdoor water use? Please include these specifications on the project plans.		X
WC-2.1: Increase access to and use of non-potable water	**Greywater:** Will the project be plumbed to take advantage of greywater produced on site such as a laundry to landscape system or another on-site water reuse system? Please include these specifications on the project plans.		X
WC-3.1: Improve storm water to slow, sink, and treat water run-off, recharge groundwater, and improve water quality	**Permeable Surfaces:** Is at least 30% of the hardscape (e.g., surface parking lots, walkways, patios, etc.) permeable to allow infiltration? Please include these specifications on the project plans.		X
WC-3.1: Improve storm water to slow, sink, and treat water run-off, recharge groundwater, and improve water quality	**Stormwater Capture:** Is the project designed to retain stormwater resulting from the 95th percentile, 24 hour rain event as defined by the Los Angeles County 95th percentile precipitation isohyetal map? Please provide the engineered stormwater retention plan with the project plans (http://dpw.lacounty.gov/wrd/hydrologygis/)		X

Waste Reduction

GHG Reduction Strategy (Measure in Pasadena's CAP)	Sustainable Development Action	Yes	No
WR-1.1: Continue to reduce solid waste and landfill GHG emissions	**Recycled Materials**: Does the project utilize building materials and furnishings with at least 50% (pre- or post-consumer) recycled content or products which are designed for reuse? At a minimum, projects must show at least 10% of the material by cost meets the recycled content requirement? Please submit the plan for review.		X
WR-3.1: Implement a city-wide composting program to limit the amount of organic material entering landfills	**On-Site Composting:** Does the project include an area specifically designated for on-site composting? Please include these specifications on the project plans.		X

Urban Greening

GHG Reduction Strategy (Measure in Pasadena's CAP)	Sustainable Development Action	Yes	No
UG-1.1: Continue to preserve, enhance, and acquire additional green space throughout Pasadena to improve carbon sequestration, reduce the urban heat-island effect, and increase opportunities for active recreation	**Greenspace:** Does the project include at least 500 sq. ft. of public use greenspace (landscaped yards, parklets, rooftop garden, etc.)? At a minimum, 50% of the required greenspace must include softscape landscaping (e.g., trees, plants, grass, etc.).	X	
UG-2.1: Continue to protect existing trees and plant new ones to improve and ensure viability of Pasadena's urban forest	**Trees:** Does the project result in a net gain of trees? Please include these specifications on the project plans.	X	

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Total Actions Taken

Sector	Actions Selected (#)	Actions Required
Mandatory Actions	6	6
Energy Efficiency and Conservation	1	1
Sustainable Mobility and Land Use	2	1
Water Conservation	0	0
Waste Reduction	0	0
Urban Greening	2	0
Total # of Actions Selected	11	
Total Required	*11*	

Supporting Documentation

Use the section below to provide supporting information describing how each selected Sustainable Development Action will be implemented in the proposed project. Additional information such as model outputs, invoices, and project plans should be noted below and attached to this submittal as needed.

Sustainable Development Action	Description of Project Implementation

Sustainable Development Action	Description of Project Implementation

Option B: GHG Efficiency

The efficiency threshold assesses the GHG efficiency of a proposed project on a service person (residents + full time employees) basis. This method recognizes that highly efficient projects (e.g., compact and mixed-use development) with relatively high mass emissions may nevertheless meet the local and State GHG reduction goals/targets. Using the demographic projections developed for the CAP, Pasadena has developed service person efficiency thresholds for the years of 2020, 2025, 2030 and 2035 which are consistent with Pasadena's GHG emission goals included in the CAP and the State targets it is designed to achieve (AB 32, SB 32, and substantial progress towards EO S-3-05). Applicants may decide to assess their proposed project's GHG emissions relative to Pasadena's GHG efficiency thresholds in lieu of completing the Sustainable Development Actions. Applicants should utilize standard GHG modeling techniques (such as CalEEMod[2]) to estimate total GHG emissions associated with the proposed project. Models should include all construction emissions (amortized over 30 years) and operational emissions. Total annual emissions should be divided by the proposed project's service population (residents + full time employees) to determine the efficiency of the proposed project using the following equation:

Proposed Project's GHG Efficiency = Annual GHG Emissions / Service Population (Residents + Full Time Employees)

The proposed project must be able to demonstrate a GHG efficiency which is less than or equal to the threshold listed below for the projects first operational year to be considered consistent with the Pasadena CAP and State targets it is designed to achieve. Refer to Appendix B for a complete description of the methodology used to calculate the efficiency thresholds.

Project First Operational Year	Threshold
2017 – 2020	5.63 MT CO_2e/Service Person
2021 – 2025	4.56 MT CO_2e/Service Person
2026 – 2030	3.57 MT CO_2e/Service Person
2031 – 2035	2.73 MT CO_2e/Service Person

[2] The California Emissions Estimator Model® (***CalEEMod***) is a statewide land use emissions computer model designed to provide a uniform platform for assessing air quality and GHG impacts associated with construction projects. Available at: http://www.caleemod.com/

Option C: Net Zero GHG Emissions

In lieu of Option A or B, applicants can demonstrate consistency with this CAP by demonstrating their proposed project would result in no net increase of GHG emissions. A proposed project can reduce its GHG emissions through the purchasing of carbon offsets issued by Climate Action Reserve[3] or other validated carbon offset registry to a level which results in zero net GHG emissions. The following methodology must be followed to prove zero net GHG emissions.

1. The applicant must model the proposed project's annual emissions using the most recent version of CalEEMod or equivalent model accepted by SCAQMD and/or CARB for CEQA purposes. Each model must include all emissions associated with the project including land clearing, demolition, earth moving, construction activities and operational related emissions such as energy use, water use, waste generation, transportation, area sources, and vegetation change, if applicable. The total annual operational emissions over 30 years as projected by the model should then be summed and added to the construction emissions to estimate the total lifetime GHG emissions associated with the project. CalEEMod is able to estimate operation related emissions over time taking into account changes to grid mix and vehicle fleet mandated by state legislation such as Renewable Portfolio Standard (RPS) and Pavley. Applicants should use CalEEMod forecasting to show overall GHG emissions and existing conditions (if applicable) should be modeled separately using CalEEMod for operations only and then subtracted from the project total to show the net change in GHG emissions.

   Example:
   Construction Emissions (1,000 MT of CO_2e) + Sum of Annual Emissions over 30 years (90,000 MT of CO_2e) – Existing Conditions (500 MT CO_2e) = 90,500 MT of CO_2e

2. The total emissions for the project must then be offset by Climate Reserve Tonnes or CRT's through the Climate Action Reserve marketplace. In the above example, the proposed project would be required to purchase 90,500 CRT's through the carbon marketplace. Offsets cost between $12-$15 as of September 2017 but prices are subject to changes in the carbon market. The marketplace can be found here: http://www.climateactionreserve.org/how/crt-marketplace/

The full CalEEMod output and verification of the CRT's purchased must be provided to the City of Pasadena as part of the review process.

[3] The Climate Action Reserve can be considered a bank which holds credits that amount to 1 metric ton of CO_2e per Climate Reserve Tonne (CRT). These credits get their reduction value through projects which reduce GHG emissions such as renewable energy development or through carbon sequestration. Those projects can sell CRT's equal to the amount of GHG emissions reduced. Other projects, can then purchase those CRT's to offset their own emissions. For more information see the Technical Appendix B of the Climate Action Plan